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Planning in the front end of Flagship Projects post-disaster: A Canterbury earthquake study

A thesis presented in partial fulfilment of the
requirements for the degree of

Doctor of Philosophy
in
Construction Management

at Massey University, Albany, New Zealand.

Witharanage Lourdes Niransha Rodrigo

2022

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Explanation of COVID-19 Impacts

Thank you for taking the time to examine this thesis, which has been undertaken during the Covid-19 pandemic. The New Zealand Government's response to Covid-19 includes a system of Alert Levels which have impacted upon researchers. Our University's pandemic plan applied the Government's expectations to our research environment to ensure the health and safety of our researchers, however, research was impacted by restrictions and disruptions, as outlined below.

For a six-week period from March 26 to April 27 2020, New Zealand was placed under very strict lockdown conditions (Level 4 – [Lockdown](#)), with students and staff unable to physically access University facilities, unless they were involved in essential research related to Covid-19. All field work ceased and data collection with humans was restricted to online methods, if appropriate. The restrictions were partially lifted on April 27, but students and staff were not generally allowed back into University facilities until May 13.

Ongoing disruptions have also been encountered for some students due to uncertainties over the potential for future Covid-19-related restrictions on activities, and a Covid-19 cluster outbreak based in Auckland in New Zealand on 12 August 2020 led to the imposition of rolling Level 2 ([Reduce](#)) and Level 3 ([Restrict](#)) conditions until 23 September 2020. Auckland campus-based students remained on Level 2 until 7 October 2020. This Alert Level system continues to be utilised throughout 2021.

These changing Alert Levels have meant that some research students had experimental, clinical, laboratory, field work, and/or data collection or analysis interrupted, and consequently may have had to adjust their research plans. For some students, the impacts of Covid-19 stretched far beyond the lockdown period in April/May 2020, as they may have had to significantly revise their research plans.

Overseas travel is not permitted by the University and restrictions have been placed on the New Zealand borders which are closed to non-New Zealand citizens and permanent residents. This meant that international students who were based offshore at the time of lockdown, were unable to return to New Zealand. A small number of offshore students were provided permission to return to New Zealand in early 2021. Many students have also suffered from anxiety and stress-related issues, and have had financial impacts, meaning their research progress has been significantly delayed.

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Student Name: Witharanage Lourdes Niransha Rodrigo

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Date: 22/06/2022

Thesis title: Planning of Flagship Projects Post-Disaster: A Canterbury Earthquake Study

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As a result of the Covid-19 pandemic, I could not spend time on my thesis as I would have liked. I am the mother of two young children, then aged 4 and 7. Whilst in lockdown, my husband, continued to work as an essential worker, and I had to care for my children full-time during the day. I did work a few hours at night but that could not be sustained due to family commitments. I applied and got approved suspension each time we went into lockdown.

Moreover, the scope of the study had to be limited to New Zealand alone. The initial plan was to cross check the findings with another data collection round in Australia to make the findings and guidelines more applicable to Australasia. Due to lockdowns, borders remaining shut, the participant being reluctant to commit to virtual interviews, the difficulty of arranging a virtual group discussion due to the barriers to working from home, the data collection in Australia had to be limited to the pilot study.

A focus group interview to validate the findings was one of the objectives that had to be removed due to time constraints.

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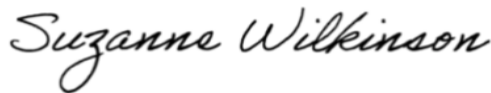
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Abstract

In the recent past, governments around the world have been using large public-funded projects to rebuild their disaster-stricken cities. Large public-builds, better known as flagship projects, have come under scrutiny due to unfavourable project outcomes. The continuity to under-deliver expected outcomes leaves a question about the relevance of flagship projects.

Governments around the world continue to invest millions of taxpayer money into large builds. Marysville - a rural town in Victoria, Australia, spent a similar proportion on flagship projects to Christchurch following the Black-Saturday bushfires. Flagship projects post-disaster rarely attract favourable attention. There has been no previous research that explores the outcomes or the root cause of the negative impacts of flagship projects. Ten years post-disaster Marysville flagship projects have not been assessed to check the outcomes against objectives.

Driven by the lack of research into flagship project outcomes and their causes, the researcher intends to understand how planning in the front end affects flagship projects in post-disaster rebuilding. The findings will be used to produce a set of guidelines for the planning of future post-disaster flagship projects. The researcher intends to assist government planners in determining if flagship projects would support rebuilding post-disaster by following the guidelines generated using the data of this study.

The researcher used a case study approach to fulfill the research aim. A pilot study in Marysville, Australia, using a Grounded Theory approach, revealed that most factors that cause adverse project outcomes are linked to the planning in the front end. The study findings showed that top-level governance arrangements, early planning, and stakeholder management in Front-End Planning have a significant impact on project outcomes. A data-driven model obtained through the analysis formed the basis of the main study.

The main literature study was conducted in phases to eliminate bias that could potentially affect Grounded Theory data analysis. The process revealed that pilot study data influenced a revision to the traditional Font-End Planning process. Marysville pilot study revealed that government project planning officials spent time understanding the situation created by the disaster. This activity appeared ahead of the feasibility phase. A modified version of the model included pre-feasibility, feasibility, concept, and detailed scope stages as phases of the Front-End Planning process. The findings informed the differences between routine and post-disaster public projects in the Front end Planning process. The data suggested that Stakeholder Management

is a cross-phase activity starting at inception and continues right through to the detailed scope stage and beyond.

The main research study was focused on three flagship projects in the Central Business District of Christchurch. The city faced a devastating sequence of earthquakes in 2010-2011 that had scrapped the city of its key buildings. The government planning officials put in place a strategy to rebuild through 17 flagship projects. The researcher adopted a qualitative method that used face-to-face interviewer data to explore three projects to achieve research objectives.

The FEP process criteria identified through the pilot study and the previous literature were then applied to the case studies. The researcher adopted a qualitative study approach to construct the theory and used semi-structured face-to-face interviews as the data collection method. Thirty-four expert respondents were interviewed. The interviewees covered all major stakeholder categories for flagship projects in Christchurch, and they belonged to the highest level of decision-makers in their organisations, except for the frequent users of the public facilities in question. The data gathered through the case studies revealed that the projects that more or less followed all of the proposed steps in the front-end planning process had better project outcomes. Some of the adverse outcomes of the projects that followed the FEP process thoroughly still had some negative impacts. The negative impacts were caused by external factors outside of the control of the project owners. Governance at the portfolio level seems to have a lesser effect on projects that were fully Crown-funded. Large projects that allow sufficient time for FEP, specifically in the Pre-feasibility phase, feasibility phase, concept phase, and detailed scope phase seem to avoid detrimental project outcomes.

A set of planning guidelines for future government planning officials has been formulated based on the evidence of the case studies. The guidelines address all four areas of the FEP process and follow the process revealed within the study.

The research fills the gap where Emergency management frameworks/guidelines only consider immediate recovery following large-scale disasters. Unlike other planning guidelines, the guidelines produced as the output of this study appreciates the effect different governance arrangements may have on the planning of large public projects. With an understanding of governance arrangements post-disaster, the guidelines can be altered and used as a guide to inform better decision-making regarding large public builds post-disaster.

Keywords - Anchor projects, Black Saturday Bushfires, Canterbury Earthquakes, Flagship projects, Front-End Planning, Governance of projects, planning guidelines, and post-disaster rebuilding.

Abbreviations and Acronyms

BBB	Build Back Better
CCC	Christchurch City Council
CCCL	Christchurch Central City Library
CCDU	Christchurch Central Development Unit
CCRP	Christchurch Central Recovery Plan
CERA	Canterbury Earthquake Recovery Authority
CJESP	Christchurch Justice and Emergency Services Precinct
CRCs	Community Recovery Committees
CSFs	Critical Success Factors
DG	Decision Gate
FEP	Front-End Planning
LRA	Louisiana Recovery Authority
NZ	New Zealand
QldRA	Queensland Recovery Authority
VBARRA	Victoria Bushfire Recovery and Reconstruction Authority

Clarification of Terms

The table below explains key terms and definitions within this thesis to achieve congruence between the author and the audience.

Term	Definition
CERA	Canterbury Earthquake Recovery Authority was established as a government department on 29 March 2011 to take the lead in coordinating the NZ government's response and recovery efforts towards the 2011 earthquakes in Canterbury. CERA was disbanded on 18 April 2016.
CCDU	In April 2012, Christchurch Central Development Unit was established as a sub-unit within CERA to design a blueprint of flagship projects for the CBD of Christchurch within 100 days.
CCRP	Christchurch Central Recovery Plan is the blueprint plan for central Christchurch. The CCC initiated the plan after the passing of the Canterbury Earthquake Recovery Act. The CCDU developed the final version of the CCRP under the guidance of CERA within 100 days.
CDEM	Civil Defence Emergency Management (CDEM) is a group that combines local councils, emergency service providers, health boards, and other agencies to coordinate services for emergency management. It does public work to reduce the potential effects of hazards, increase preparedness for emergencies and extend help to communities to recover post-disaster.
Central Government Planners	All central government entities who take the lead in the initial planning of the flagship projects. In the context of the study, top government officials who led the projects belong to the category of planners within the thesis whenever the term is used.
Construction company/the builder/the contractor	The terms are used interchangeably to mean the entity responsible for building the project/building
Iwi	Iwi, which often translates to 'tribe' or 'nation', are the largest social units in the NZ Māori society.
Māori	The Māori are the first people or the indigenous people to live on the islands of New Zealand
Matapopore Charitable Trust	An organization striving to ensure the aspirations, narratives, and values of Ngāi Tūāhuriri people are reflected in the recovery efforts in Christchurch
Ngāi Tūāhuriri	Ngāi Tūāhuriri is one of the primary cultural subdivisions of Ngāi Tahu.
Ngāi Tahu	Ngāi Tahu are the Māori people of the southern islands of New Zealand that belong to the largest Māori tribe
Ōtakaro Limited	The entity responsible for delivering the Crown-led flagship projects in the Central Christchurch
The Public Service Commission	The central public service body for overseeing, managing, and enhancing the services of the state sector and its branched entities in NZ

Synopsis of the research

Title	Planning in the front end of Flagship Projects Post-Disaster: A Canterbury Earthquake Study
Research Aim	To understand the Front-End Planning [FEP] of flagship projects and develop a set of best-practice decision-making guidelines for the planning of such projects after a disaster event
Research objectives	<ul style="list-style-type: none"> • Understand why flagship projects are used in post-disaster reconstruction • Identify how governance of projects affects the FEP process • Identify how the Front End Planning of a flagship project impacts the project outcomes • Investigate the social outcomes of flagship projects in a post-disaster context • Formulate a set of best-practice planning guidelines for the future planning of flagship projects
Methodology	Multiple case study
Methods	<p>Case study and study participants</p> <p>Purposive participant selection and recruitment</p> <p>6 groups of stakeholders</p> <p>1 location</p> <p>3 case studies</p> <p>Data generation and collection</p> <p>Semi-Structured face-to-face interviews</p> <p>Documentary Evidence</p> <p>Fieldnotes</p> <p>Memos</p> <p>Data Analysis</p> <p>Grounded theory analytical technique for the pilot study</p> <p>Coding and categorising of data</p> <p>Constant comparative analysis</p> <p>Memo keeping</p> <p>Storyline development</p> <p>Document analysis</p> <p>Cross-case analysis</p> <p>Data management tools</p> <p>MS Note</p> <p>MS Word/Excel</p> <p>NVivo</p>
Interpretive rigour and quality	<p>Researcher reflexivity</p> <p>Quality evaluation</p> <p>-Thesis as the final product</p> <p>-The process followed by the researcher</p>

	Ethical consideration
	Study Limitations
Findings and recommendations	<p>FEP for post-disaster construction differs from the approach taken for a routine large-scale project. FEP is affected by the governance of projects. The data suggested the inclusion of a pre-feasibility stage at the start and managing stakeholders throughout the four FEP stages. Flagship projects need to spend sufficient time in FEP, specifically in the Pre-feasibility phase, feasibility phase, concept phase, and detailed scope phase to avoid detrimental project outcomes. A set of best-practice planning guidelines has been produced to aid government planners in deciding to invest in large-scale post-disaster projects. The proposed guidelines may need to be altered according to the location/country of the disaster.</p>

Notations within the thesis

The researcher has used clear notations to identify interviewees in the pilot study and the main study separately.

Explicit notations are used to facilitate the readability and comprehension of the situational nature, sense, and stress on specific content. These are presented in the table below.

R₁	Respondent	Used at the end of participant quotations along with the number allocated to each participant within the case study
P₁	Participant	Used at the end of participant quotations along with the number allocated to each participant within the case study
Text in italics	Quotations of the participants	Used for participant quotations that are used to support what is being said
[]	To refer to tables and figures	Square parentheses have been used to differentiate from those used for in-text citations.

Publications emerging from this research study

Journal Publications

Rodrigo, N., & Wilkinson, S. (2021). Impact of flagship projects on the recovery of a city post-disaster. *International Journal of Disaster Risk Reduction*, 58, 102191.
doi:<https://doi.org/10.1016/j.ijdr.2021.102191>

Rodrigo, N., & Wilkinson, S. (2020). Impact of post-disaster government policy on reconstruction: A case study of post-earthquake Christchurch, New Zealand. *Journal of Construction Supply Chain Management*, 10(02), 172-193.

Conference Papers

Rodrigo, N., & Wilkinson, S. (2020). *A Review of Innovative Approaches to Rebuilding Following Large-scale Natural Disasters: A Case Study of Post-earthquake Christchurch, New Zealand*. Paper presented at the 6th New Zealand Built Environment Research Symposium, Auckland, New Zealand.

Conference posters

Rodrigo, N. (2019). *Communities at the core of urban planning - Do they lead or are they misled?* Poster presented at the Australian Disaster Resilience Conference, Melbourne, Australia.

Rodrigo, N. (2018). Reviewing Issues with Anchor Projects in Christchurch following the Earthquakes in 2010-2011. In. New Zealand: University of Canterbury.

Acknowledgments

This PhD journey has tested me as a person, a wife, a mother, and a scholar. The four-year journey has been a challenge most of the time, yet undoubtedly will be a rewarding one. I'm deeply indebted to my primary supervisor Professor Suzanne Wilkinson, for believing in me, giving me the space and freedom I needed to thrive in my strengths, yet stepping up whenever I needed her assistance. She understood my skills as well as my circumstances, which kept me going through the most unprecedented times. As I always say, however confused, lost, or disheartened, I may have been at times; once I walked out of her office room, I had a new lease of life to continue stronger than ever.

I cannot begin to express my immense gratitude to my Co-Supervisor, Associate Professor James Rotimi who took me under his wings late in the process, so I would have someone who could give me a different perspective on things. His offers of continuous help and encouragement made a huge difference.

I'd like to extend my gratitude to all my study participants, whom I never knew personally. When I traveled to Australia, I had doubts about reaching an acceptable number of participants, but after a mere introduction to the study and its purpose and benefit, many came on board. Every one of them accepted my request to be a participant without any incentive but only considered the advantages of further exploring this under-researched subject area. The responses and insights of the 'experts in the field' gave this study the significance it can boast of.

I cannot forget my colleagues who further opened my mind to the many untravelled research paths that got me thinking productively. Along with those knowledge-adding moments, the banter and the sharing of meals across the table kept me sane throughout the four years. Especially Chanti, those times of companionship will forever remain close to my heart.

I am grateful to the funders of this research. First, the National Science Challenges: Resilience to Nature's challenges whilst at the University of Auckland and then the scholarship from the School of Built Environment at Massey University towards the second half of the study. Being funded for study lifts a lot of pressure off the mind, which is difficult to put down in writing.

My heart goes out to my mother, who boosted me with continuous reassurance and faith across thousands of miles. She taught me to visualise my success and reminded me of the reasons I am pursuing a PhD. You will always be the glue that keeps me together. My father had an innocent hope to see me becoming a 'Dr.' He will be celebrating my success in silence. I would always wonder how he always had just enough money to financially help me do whatever I wanted to do in life, without a doubt that I would spend it wisely.

Lastly, the two beautiful and tiny humans who had to undergo many changes due to my decision to pursue this study. May you always know deep inside you that I had reasons for taking time to be away from you. May you always look back on those times (if you can recall) and realise that my decisions made your lives more beautiful, and in every single instance, you remained my priority. I treasure those moments when you let me work in silence and uninterrupted. I want you to know that those moments made all the difference.

I cannot help but appreciate that my husband made me realise the strengths that I never knew existed within me. Thank you for showing what I am capable of.

To my darling angels in heaven, my great-grandmother, my grandfather, and my grandmother, your love is still with me every passing day. May you beam in pride to see me reaching higher.

To all my teachers, my true friends and well-wishers, and those who may have helped without me knowing and those who helped without any expectations, I must have done something right in life to deserve all your kindness.

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Chapter 1 Introduction

1.1 Introduction

This chapter introduces and justifies the choice of the study presented in this thesis. The chapter commences with the impetus for the research leading to a summary of the extant literature on flagships post-disaster. The aims, objectives, and significance of the research then follow, emphasizing the void that this research will fill in the broader context of disaster rebuilding within New Zealand. The researcher provides a section containing the research methodology and the rationale for a case study research design, followed by a description of the researcher's position within this study. The chapter is concluded with an outline of the chapters contained within this thesis.

1.2 The impetus for the study

I was unfortunate to witness yet lucky enough not to be directly affected by the Indian Ocean tsunami in Sri Lanka in 2004. I was amazed at the work that goes into managing a disaster and heard numerous reconstruction stories where the dedicated funds had been poorly spent on low-quality builds. Then there was the Christchurch earthquake in 2011, which in its aftermath had a series of projects lined up for city revival. The impetus for this study came from a keen interest in learning how best to use the second chance given to a city once it undergoes a disaster event. The incentive to explore the role and impact of flagship projects came from a conversation with my supervisor early on in my PhD journey. The researcher noticed a repetitive emergence of flagship projects being of 'little use,' 'expensive to maintain and run', 'economically risky', and 'poorly planned' through early readings (Adam, Josephson, & Lindahl, 2017; Locatelli, Mariani, Sainati, & Greco, 2017; O'Neill, 2015b). Post-disaster recovery programmes, including public rebuilding projects, were known to have no formal reviews after completion (Ryan, Wortley, & She, 2016; Volden, 2018; M. Welde & Volden, 2018). The lack of monitoring, control, and review was evidence that the impact of these projects on the immediate community would not have been fully understood by the planners or the owners of the projects, as they remain unaware if the costs are justified and the objectives are met (Ryan et al., 2016). These initial findings identified a gap in the literature about the role of those projects in the economic and social revival of a place following a disaster.

It is vital to place flagship projects in context, to perceive the pressing need to understand and adopt ‘flagship’ projects as a novel concept in post-disaster rebuilding. The following section in this chapter strives to achieve this by defining the current disaster context, followed by demonstrating the need to rebuild and the role of flagship projects within that context, which is the foundation of this thesis. The subsequent sections will form the research framework for the proposed study in greater detail.

1.3 Existing knowledge

Increasingly more frequent disasters worldwide call for city planners to have a more systematic way of rebuilding. In recent years, urban planning in the wake of grand-scale disasters has embraced a wide range of urban regeneration practices, from culture-led regeneration projects to flagship projects (Ozcevik, Turk, Tas, Yaman, & Beygo, 2009; H. Smyth, 1994; Spirou, 2006) to heritage and event-led regeneration (Hayes & Karamichas, 2011; Pendlebury, 1999; Rypkema, 2003; Wise & Harris, 2017). The decisions regarding these projects, even though they may have to be made in haste, will have to focus on the long-term revival of the city and, therefore, will need to be elements of a broad and flexible plan (Canterbury Earthquake Recovery, 2012). Some researchers have challenged the notion of revival, pointing out, ‘What could revival mean?’ And ‘What could represent the benchmark or the aim of revival?’ for a city that was in decline prior to the disaster (Murakami et al., 2014; T. Uchiyama, 2011). Supporting this claim further, some researchers remained critical of top-down recovery policies that lack a specific aim, with a sole focus on ‘building tangible assets’, whereas for people, ‘building relationships’ are also critical (T. Uchiyama, 2011).

In recent times, cities across the globe have incorporated large-scale rebuilding projects into the wider city rebuilding plans to revamp the pre-disaster image the cities possessed (Jeleński, 2018). These projects have become a significant element in the recent post-disaster recovery scenarios worldwide (Aldrich, 2017; Collier, Cox, & Grove, 2016; Iuchi, Johnson, & Olshansky, 2013). More recent examples of flagship projects include those in the USA following Hurricane Katrina [2005], Australia in the aftermath of Victoria Black Saturday Bushfires [2009], Japan after the Great East Japan Earthquake [2011], and New Zealand post-earthquake [2010-2011] albeit with varying degrees of scale and success.

The term ‘anchor’ projects was commonly used when referring to large-scale public projects planned for Christchurch post-earthquakes (Amore, 2016; Amore & Hall, 2016; Gjerde, 2017; McCloud et al., 2014; Rodrigo & Wilkinson, 2021). Researchers have used the terms ‘Priority

projects' (Callegari, 2012; McCarthy, 2014), 'Flagship projects' (Ngare, 2017; Ozcevik et al., 2009), or 'Catalyst projects' (O'Neill, 2015b; Roberts Day, 2009) interchangeably in literature dealing with similar projects to those that are built in post-earthquake Christchurch. Hereon, the thesis will use the term 'flagship projects'. The reason for using the term is because it is the most commonly found in related research in the recent past, and for most of the projects that have been proposed for the future that are defined in similar terms (Agunbiade, Olajide, & Bishi, 2021; Alaily-Mattar, Büren, & Thierstein, 2019; De Bruyn, 2019; Riedel, Kovacs, Zoller, Mlynek, & Calarco, 2019).

Flagship projects are projects that encourage further investments as a marketing tool to sell a place (H. Smyth, 1994; Taşan-Kok, 2010). It is understood that this trend in urban regeneration started over four decades ago, especially in the larger European and North American metropolitan cities (Loftman and Nevin, 1995). Those projects have been used in large cities to revamp their existing receding urban areas (Loftman and Nevin, 1994, Smyth, 1994 Bianchini et al. 1992, Ozcevik et al., 2008). According to Loftman and Nevin (1996), these projects were interwoven into social and economic public policies in order to create a new international image for the city. Sydney Opera House-Sydney, Guggenheim Art Museum-Bilbao, Superdome-New Orleans, and The Bullring-Birmingham, exemplify buildings that gave remarkable turn-around for cities that have been struggling economically (Loftman and Nevin, 1995).

Flagships are typically large in scale but sometimes can be a small development directed at a niche market (Kent, 2009). Those projects can range from waterfront developments, housing developments, tourist attractions, high-end shopping complexes, cultural amenities, museums, stadia, art galleries, etc., that stand out due to their spectacular nature to bring a global feel to a local setting (B. Doucet, Van kempen, & Van weesep, 2011; Smith, 2006). Flagship projects create an interest within the public, especially around the questions of costs, beneficiaries, sponsors, and the use once completed, fueled mainly by the fact that those projects are often public-led (Alaily-Mattar, Dreher, Wenner, & Thierstein, 2017; Taşan-Kok, 2010).

In the thesis, Flagship projects will be defined as large-scale, public/government-funded projects that stimulate the economy to bring inward investments to surrounding areas.

Expanding the above definition, flagship projects are expected to lead rebuilding after disasters to ensure inward investments that help the growth of building stock and develop a given location, preserve identities, and aid economic growth (Taşan-Kok, 2010). Those projects are

designed as center points for investment generation and provide an opportunity to rebuild on strengths, eliminate pre-disaster urban design weaknesses, and aid growth. However, there is much debate about whether these projects serve the purpose they were created for. ‘Flagship’ projects are criticized for being too slow to evolve, too costly to run, and little relevant to longer-term economic strategies and urban design (O’Neill, 2015b).

Challenges facing large public projects include methodological difficulties in conducting Cost-Benefit Analysis (O Klakegg, Williams, & Shiferaw, 2016; Vickerman, 2007), non-engagement in Front-End Planning (O Klakegg et al., 2016), optimism bias, and strategic misinterpretation (Cantarelli, Flybjerg, Molin, & Van Wee, 2013; Flybjerg, 2006, 2008, 2013a; O Klakegg et al., 2016), cost overruns caused by material price cost fluctuations/resource issues (Baloyi & Bekker, 2011; Y. Chang, Wilkinson, Brunsdon, Seville, & Potangaroa, 2011; Doloi, Sawhney, Iyer, & Rentala, 2012), design changes and incomplete designs by the architect (Baloyi & Bekker, 2011; Doloi et al., 2012; Lessing, Thurnell, & Durdyev, 2017) slow decision-making (Doloi et al., 2012; Eid & El-Adaway, 2017) to name a few. Challenges faced by all public construction projects apply to larger public-funded projects. It is unclear what factors are unique to the latter. Those challenges need to be understood and tackled early on to avoid unsuccessful delivery of a project or even failure.

1.4 Aims and objectives of the project

This research aims to understand how Front End Planning [FEP] affects flagship projects in post-disaster rebuilding and to produce a set of guidelines for future planning of post-disaster flagship projects. Research in post-disaster reconstruction has not answered the question of the usefulness of these projects in the rebuilding process following a natural disaster. The research will first explore the immediate project outcomes of flagship projects in Marysville following Victoria Black Saturday bushfires in 2009 as the pilot study. The pilot study findings will confirm the direction of the research leading to the investigation of the three case studies in Christchurch after the earthquakes from 2010 to 2011. Both incidents resulted in the governments undertaking flagship projects to rebuild their towns and cities.

1.4.1 Aims

This research study aims to understand how planning in the front end affects flagship projects in post-disaster rebuilding and to produce a set of guidelines for the planning of post-disaster flagship projects. The researcher intends to assist government planners in determining if

flagship projects would support rebuilding post-disaster by following the guidelines generated using the data of this study. In this pursuit, the following objectives are considered.

1.4.2 *Objectives*

The following comprises the main objectives of the study.

- Understand why flagship projects are used in post-disaster reconstruction
- Identify how governance of projects affects the FEP process
- Identify how the Front End Planning of a flagship project impacts the project outcomes
- Investigate the social outcomes of flagship projects in a post-disaster context
- Formulate a set of best-practice planning guidelines for the planning of flagship projects

1.5 **Significance of the research project**

Critics of flagship projects at the end of the 19th century focused on the prerequisites for urban regeneration as a place recovers from a disaster (Ozcevik et al., 2009). Researchers have underlined the significance of capacity building to maintain social capital, restructuring planning protocols, and strengthening the legal environment and concluded with the possibility of using Flagship projects to influence social, economic, and financial aspects and related establishments around them in a positive manner (Deshmukh & Hastak, 2014; Ozcevik et al., 2009).

In the mid-nineties, (Loftman & Nevin, 1995; P. Loftman & B. Nevin, 1996) conducted extensive research on the usefulness of prestige projects (as a hybrid version of flagship projects) to urban regeneration. They discussed whether these projects could revamp these cities and their benefits and limitations. However, the studies were limited to the United Kingdom and were not explicitly focused on reconstruction following a disaster. Flagship projects following a disaster have a different connotation, given the period of time they are being built. Research into these projects is minimal.

A literature search on projects following a disaster confirms that the real effect of post-disaster reconstruction projects on the neighbourhood, city, and regional level must be studied extensively (Sadiqi, Coffey, & Trigunarsyah, 2012; Temelová, 2007; Tumini, Villagra-Islas, & Herrmann-Lunecke, 2017). Researchers continue to focus on whether large investment projects are well-connected to the long-term growth of the local economy, deliver the promised, or are simply a burden to the local economy (Boland, Bronte, & Muir, 2017; Edgington, 2008;

Locatelli et al., 2017). Beygo et al. (2006) suggested that an understanding of the overall effect reconstruction projects have on the surrounding neighbourhood, the city, and the region, within the broader reconstruction phase may generate significant evidence on the ‘disaster management’ and ‘urban regeneration’ relationship (Ozcevik et al., 2009). There is a lack of use of social capital due to the restrictions of power hierarchies and cultural structures. Those barriers cause disparities among different geographical locations subjected to disaster, that call for investigations into reconstruction planning and recovery from disasters (Ward, 2021).

Most literature on post-disaster reconstruction focused on ‘housing reconstruction,’ discussing both issues and critical success factors for money-worthy projects (Ade Bilau & Witt, 2016; Bilau, Witt, & Lill, 2015; Ophiyandri, Amaratunga, Pathirage, & Keraminiyage, 2013; Pamidimukkala, Kermanshachi, & Safapour, 2020). The limited number of available studies on reconstruction projects mainly dealt with project management challenges (Kulatunga, 2011; Sospeter, Rwelamila, & Gimbi, 2020), public sector participation, and its effects on reconstruction projects (Hayashi, 2012; Imperiale & Vanclay, 2020; Robert B Olshansky & Johnson, 2014; Samad, Ali, & Khairil, 2021; J. Xu & Shao, 2020), Build Back Better and resilience (Amaratunga & Haigh, 2011; Mannakkara, 2014; Mannakkara & Wilkinson, 2013a, 2013b; Rahmayati, 2016; Wisner, 2017) and lessons learned from individual and cross-case analysis of case studies (Hayashi, 2012; Imperiale & Vanclay, 2020; Jordan, Javernick-Will, & Amadei, 2015)

This research project contributes to exploring how Front End Planning [FEP] affects flagship projects in post-disaster rebuilding and producing a set of planning guidelines for future post-disaster flagship projects to better integrate those projects into the wider city-rebuilding efforts following disasters.

For the purpose of this research, large-scale public projects will be addressed as ‘flagship’ projects, as it is the most commonly used term in literature focusing on similar projects (Alberto & Hall, 2021; Amore, 2019; Arefian, 2018; Bahmani & Zhang, 2022; Camponeschi, 2022; Kancharla, 2019; Koukoufikis, 2019).

1.6 Study design

This study was limited to the Australasian context, with the cases selected being limited to public sector reconstruction projects, considering the majority of flagships to be government-funded in post-disaster situations. Those projects selected as the case studies fit the definition

of and criteria for ‘Flagship Projects’ as the kinds of building projects that bring about positive spillover benefits. The pilot case study was chosen as there has been considerable time to realize the impact of those flagships on the community ten years after the fires in Victoria, Australia. The location of cases was limited to two – Marysville, Australia, and Christchurch, New Zealand, mainly due to the proximity and the ease of access to the actual sites. In the first stage, all eight project sites in Marysville were visited, explored, and scrutinised through interviews to determine factors limiting project outcomes. A robust process of data collection through field trips (semi-structured interviews and documentation) allowed for data triangulation, followed by data saturation during case analysis. The first case study of Marysville resulted in factors that caused project limitations derived using grounded theory and also helped refine and finetune the interview questions and shift focus on a different set of stakeholders. The factors found through the pilot case were then reconsidered for applicability to Christchurch while appreciating the differences in how flagships affect a small town and an urban city.

1.7 Research scope and limitations

There are limitations to the study where not all flagship projects within the case studies are selected. During the initial phase, all eight flagship projects were considered in general. During the main data collection phase, only three out of the seven completed flagship projects were selected for two reasons. The first is the need to study the projects in depth. A larger number of projects would not be feasible for thorough exploration due to time and scope limitations. Second, recently completed projects may be too soon to be assessed for their impacts and search for lessons learned on the strategic effects on a city.

The study will focus on understanding how planning in the front end affects flagship projects in post-disaster rebuilding using case studies in:

Australia – the pilot study using 11 stakeholder interviews attempted to understand the limitations of Flagship projects following the Black Saturday bushfires in 2009 to identify the reasons for the limitations of Flagship projects. The pilot study tested the appropriateness of the methodology for the main study. The data revealed that most factors that affect project outcomes are linked to Front-End planning. The researcher shifted their sole focus to Front-End Planning in the main study. A model for Front-End Planning using the criteria identified in the study was used as the basis for data collection and analysis in the main study.

Christchurch – The researcher tried to find out the reasons for the governments to adopt flagship projects in their rebuilding initiatives, how the Front End Planning affected the project outcomes and the social impacts of the flagship projects once handed over to the public. All of the insights fed into a set of guidelines for planning flagship projects in the front end if a government considers incorporating flagships into the long-term reconstruction efforts.

Christchurch earthquakes 2010-2011 were chosen as the main case study because the projects undertaken by the New Zealand Government and the Christchurch City Council are substantial in scale and costlier than most other rebuilding programmes by other countries following a disaster. Ten years have passed since the earthquakes, and only about 30% of the proposed projects have been delivered.

1.8 Thesis organisation and overview

To frame the study at the onset, a series of issue questions have been developed to focus on the research aim, questions, and design (Stake, 2006). Simons (2014) called those ‘foreshadowed issues’, a guide to ensure that the researcher remains transparent in their initial outlook of the topic. Those are presented in Table 1 below.

Table 1 Associating research questions to issue questions

Research Question	Issue Question	Topic
Why are flagship projects used in post-disaster reconstruction?	There is no clear reason provided in literature as to why the governments take on flagship projects. Why do governments undertake flagship projects?	Objectives of flagship projects Chapter 2
How does the governance of projects affect the FEP process?	Government decisions affect public project planning. How do post-disaster governance changes affect project planning?	Chapter 5
How does the Front End Planning of a flagship project impact the project outcomes?	Given the unique post-disaster environment that is different from the environment faced by the routine project, how do flagship project teams manage the FEP? Is the FEP of a post-disaster public reconstruction project the same as a regular public reconstruction project?	FEP Chapters 6,7,8,9 FEP Process Chapters 6,7,8,9

What social outcomes do flagship projects generate in a post-disaster context?	Flagship projects use taxpayer money and are difficult to run and maintain. How do flagship projects affect society?	Social outcomes Chapters 6,7,8,9
What are some best-practice planning guidelines for the early planning of flagship projects?	There are no guidelines for the FEP decision-making. How do we ensure better social outcomes by managing the FEP of flagship projects The general public sees little use in those projects. Have the flagships that have been delivered, serve the purpose/objective?	Guidelines Chapter 10

In more detail, the thesis is organised into 11 chapters as follows.

Chapter 1 : Introduction: This chapter fulfilled the intention of introducing and providing an overview of the study. The chapter opened with a section on the impetus for the research and the existing knowledge about the study topic. The researcher justified the research significance and presented the research aim, questions, and research methodology employed within the study. The researcher ended the chapter with an explanation of their position within the research.

Chapter 2 Literature Review: This chapter extends the ‘existing knowledge’ section presented in Chapter 1. The background and existing literature relating to flagship projects are discussed, along with practical examples of those projects worldwide. The literature presented in the chapter also gives an overall idea about those projects by examining the features inherited by flagships in general, why those projects are favoured by the governments and their shortcomings. The chapter then moves on to literature on the front-end planning of those projects, specifically focusing on the NZ context.

Chapter 3 Methodology and Methods: This chapter presents a thorough examination of case study research as the methodology adopted for this study. The researcher outlines the research design and presents the theoretical framework that underpins and guides the researcher’s constructivist approach. It continues with the methods employed for the case study choice, participant selection and recruitment, data collection, and analysis in this study. Next, the researcher presents ethical procedures and methods, which are used to maintain moral principles by which the study is bound.

Chapter 4 Pilot Study: This chapter presents the pilot study that was conducted in Marysville, Australia, following the Black Saturday Bushfires in 2009. The chapter begins with the objectives of the study and moves on to describe the findings against the listed objectives.

Chapter 5 Results- Christchurch Flagship Projects: The chapter introduces the three cases and information about the study participants. It presents the governance at the higher level at the onset of findings as it affects all of the flagship projects similarly.

Chapters 6 to 8 report the findings from this collective case study. The findings begin with the background information for individual case studies. Four chapters that present the key findings of this study follow.

Chapter 6 Case Study 1- Christchurch Justice Emergency Services Precinct: This chapter presents the Christchurch Bus Interchange project details, its social impact, and the FEP process.

Chapter 7 Case Study 2- Tūranga: In this chapter, the Tūranga project details, social impacts, and the FEP are explained.

Chapter 8 Case Study 3- Christchurch Bus Interchange: This chapter explores the case of Christchurch Bus Interchange by presenting project details, social impacts as outcomes of the project, and the FEP of the CBI.

Chapter 9 Cross Case Analysis and General Discussion: This chapter discusses the key findings in the context of all three case studies to examine the themes noted across the case studies. The latter part elaborates on the key findings in the context of the extant literature on flagship projects post-disaster. The significance of the study findings in regard to flagship projects' FEP is presented as a basis for the recommendations/guidelines that follow.

Chapter 10 Best Practice for the Front-End Planning Process as a guideline for flagship projects: The output of the thesis, a set of best-practice planning guidelines for the planning in the front-end is formulated and presented that the planners can refer to before deciding to invest in post-disaster flagships.

Chapter 11 Conclusion: Chapter 11 presents the conclusion for the thesis. The quality of the study is reviewed. The researcher discusses recommendations and implications for the FEP of flagships and identify the limitations of the study.

1.9 Chapter Summary

This chapter intended to introduce and set the scene for the research undertaken by the researcher. The research aim, objectives, and design were introduced with a synopsis of the background of the study to justify that it fills a significant research gap. Chapter 2 is a carry-over on this background and provides a more detailed exploration of flagship projects within disaster contexts, the objectives behind them, and why those have delivered limited favourable outcomes worldwide.

Chapter 2 Literature Review

2.1 Introduction

In Chapter 1, the aim, objectives, and significance of the study were presented. This chapter intends to expand on the background information briefly discussed in the previous chapter to set the basis for the successive inquiry process. This chapter opens with an overview of the search strategy and the literature relevant to the concepts discussed in the preceding chapters. The most significant themes identified through the review of literature are explored. The chapter closes with a description of how the literature review informed the research aim and questions of the study.

2.2 Reviewing the literature

This section of the thesis aims to establish the context of the study and explore the available knowledge about flagship projects and their impact on the immediate project environments. It initially examined general literature to arrive at crucial themes of factors that cause limitations in public construction projects in general. The literature specific to the post-disaster context of flagship projects is almost non-existent. Reviewing literature led to the identification of issues around large-scale public construction projects.

The literature review was conducted in phases for this research study as previously been done (Dunne & Üstündağ, 2020; Martin, 2006, 2019). The reason was that the pilot study was conducted under Grounded Theory analytical techniques, and the main research used the Grounded Theory driven model as the basis of the study. The process of the literature review will be discussed in detail in Chapter 4 of this thesis.

2.3 Search strategy

The researcher referred to national and international literature from multiple sources, as listed in Table 2 that follows, to establish the context of the study and existing knowledge related to flagship projects.

Table 2 General Examination of Literature

Electronic databases	The University of Auckland, and Massey University electronic databases, Google Scholar, Scopus, ProQuest
Documents	Peer-reviewed journals, theses, reference textbooks, reports, policy documents, and published publicly accessible project booklets
Websites	Government recovery-related websites both local and international, EQC Recovery Learning, CERA archive, Victoria Bushfire Reconstruction and Recovery Authority, Royal Commission, Australia Regional Institute, and websites of stakeholder groups of projects such as designers, consultants, and builders that contain project details and contacts

Information related to flagship projects was mostly found in the literature related to urban and regional design, development, and planning sectors. The literature accessed was in English, was full text, and included all work available up to the start of the study. An open-ended timeframe was necessary to capture influential literature related to developments in flagship projects, their pros, and cons, that were relevant to the topic of flagship projects. Some of the entries entered under literature date years back but are relevant to the current study and are of significance. Key search terms included one or a combination of the following terms and at least included 20 published material for each section:

1. flagship, catalyst, large-scale public construction, and anchor projects
2. large-scale project issues/problems/shortcomings, outcomes, success, and failure
3. Recovery agencies
4. Post-disaster projects
5. Hurricane Katrina 2005
6. Great East Japan earthquake 2011
7. Marysville and Victoria Black Saturday bushfires 2009
8. Christchurch and Canterbury earthquakes 2011
9. Governance of projects
10. Planning, building/urban planning, project planning

11. Front End Planning, Front End Loading
12. Procurement planning, procurement of projects
13. Stakeholder engagement
14. Christchurch Justice and Emergency Services Precinct
15. Christchurch Bus Interchange
16. Christchurch Central City Library/Tūranga

Literature related to Numbers 1-10 were mostly reviewed during the early stages of the study to feed into the Research Proposal. The literature around the topics covered from Numbers 11-16 was mostly conducted during the latter part of coding in the pilot study to demonstrate where the generated theory stands among the substantive area of study.

2.4 Screening and themes

Screening information involved being mindful of the content and reported findings being relevant to the area of enquiry and the study's aims. For research articles, abstracts were checked for relevance. Reference lists of journal papers that had more substantial bearing on the subject matter were reviewed for additional sources.

The literature-finding process was a well-thought-out and planned phase of the research. Up to the pilot study, the literature was limited to understanding how rebuilding worked following large-scale disaster events. This was intentionally done as the researcher wished to dive into the project with an open mind. The immediate period after the pilot study confirmed the pilot study findings that limitations were primarily driven by front-end planning arrangements. Once the focus on planning was established, the literature search had a clear focus on including previous work on front-end planning of large-scale projects. The literature that followed was mainly case study-based. The majority of the studies focused on Indian Ocean Tsunami, Hurricane Katrina, the Great Japan Earthquake, Kobe Earthquake, Black Saturday Bushfires, and Canterbury Earthquakes. Background literature revealed that the FEP of large public projects as the focal point of the study is concerned with getting the initial planning right

(Williams, Vo, Samset, & Edkins, 2019; J. Zhang, Chen, & Yuan, 2020), getting the public involved (T. Hartmann, Van Straalen, & Spit, 2018; Zhou, Hou, Yang, Chong, & Moon, 2019), managing stakeholders (A. Khan, M. Waris, S. Panigrahi, M. R. Sajid, & F. Rana, 2021), and managing procurement approaches. The general examination of literature has been grouped into three areas and further broken down into sub-themes that frame the background discussion in Table 3 below.

Table 3 General overview of the literature - Key themes and subthemes

Themes	Subthemes
1. Setting the context – natural disasters and the built environment	Natural disasters Disasters and the Built environment
2. Large-scale public projects/flagship projects within a disaster reconstruction context	Importance of the reconstruction phase Rebuilding through flagships projects post-disaster Objectives of flagship projects Limitations of flagship projects
3. Front End Planning of flagship projects	Front-end planning process

2.5 Natural disasters

A natural disaster occurs when a natural hazard meets vulnerability (Kapoor, 2010; Prasad & Francescutti, 2017). Vulnerability can result from poor planning or a lack of legislative processes in place to prevent financial, environmental, physical, or human losses from a disaster (Beban & Gunnell, 2019). The magnitude of the losses will be determined by the existing resilience of the city with its interdependent infrastructure systems (Baker, 2012; S. Chang, McDaniels, Fox, Dhariwal, & Longstaff, 2014).

WHO (1971) defined a natural disaster as a sudden and catastrophic occurrence in nature at a magnitude that disrupts everyday life patterns where people are thrown into helplessness and suffering. The consequences will be such that the victims have needs for ‘food, clothing, shelter, medical and nursing care, and other necessities of life and also protection against unfavourable factors and conditions’ (Assar, 1971).

According to EMDAT (2020a) there were 361 reported disasters globally in 2019 [See Figure 1], and a total of 11719 people died across the globe in 2019 due to a natural disaster event (Below & Wallemacq, 2018) [See Figure 2].

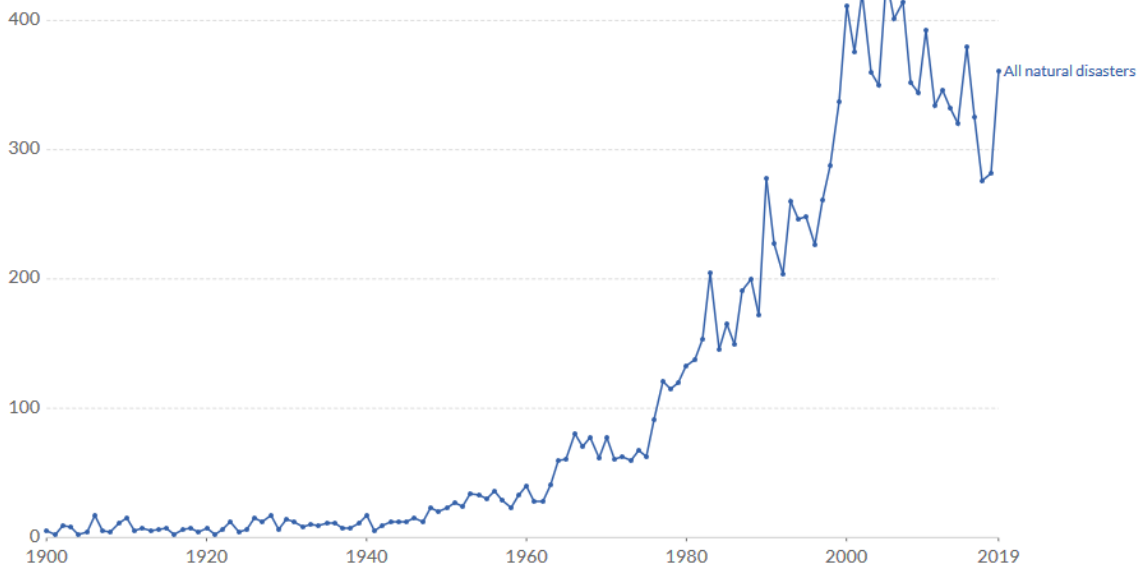


Figure 1 Number of recorded natural disaster events, All-natural disasters

Source: EMDAT (2020a)

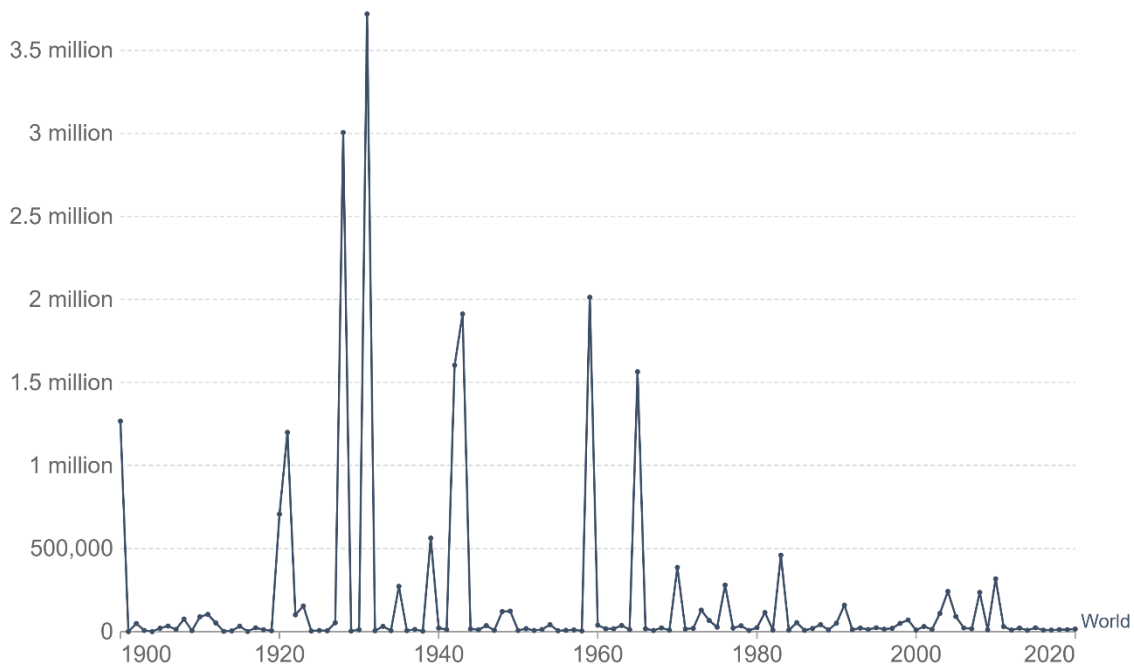


Figure 2 Average global annual deaths from natural disasters per annum

Source: Our World in Data (2021)

Even though technology has enabled early warning of some natural disasters, others can cause widespread damage and destruction, resulting in escalating costs due to the unprecedented nature of natural disasters [See Figure 3]. The reasons being, rising investment in fixed capital,

increased population in the areas of greatest hazards, and the impact of climate change in causing sudden meteorological events (Alexander, 2016).

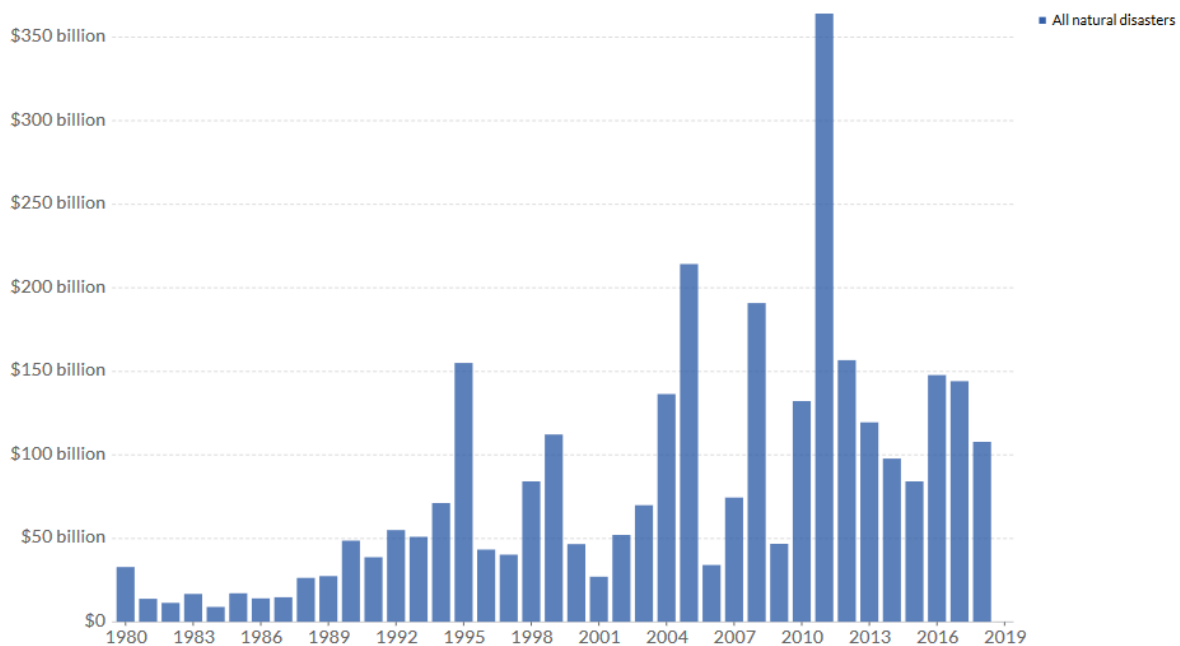


Figure 3 Total damage costs from global natural disasters

Source: EMDAT (2020b)

Given these circumstances, how governments handle post-disaster rebuilding is crucial to urban redesign, the economy, future resilience against disasters, and economic growth. It is understood that a disaster opens a window of opportunity (Amaratunga & Haigh, 2011; Jetten, Fielding, Crimston, Mols, & Haslam, 2021; Ozcevik et al., 2009; Platt, 2018) to Build Back Better and become more resilient to future disasters (Dube, Wedawatta, & Ginige, 2021; Francis, Wilkinson, Mannakkara, & Chang-Richards, 2018; Mannakkara, Wilkinson, & Potangaroa, 2018). With reference to the above, the reconstruction of the built environment plays a multitudinous role in establishing social cohesion and rebuilding communities post-disaster (Jayakody et al., 2021).

2.6 Disasters and the built environment

The devastation to the physical environment is the most common destruction visible to the human eye. The damage caused by natural disasters to the built environment at the onset of the disaster or shortly afterward specifically refers to the damage and destruction to the human-made structures, features, and facilities, and the resulting impact on people who work and lives are based on those.

According to the researchers, those damages can be two-fold related to assets and their outputs. First are the direct impacts caused by the disaster or made worse by the disaster and pose a further danger to its immediate environment (Botzen, Deschenes, & Sanders, 2019; Cavallo & Noy, 2011; National Research Council, 2011). Second, are the indirect impacts linked to the functions of destroyed facilities that interrupt economic activity, such as lifelines or loss of income from damages to businesses (Botzen et al., 2019; Cavallo & Noy, 2011; National Research Council, 2011). Such interdependencies emphasize the significance of broadening the focus to include the functions of a structure within the built environment rather than the structures alone (Cirianni, Fonte, Leonardi, & Scopelliti, 2012; A Galderisi & Ceudech, 2010; Adriana Galderisi & Ceudech, 2013; Massabò et al., 2013). The gravity of negligence of the indirect impact is that those can have long-term effects on macroeconomic variables, are difficult to measure, and affect many areas more than the direct impacts (Cavallo & Noy, 2011; Poledna et al., 2018). Indirect losses in urban areas contribute the most to economic losses once struck by a natural disaster. Due to the nature of the public goods and the principles of reporting those under economic losses, the damages cannot be assessed correctly (Cavallo & Noy, 2011; Hallegatte & Przulski, 2010).

Given the importance of the built environment, there have been efforts to ensure that reconstruction is properly managed. Some of the efforts are reflected through the frameworks and guidelines introduced by various governments and international agencies, but the usability of those beyond the recovery phase is questionable, as will be discussed in Section 2.14 under the guidelines that are in use.

2.7 Importance of the reconstruction phase

Literature on disaster management concurs that there are 4 phases concerned with the management of a disaster event, namely 1) preparedness, 2) response, 3) recovery, and 4) mitigation (Scholten, Sharkey & Fynes, 2014). However, reconstruction is only briefly touched upon in phases 3 and 4, where immediate reconstruction and restoration aid recovery and mitigation. Going beyond the immediate rebuilding, the reconstruction phase post-disaster has a vital role to play in bringing cities back to where they were and often to a better place economically and socially. Reconstruction of the built or physical structure of a city is considered a primary element of recovery (S. Wilkinson, Chang-Richards, & Rotimi, 2014). Protecting from future hazardous events, returning to the normal way of living, and exploring opportunities for growth depend on the reconstruction of a place following a disaster. Despite

such understanding, Halvorson and Parker Hamilton (2010), Lloyd-Jones (2006), and Sawyer, Buckley, Hunter, Rubin, and Lewis (2010) concluded that this phase is the most poorly managed of all stages in the road to recovery.

S. Wilkinson et al. (2014) also noted that long-term recovery programs and elements within them (e.g., flagship projects) need to be based on detailed assessments and align with the residents' overall recovery needs. Barenstein and Leemann (2012) considered this process to be closely embedded in the social, economic, and institutional context in which disasters occur. Therefore, the ties to all the above elements must be considered within the discipline of reconstruction planning.

Many researchers have also focused on reconstruction timing, stressing the importance of embarking on reconstruction as soon as time permits. Christchurch City Council (CCC) noted the importance of starting major rebuilding work within three years of the disaster for reconstruction to be successful (Canterbury Earthquake Recovery, 2012). CERA's recovery plan mentioned, 'Speed is of the essence' (Canterbury Earthquake Recovery, 2012).

In terms of reconstruction projects following disasters, those following Pakistan's 2005 earthquake showed that 90 percent of projects had time overruns, and 70 percent also experienced cost vibration. Donor-funded projects had better time and cost figures than those led by the government due to detailed planning and mapping of resource availability prior to project start (Choudhary & Mehmood, 2012). The public sector, in particular, faces unique challenges with multiple objectives, difficulty in determining public project success, and the involvement of many stakeholders whose strengths will determine what gets built (O Klakegg & Volden, 2016). Some internal features of public projects, such as weaker strategic direction, difficulties obtaining required skillsets, and lack of stakeholder coordination, adversely affect the completion times and building of tactically and strategically relevant projects.

2.8 Flagship projects post-disaster

Reconstruction after a disaster could be housing, private/commercial, or public reconstruction. When it comes to the latter, 'What is the boundary for the reconstruction of the built environment?' has remained an interesting area to investigate. In an attempt to demarcate what goes into each phase, Hass, Kates & Bowden (1977) divided the recovery cycle into four phases, i.e., 1) Emergency, 2) Restoration, 3) Replacement and Reconstruction, 4) Commemorative, Betterment, and Development period. Before any construction work can

happen after the disaster, debris would have to be removed, unfit buildings would need to be demolished, and new land needed for developments would need to be acquired with the final step of the land assessment and remediation work (Dugar, Karanjit, Khatiwada, Shakya, & Ghimire, 2020; Francis et al., 2018; Hayat, Haigh, & Amaratunga, 2019; Saffarzadeh, Shimaoka, Nakayama, & Afsari Fard, 2019). In general, the reconstruction phase encompasses restoring what was lost to pre-disaster levels, which also helps the return of socio-economic activities to pre-disaster levels (Haas, Kates, & Bowden, 1977). With the emergence of concepts such as Build Back Better (Dube, 2020; Fernandez & Ahmed, 2019; Su & Le Dé, 2020), resilience (Lam & Kuipers, 2019; J. Xu & Shao, 2020), sustainability and Green building (Kurosawa, 2021; Majeed, 2020; Schreurs, 2021; A. Uchiyama & Kohsaka, 2018), it is rare for public investment to focus solely on replacing what was lost. An enhancement to the buildings that was lost would come under the Commemorative, Betterment, and Development phase. According to the phases proposed by Hass et al. (1977) above, the enhancement-related work would only take place once what is lost is reconstructed or restored to ensure the communities receive the pre-disaster urban facilities as soon as the time permits.



Figure 4 Flagship projects in the post-disaster reconstruction process

Source: Author's own based on literature *anchor projects=Flagship projects

As per the definition, Flagship projects have now become a vital component within the broad category of public disaster reconstruction work as a tool for commemorative, betterment, and development reconstruction [See Figure 4].

The term 'anchor' projects was frequently used when discussing large-scale projects that had been planned for Christchurch post-earthquakes. These projects are widely addressed as Priority projects (Callegari, 2012), Flagship projects (Loftman & Nevin, 1995; Ozcevik et al., 2009), Grands projects (Hanakata & Gasco, 2018), or Catalyst projects ("New Zealand: Minister announces new plan for Metro Sports Facility," 2017) in literature concerned with similar projects to those that were planned for Christchurch. As stated in Chapter 1, for the purpose of this research, large-scale public projects will be addressed as 'flagship' projects, as

it is the most commonly used term in literature focusing on similar projects (Alberto & Hall, 2021; Amore, 2019; Arefian, 2018; Bahmani & Zhang, 2022; Camponeschi, 2022; Kancharla, 2019; Koukoufikis, 2019).

The use of flagship projects [specifically those that have a cultural significance] as public regeneration tools dates back to the early 1980s, starting in post-industrial Western Europe and North America (Heidenreich & Plaza, 2015; Patrick Loftman & Brendan Nevin, 1996; Trumbull, 2014).

The company responsible for handling all Crown-led reconstruction projects in Christchurch after the disbandment of CERA, defined flagship projects as public builds to bring people back into the city and to create opportunities for related buildings to establish due to their existence in a given location (Ōtākaro Limited, 2017). Earlier researchers identified that the government practices spatial intervention through such projects to encourage social and economic restructure (Grodach, 2010; Heidenreich & Plaza, 2015; Taşan-Kok, 2010; Temelová, 2007). Those projects, once completed, will be known as ideal places to live, work and visit (Canterbury Earthquake Recovery, 2012). In addition, the definition suggested similar views of a spill-over effect where the key buildings, once established, will pave the way for other businesses to take root in and around the area (Pastak & Kährik, 2016).

A similar definition is used in the context of the bushfire disaster faced by Victoria, Australia, in 2009. The consultancy firm that produced the Urban Design Framework for recovery in Marysville and the neighbouring towns defined flagship projects as having an economic significance because those projects stimulate economic activity that will drive economic recovery by bringing in private investment to revive the destroyed cities (Roberts Day, 2009).

The location of these projects will determine the extent of return from those projects, be it increased employment opportunities, private investment, land prices, or enhanced inner-city accessibility (Patrick Loftman & Brendan Nevin, 1996; H. Smyth, 1994). Those projects create unintended by-products, such as creating more employment opportunities, bringing in new private investments and producing a positive business environment that would stimulate growth (Loftman & Nevin, 1995).

Oyeyoade, Agboola, and Odebode (2019), in their study of flagship projects' applicability to different economies, added that flagship projects become a common choice when the governments want to move a city from being 'a centre of production' to that of 'a centre of consumption', by investing in culture and tourism promotion, specialized services and bringing

in wealthy residents to the centres. In such instances, flagship projects play the role of revitalizing a decaying city image (Boelsums, 2012; B. Doucet et al., 2011).

Among the advantages stated by researchers of a city taking upon flagship projects are the opportunity to change the image of a city to that of a better global example and offer a chance for a city to compete at a global platform as a modern city to attract better crowds not just to the location but to the city as a whole, to enhance the overall appearance and appeal of a city, to present a city with positive externalities of increased land prices, increased spending in the nearby businesses and usage of services in proximity to the flagship project thereby increasing incomes and employment within the area (Zenker & Beckmann, 2013).

As one of the earliest research work into flagship projects, Loftman and Nevin (1995) discussed large builds using similar endeavors known as 'prestige projects'. It is quintessential that such projects are spectacular in appearance to help place perception (B. Doucet et al., 2011).

Flyvberg's "iron law" that major projects are mostly "over budget, over time, under benefits over and over again" questions the need and sense of building major projects (Flyvbjerg, 2018). Flyvberg mentioned that it is very rare for a project to get scrapped once it is on the agenda or when it has been documented. Once those projects get underway, they tend to avoid public consultation to get the project done or restrict consultation to just the early phase. Flyvberg recommended public consultation to remain entwined with the project from start to finish for a more sustainable project outcome. They added that a project can be deemed successful if it delivers technologically and functionally but still can be a burden financially and economically. They also proposed building key projects in smaller and less risky increments (Flyvbjerg, 2018). They believed that major project decisions are often politically correct but economically unacceptable. Commenting on reviewing completed projects, Flyvberg considered it uncommon for political leaders to reflect on what they have done. Flyvberg has been particularly disapproving of the poorly formulated business case that does not lay down the intentions of the project. They listed three things under governance; a solid business case, having a team that has successfully delivered similar projects before, and an accountability structure that incentivises and rewards good work.

Disadvantages of flagship include the following. The impacts of flagship projects are speculative in nature (Plaza, Tironi, & Haarich, 2009; Zenker & Beckmann, 2013), often fulfill short-sighted development goals, and cause negative externalities such as noise pollution by increased footfall to a given place. Furthermore, the continuous management of these projects

could contribute adversely to government finances and, therefore, could attract unwanted attention from the public.

Within an analysis of flagship project examples post-disaster, flagship projects display a mix of characteristics of prestige projects and mega projects that question the relevance of large-scale investments in the immediate post-disaster phase. Those investments negatively impact society and the environment (Brookes & Locatelli, 2015; Hamdy, 2010).

Hiller (1998) categorized these projects' impacts into three types: Forward linkage meaning the project outcome; backward linkage referring to the benefits that were intended at the onset; and parallel linkage signifying the unintended side effects. Often, the forward linkage remains less researched out of the three (Hiller, 1998; Zenker & Beckmann, 2013). Even though many researchers have explored project outcomes in the recent past, there is a gap in disaster management literature where the projects are rarely revisited to assess how the outcomes differ from the objectives and the reasons for the deviations.

2.9 Characteristics of flagship projects post-disaster-Australia and New Zealand versus the rest of the world

This short section will discuss the most noticeable characteristics of post-disaster flagship projects in NZ and Australia and compare those with flagship projects elsewhere in the world.

2.9.1 *Public projects are designed with the people at the centre of decision-making*

Public consultation in the aftermath of a disaster remains a popular behavioral trait of recovery agencies to build trust in the planning process and optimism about the potential to build back. Active involvement in planning by the residents could also result in trust for a future that promises a better life (Brody, Godschalk, & Burby, 2003; Glackin & Dionisio, 2016). Public involvement and local knowledge are recognised as important elements that strengthen the decision-making process for urban development following a disaster (Burby, 2003; Innes, 1996), which ensures high-quality planning and winning implementation (Burke, 1979).

As a more participatory approach, both CERA and VBRRRA introduced Community Recovery Committees (CRCs) to give some power to the general public. In Marysville, following the 2009 bushfires, a total of about 4400 people had voluntarily attended 29 community meetings. It was later declared that around 600 people had input into the Urban Design Framework for Marysville, resulting in the flagship projects (O'Neill, 2015b; Smart, 2012). The intention was to give the ownership of recovery to people and not merely engage in consultation prior to

decision-making. As discussed earlier in the chapter, VBRRRA placed the public in the centre of all its activities [See Figure 5]. Even though the involvement of citizens in the flagship generation was limited, around 800 small projects were initiated from the community meetings (Smart, 2012; Victorian Bushfire & Recovery, 2011).



Figure 5 VBRRRA Recovery and Reconstruction Framework 2009

Source: VBRRRA, 2009

CERA for Christchurch approached things differently. The drawback of this initiative carried out by CERA was that the community members were appointed by the minister and were limited to 38. This was not sufficient to represent the wider community and questioned the non-democratic conduct of CERA. In contrast, VBRRRA’s process allowed the self-selection of community members (Controller Auditor General, 2017). The public engagement process added an important element to the idea of public engagement. The public engagement process identified problems with successful public engagement as people who face natural disasters are often too shaken by the disaster to give solid ideas that could inform long-term planning. Their views of rebuilding change over time, and community-led recovery thus prove difficult (VBRRRA, 2011).

However, amidst the consultation, the NZ government went ahead with its own plan for recovery. This is often seen as a way to avoid delays in moving forward with rebuilding plans (Symons, 2013). Hirschman's (1970) framework of 'exit, voice and loyalty', portrayed that mere participation without any power to affect decisions may lead the citizens to exit the recovery process, weakening the information base for long-term strategic planning.

2.9.2 A recovery/reconstruction authority manages flagship projects

Hurricane Katrina in New Orleans [2005], earthquakes in Canterbury [2010-2011], Black Saturday Bushfires in Victoria [2009], and floods in Queensland [2010-2011] tested the existing capacities of the processes in place in their countries during an emergency. Each is understood to have happened at 'unprecedented scales,' were not easily managed, and overwhelmed existing capacities in place at the time (Bidwell & Dell, 2011; Federal Emergency Management Agency, 2011). Louisiana Recovery Authority [LRA], Canterbury Earthquake Recovery Authority [CERA], Victoria Bushfire Recovery and Reconstruction Authority [VBRRA], Queensland Reconstruction Authority [QldRA], and the Japan Reconstruction Agency were established as special recovery agents following the disasters in their respective countries. It is understood that VBRRA was exceptional among the rest as it was established within three days to shift the focus toward recovery immediately (Leadbeater, 2013; Mannakkara, Wilkinson, & Potangaroa, 2014)

As the above-mentioned circumstances are characteristic of large-scale disasters, it is a common practice to establish an authority to take over reconstruction work following disasters (Smart, 2012; Thiruppugazh, 2016). According to the views of Thiruppugazh (2016) and Robert B Olshansky and Johnson (2014), an authority that takes over the responsibility of recovery work following a disaster handles challenges better, and Building Back Better (BBB) process is proven to be more efficient and effective. The former also emphasized that establishing a reconstruction authority sends a message of dedication and commitment to the general public that the rebuild after the disaster will happen as planned because of the existence of a focused body overseeing the recovery process (Brookie, 2014). If an existing government body handles the recovery phase following an emergency, it may have conflicting priorities that may divert resources from recovery. New organizations are established to facilitate efficacious and faster recovery (R. Olshansky & Johnson, 2017). The recovery agency having the sole focus on recovery seems to eliminate this general fear of the public. The only drawback common to most recovery agencies is that those operate with a strong focus on immediate to medium-term recovery, where reconstruction for recovery is overlooked. Australia has

established a permanent National Recovery and Resilience Agency (NRRA) to be more supportive of the communities that experience ongoing effects of disasters and to offer more on-the-ground assistance (National Recovery and Resilience Agency, 2022; Wahlquist, 2022). It was established as a public service agency focused on a locally-led approach contradictory to the well-known top-down recovery efforts practiced in Australia (National Recovery and Resilience Agency, 2022). A permanent presence would likely encourage quicker responses once a disaster strikes.

In the case of Marysville and Christchurch, flagship projects had been placed under the direct supervision of the recovery agencies. In Christchurch, the growing role and responsibilities of the recovery agency, duplication of the work carried out by other agencies, land acquisition, and remediation work, time taken to determine funding sources, and the lack of commercial know-how to put economic value into the projects resulted in CERA being unable to deliver the expected flagship projects within the proposed timeframes. In Marysville, the work of the reconstruction authority had an advantage over funding of the projects where donor funding accelerated the projects.

2.9.3 Flagship projects and public consultation

Even though the recovery/reconstruction authority has a certain degree of decision-making power, the process is usually democratic, allowing people to voice their opinions as to how the city needs to be rebuilt, at least on paper (Bidwell & Dell, 2011; Crawford & Morrison, 2021; Darabi, Zafari, & Milani Nia, 2013). There is an emerging perception that however democratic the process of opinion-seeking may look from the outside; it is acting as a lubricant for the elite and the powerful to take out what they want from the project pipeline (Bonakdar & Audirac, 2021).

After the Great East Earthquake in Japan in 2011, local authorities were obliged to seek public input through meetings, surveys, and workshops, but research revealed that the process eliminated proper consultation due to the need to rebuild faster. The opinion-seeking exercises did not portray an accurate representation of the views of the general public, with the younger generation opposing large embankments and tall seawalls (Mochizuki, 2014; Platt & So, 2017). The opinions of those who made the decisions contradicted, as the former were elderly conservative men.

Rebuilding following the earthquakes in Turkey in the same year differed significantly in that public consultation was minimal as the focus was on the fast completion of reconstruction

work. Public housing was built within a year of the disaster based on whether the land was government-owned and the distance from a known fault.

The Centrality of public involvement was paramount in rebuilding in Marysville, Australia, following the Black Saturday bushfires in 2009. The following broad categories were identified as important through public consultation

- To rebuild in a way to strengthen tourism for greater income generation
- To undertake a phased tourism-led recovery strategy
- To get business leaders to run the recovery
- To create an identifiable brand for Marysville as a tourist destination

All proposed flagship projects show a clear connection to the objective of rebuilding through tourism. For example, the convention centre, Marysville Heart (the town centre), and the Vibe Hotel are all examples of keeping true to the objectives. Researchers have remained cynical about using three community meetings and a feedback process pressuring people to respond in the immediate aftermath of the disaster (Nichols & Rogers, 2018). The process and the selection of projects have proven challenging because individuals were more focused on personal recovery (MacKenzie, 2010; Mannakkara et al., 2014). This also signaled that their requirements in terms of projects tend to change once they are out of the emergency and restoration phases of disaster (Victoria Bushfire Reconstruction and Recovery Authority, 2011).

It was understood that the Phoenix workshop to obtain feedback on the proposed draft urban design strategy constituting key projects for recovery had its flaws (Nichols & Rogers, 2018). The Phoenix workshop brought together all stakeholders to take the lead in decision-making regarding the town's reconstruction and recovery (Mannakkara et al., 2014; O'Neill, 2015b). The selection of representatives from all stakeholder groups, including government agencies, the community, and the private sector, was criticised as prejudicial. Furthermore, the feedback only generated 'minor' changes to the proposed plan (O'Neill, 2015b).

In Christchurch, the CCC ran an extensive public opinion-seeking campaign named 'Share an Idea' (Carlton, 2013; Gjerde, 2017). Responses were grouped into the following areas, and the flagship projects are said to belong to at least one or more of those categories.

- To foster business investment and encourage inner-city living;

- To safeguard Christchurch's historical identity;
- To take a long-term view; and
- To make the city more accessible and greener

(Canterbury Earthquake Recovery, 2012)

Among the examples listed above, public consultation differs in quality widely across case studies. In Turkey, Chile, following the 2010 earthquakes, public participation was evident from inception through to completion, and the communication was two-way. The interactions were in mundane, everyday settings of talking to people on the streets as well as scheduled and ad hoc meetings as seemed appropriate. The public was informed of the decisions and progress and involved a balance of residents and business people in the community (Platt & So, 2017).

2.9.4 *Flagship projects and slow evolution of plans/rebuilding work*

It was understood that substantial redevelopment work has to commence within three years of the disaster for recovery to be successful (Canterbury Earthquake Recovery, 2012). In general, public rebuilding seems to happen at a slow pace following disasters due to post-disaster challenges (Hawkins & Maurer, 2011; Robert B. Olshansky, Hopkins, & Johnson, 2012; Stevenson, Emrich, Mitchell, & Cutter, 2010).

New Orleans following Hurricane Katrina in 2005 included a slow pace in determining financial sponsorship, politics of recovery having different intentions than the public who wants to rebuild communities, having very complicated rebuilding programmes/portfolios, and the existence of inflexible and bureaucratic processes and procedures (Chamlee-Wright & Storr, 2010). New Orleans's rebuilding has been labeled top-down and slow, as was the case in Christchurch (*Sifting through Katrina's legal debris: contracting in the eye of the storm*, 2006). Referring to Christchurch, there have been resource issues such as sourcing some materials and skills needed for construction (Chang-Richards, 2013; Y. Chang, Wilkinson, Seville, & Potangaroa, 2012; S. Wilkinson, Chang-Richards, Sapeciay, & Costello, 2016). Post-Katrina, research found that slower rebuilding can relate to the economic conditions of the place that was hit by the disaster (Baade, Baumann, & Matheson, 2007; Hawkins & Maurer, 2011). For example, the reluctance of the residents to return to low economic and social conditions and the subsequent low economic return from businesses triggered slower rebuilding. Similarly, Wilkinson quoted Australia's slow post-bushfire reconstruction that did not advance until 18 months, to have strong links to an understanding of new building standards introduced after the disasters (S Wilkinson, Rotimi, & Mannakarra, 2014)

The Christchurch blueprint was finalised and released in July 2012, one year and five months post-disaster. Only seven out of 17 proposed projects were fully completed at the time of writing the thesis. These projects are shown in Table 4 below.

Table 4 Flagship projects in Christchurch

Flagship Project	Blueprint due date	Construction work start (Year)	Current status
Completed			
1. Hagley Oval	3 rd quarter, 2013 (indicative)	December, 2013	Completed in December, 2014
2. Christchurch Bus Interchange (CBI)	2 nd quarter, 2014 (indicative)	June, 2014	Completed in May, 2015
3. Canterbury Earthquake National Memorial	1 st quarter, 2016 (Indicative)	November, 2015	Completed in February, 2017
4. Christchurch Justice & Emergency Services Precinct (CJESP)	3 rd quarter, 2016 (indicative)	July, 2014	Completed in September, 2017
5. Christchurch Central City Library (CCCL)	2 nd quarter, 2015 (indicative)	May, 2016	Completed in October, 2018
6. Retail Precinct	2 nd quarter, 2016 (indicative)	May, 2015	Completed in August, 2019
7. Convention Centre Precinct	Phased Committed phase – 4 th quarter, 2012 and 4 th quarter, 2015 (indicative)	November, 2017	Completed in December, 2021
Partially Completed			
8. Performing Arts Precinct	2 nd quarter 2016 (indicative)		Due in 2023
9. Avon River Precinct	4 th quarter, 2015 (committed)	March, 2013	
10. The Frame	4 th quarter 2014 (committed)	November, 2016	No date
11. Innovation Precinct	No date		
12. Health Precinct			
Ongoing			

Flagship Project	Blueprint due date	Construction work start (Year)	Current status
13. Convention Centre Precinct	Phased Committed phase – 4 th quarter, 2012 and 4 th quarter, 2015 (indicative)	November, 2017	No date
14. The Square	4 th quarter, 2016 (Indicative)		2021
15. The Stadium	1 st quarter, 2017 (indicative)		2024
16. Metro Sports Facility	Phased Committed phase - 4 th quarter of 2012 and total project – 4 th quarter, 2015 (Indicative)	June 2019	2022
Canceled			
17. Cultural Centre	No date		Canceled in 2016
18. Residential Demonstration Project	1 st quarter, 2014 (indicative)		Canceled in 2015

Source: Ōtākaro Limited (2022)

In contrast, the speed of rebuilding in Marysville was in line with other bushfire-affected cities in the world (O'Neill, 2015b). All the flagship projects were completed at the end of the six years following the 2009 disaster. In fact, six projects, except for the walking and cycling trail and the hotel and the convention centre were completed within the first three years (O'Neill, 2015b). In Christchurch, the flagship projects were much grander in scale and were frequently tested by repeated episodes of disaster (Fitzsimmons, 2016; Smart, 2012).

A counter-argument is that planning needs to be comprehensive and detailed where flagship projects are integrated into the longer-term local plans (O'Neill, 2015b; Ozcevik et al., 2009). Even though Marysville's reconstruction speed was impressive, O'Neill (2015) suggested engaging in a longer process that fits with and appreciates different recovery phases. In other words, the first key projects should have been to aid the community to renew and regroup, such as the community facilities, followed by a break for reflecting on the needs that have changed over time due to personal recovery from disaster, given that the funding will remain intact through trust arrangements when the process prolongs (O'Neill, 2015b). This approach requires a lengthy time to formulate and evaluate plans and the local governments to act cooperatively with other local organisations to achieve the plan.

2.10 Objectives of flagship projects

This section explores literature related to previous disasters where the cities were rebuilt/revamped using flagship projects. The author investigated why flagship projects would be preferred in post-disaster reconstruction through a past literature search. Those are explained from 2.10.1 to 2.10.7. The points gathered for this part of the literature review can be grouped according to the nature of the objective as shown in the following section.

Objectives related to the strategic direction of a city

2.10.1 To have a more systemised public rebuilding and town planning

After a large-scale disaster, there is a perception that a poor urban environment can form due to many destroyed/unrepairable buildings. A natural need for recovery projects arises. There is also a need for governance arrangements to prevent any reckless and unplanned development that could hamper long-term plans. In Ishinomaki, Japan, after the Tsunami in 2011, parts of the city were designated as requiring urban recovery projects, and residential buildings were prohibited within the designated areas (Kondo, Maly, Stanley, & Meyer; Ubaura, Nieda, & Miyakawa, 2016). It was also noted that most construction took place on already vacant land, as others needed demolition, land clearing, and remediation.

2.10.2 *To strengthen the economic and social status of a place*

Along with improving the social and structural aspects of a city, enhancing its economic status is also one of the prime motives (Egorycheva, Dyuzheva, Girinskiy, & Makarova Korobeinikova, 2020; Menhas, Mahmood, Tanchangya, Safdar, & Hussain, 2019; Pastak & Hrik, 2016). It is anticipated that the new icons in the form of flagships will bring in more inward investors, tourists, and new residents to a city/town. Not restricted to post-disaster situations, economic revival has been an objective since the inception of flagship projects in Birmingham, Sheffield, and Manchester in the UK (Patrick Loftman & Brendan Nevin, 1996), Bilbao in Spain in the 1990s (Franklin, 2016) to Dubailand in Dubai in more recent times (Aoun, 2016).

Likewise, In Marysville, following the Black Saturday Bushfires in 2009, the rebuilding efforts aimed to spread the tourists across the whole neighbourhood rather than being concentrated in a few particular locations. Tourism, the town's main income source, was centred in the accommodation hub in Marysville and some other significant green attractions within the neighbourhood, but sustaining economic revival meant that income generation opportunities had to be spread geographically (VBRRA, 2009b).

Similarly, in Christchurch, there were specific problems that the city faced before the disaster. Christchurch City Council, prior to the earthquake, had intentions to revitalise the city to match the likes of Copenhagen, Dublin, and Milan (Blundell, 2014). The city suffered from severe traffic as a result of an influx of vehicles entering the city and inadequate parking. CCC wished to encourage more people to use public transport and understood and acted upon the need for a more connected central city (Canterbury Earthquake Recovery Authority, 2012b). CCC had a vision for Christchurch to be a flourishing modern city with people living, working, and enjoying their pastime all in the city itself, creating more revenue opportunities for businesses. It can be declared that the earthquakes were a second chance to remedy the issues within the central city. The blueprint sought remedies for these issues within Christchurch dating pre-disaster.

A major downside of image-making to attract economic benefits is that it cannot be sustained as the main policy objective, mainly because of the problematic social and equity issues such as gentrification [poor urban areas becoming populated by the wealthier, displacing the former], urban spectacularisation [making an urban space spectacular], and cultural commodification [making culture into a commodity] (Barber, 2020; S. Frank, 2021; Ponzini &

Alawadi, 2022; Vicario & Martinez Monje, 2003). An in-depth analysis of these cases revealed that Christchurch takes a distinctive standing away from the likes of Marysville and even New Orleans following Hurricane Katrina, in the sense that the rebuilding is completely focused on a total revamp. However, the major difference was Christchurch had no direct focus on income generation within the central city. This feature questions the strategic relevance of the blueprint in the long run.

Objectives related to the outlook/appearance of a city

2.10.3 To enhance connectivity and accessibility

Decaying cities prior to facing natural disasters need careful consideration as to how the roads define the characteristics of that particular place (Ubaura, 2015). The researcher stressed that if the road network has important ties with the original landscape, it is best to leave the network untouched, but it may need revamping if the city is already in the declining stage where the road network is inconvenient for car users (Ubaura, 2015). The Department of Public Works and Highways was quoted as referring to three flagship road projects in Zamboanga, Philippines, which helped reduce travel time, bring down road maintenance costs, and aid mobilisation of agricultural goods, thereby improving socio-economic activities (Balinbin, 2021; BusinessMirror, 2021)

Christchurch officials wished to increase accessibility within the city using particular transport projects. A bus exchange connects the outskirts and the inner city with super stops at key central locations to increase walking and cycling in inner-city pathways. All the projects within ‘Accessible City’ concept were integrated. An extension of accessibility is that the inner city has livable spaces, housing, and access to a broad range of amenities within walkable distance (Brown & Dixon, 2014; Canterbury Earthquake Recovery Authority, 2012b).

2.10.4 To enhance the physical outlook of a city/place

Flagship projects, especially those that are culturally led, are known to improve the physical quality of public spaces and the quality of life of their people (Leshore & Minja, 2019; Pastak & Hrik, 2016; Terkaj & Tolio, 2019). Flagships often offer options for planners to give an image boost to a decaying city/town image (B. Doucet et al., 2011; B. M. Doucet, 2010; Oyeyoade et al., 2019). It is anticipated that the new icons in the form of flagships will bring in more people and investments.

Literature provides evidence that flagship projects post-disaster offer a window for cities to identify their current strengths and build on them (Canterbury Earthquake Recovery, 2012).

Following Hurricane Katrina, Governor Kathleen Blanco referred to the Superdome a “symbol of recovery,” using it as a reference to the government’s commitment to rebuild New Orleans and to showcase the city’s ‘progressive face’ (Higgins, 2009; Kingsley, 2007; Matheson, Baade, & Henderschott, 2018; Ocenasek, 2020).

In Marysville, Australia, an independent consultancy firm identified the opportunity to rebuild after the 2009 bushfires while simultaneously addressing town-planning issues to improve the town’s functionality (VBRRA, 2011). For example, placing the kindergarten, the primary school, and the childcare centre within proximity to achieve structural cohesion and to enhance the urban setting were the main aims of the urban design framework for Marysville.

Marysville being a small town, suffered from the low number of volunteers at their community facilities scattered throughout the city. VBRRA realized the need to offer consolidated services from a single location as a solution. A proposal for a community hub was put forward (Mannakkara et al., 2014; Mannakkara & Wilkinson, 2015). Providing more visibility to the city's natural beauty was also one of the objectives.

Similarly in Christchurch, unused inner city spaces and important establishments scattered throughout the city centre were problematic to CCC. If located within proximity to one another, those buildings would have shown better coherence. The blueprint addressed this issue as ‘creating a critical mass in the core’ (Canterbury Earthquake Recovery Authority, 2012b). Skyscrapers and those buildings unfit to withstand large tremors suffered the most during the earthquakes. Falling structures mainly caused deaths during the earthquakes. A low-rise city with more earthquake-resistant buildings and a greener approach was one of the aims of the blueprint (Canterbury Earthquake Recovery Authority, 2012b).

Objectives related to welfare

2.10.5 To enhance the natural beauty of the city

City rebuilding following disasters seems to go by the views of Nolen’s writings and plans. The Consultant Planner suggested striking a balance between idealism and business acumen with design drivers to ensure utility and beauty are inseparable (Freestone, 2011; Silver, 2004).

Following the Great Japan Earthquake of 2011, the central government linked up with the prefectural and local governments to arrange regular working-level meetings to present the project plans to Ishinomaki city residents. The plans showed how the Kitakami River and the city would be connected in harmony to release a modern compact city core (Ubaura, 2015).

NZ government recognizes the impact open and green spaces have on the health and well-being of its communities. Preserving and promoting green spaces enhance social, economic, environmental, and cultural well-being (Benedict & McMahon, 2012; Regional Public Health, 2010). The emphasis on green initiatives made its way through the “Share an idea’ campaign (Canterbury Earthquake Recovery Authority, 2012b; Gjerde, 2017). Christchurch has been known as the “The Garden City” and intended to bring the garden concept to the city core. The officials wanted to give some prominence to the Avon river as one of the most noticeable characteristics of the city in its draft city plan and the blueprint (Brand & Nicholson, 2016; Swaffield, 2013; Tavares & Swaffield, 2017). The river and the green corridor provided plenty of recreational and walkable space in the plan. This green corridor was designed by ‘declaiming’ a number of blocks in the central area that stretch towards the eastern and southern edges (Canterbury Earthquake Recovery Authority, 2012b).

2.10.6 To listen to public opinion and cater to the needs of the community

Governments consider public participation in guiding public projects to transform cities. It is regarded as a decisive factor in a successful planning process for urban regeneration (Amado, Santos, Moura, & Silva, 2010). The researchers referred to constant evaluation and validation by the public as prerequisites for good relations between the community, the final urban proposal, and a quicker proposal implementation (Amado et al., 2010). Public consultation post-disaster to determine large public projects have been followed in the post-disaster rebuilding phase in Australia, Japan, and New Zealand (Canterbury Earthquake Recovery Authority, 2012d; Controller Auditor General, 2017; Ubaura, 2015; VBRRRA, 2009b, 2009c)

Referring to the urban governance regimes that were followed in NZ, between 1989-2014, researchers observed a top-down approach that limits citizens' influence on urban governance (Cheyne, 2015). Despite such conduct, post-earthquakes made a clear shift to make public participation the basis of all decisions regarding rebuilding (Canterbury Earthquake Recovery Authority, 2012c)

Objectives related to resilience

2.10.7 To build better disaster-resilient buildings/cities

Following the Great Japan Earthquake of 2011, the focus remained on protecting the city from future tsunami events. As a result, erecting seawalls at the height of 7.2 m along the coast and, building roads with an increased height of 500m inland in Ishinomaki, creating raised zones in Onagawa were the key projects that were placed on the top priority over other projects such as public and commercial facilities (Ubaura et al., 2016).

As discussed earlier, most deaths after the 2011 earthquakes were caused by falling structures left weakened by the 2010 earthquake. Both CCRP and the CCC's draft Central City Plan (CCP) opted for a low-rise city core. One of the aims was to build more environmentally friendly buildings (more naturally lighted and ventilated). Another was to promote less costly buildings than tower model developments that require expensive foundation material. Spreading development across the business core would balance out oversupply and undersupply that come as a by-product of the tower model (Brand & Nicholson, 2016).

The objectives derived through the literature review conclude that governments undertake flagship projects mostly to enhance/revamp the outlook or the appearance of a city steered by the opportunity presented by a disaster. There may be factors that prevent governments from achieving the above-mentioned objectives. The next section, under the criticisms of flagship projects, unravels some factors that may stand in the way of achieving objectives.

2.11 Criticisms of flagship projects

Large-scale complex projects often attract public attention due to large amounts of public money and their impact on communities and the environment (Gharaibeh, 2014; Van Marrewijk, Clegg, Pitsis, & Veenswijk, 2008).

Most often than not, those projects tend to suffer from the shortcomings experienced by large construction projects in general. Those are presented in Table 5 below as the criticisms against post-disaster flagships are scarce given the absence of project reviews at a government level or as a research focus. The most common traits are cost and time overruns and scope creep (Flyvbjerg, 2014; Locatelli, Mancini, & Romano, 2014).

Careful evaluation of infrastructure is needed following disasters. Research into reconstruction projects post-tsunami in Japan in 2011 gives examples of the need to understand the characteristics of the area and its significance (Ubaura, 2015). It remained a challenge that prolonged planning for urban redesigning and prompt recovery planning are at the two ends of the spectrum (Ubaura, 2015). Understanding the situation post-disaster is paramount before deciding on city planning. For example, in Ishinomaki city, people wanted to move away from the coast to inland due to repetitive tsunami attacks. The planned projects for the city were too grand for the actual demand post-tsunami (Ubaura, 2015)

Table 5 Criticisms/the factors stated as limiting project outcomes of large-scale public projects

Factors that limit projects achieving objectives	Reference
Lack of planning	Hall, Kutsch, and Partington (2012), Alshawi et al. (2012), Patanakul, Kwak, Zwikael, and Liu (2016), Garemo, Matzinger, and Palter (2015), Zidane and Andersen (2018), Durdyev and Hosseini (2019)
Lack of stakeholder commitment and community participation	Garemo et al. (2015), Williams (2016), Rezvani, Chang, and Wiewiora (2016), Thamhain (2013), Patanakul et al. (2016), Janssen, Van Der Voort, and van Veenstra (2015)
Project complexity	Locatelli et al. (2014), Williams (2016), Rezvani et al. (2016), Patanakul et al. (2016), C. Chang (2013), San Cristóbal, Carral, Diaz, Fraguera, and Iglesias (2018), Nguyen, Le-Hoai, Tran, Dang, and Nguyen (2019)
Overoptimism	Flyvbjerg (2013b), Garemo et al. (2015), Hinterleitner (2019)
Underdefined scope	Garemo et al. (2015), Thamhain (2013)
Poor risk assessment	Garemo et al. (2015), Hall et al. (2012), Alshawi et al. (2012),
Poor cost and schedule estimation	Cantarelli et al. (2013), Garemo et al. (2015)
Poor/incomplete design	Cantarelli et al. (2013), Rachid, Toufik, and Mohammed (2019)
Project organization set up including the leader and the management	Garemo et al. (2015), Locatelli et al. (2014), Thamhain (2013), Patanakul et al. (2016), Alshawi et al. (2012), Hall et al. (2012), Rezvani et al. (2016), C. Chang (2013)
Lack of integration to surroundings, culture, and heritage	Boelsums (2012), (Lawer, 2019)
Ineffective public governance, rigid laws or policies	Garemo et al. (2015), A. Khan, M. Waris, S. Panigrahi, M. Sajid, and F. Rana (2021)
Influence of political processes	Lahmann, Keiser, and Parlitiz (2017), Patanakul et al. (2016), Alshawi et al. (2012)
Governance setup and lack of coordination with local government	Alshawi et al. (2012), Platt (2018)

Factors that limit projects achieving objectives	Reference
Contractual problems	Alshawi et al. (2012), Patanakul et al. (2016), Janssen et al. (2015), You, Chen, Wang, and Shi (2018), Durdyev and Hosseini (2019), Alsuliman (2019)
Underestimation of costs leading to poor quality Disregard to future price escalation	Flyvbjerg (2013b) Alshawi et al. (2012), Thamhain (2013)
Resource issues	Alshawi et al. (2012), Shenhar, Holzmann, Melamed, and Zhao (2016)
Low construction productivity	Garemo et al. (2015), Hasan, Baroudi, Elmualim, and Rameezdeen (2018), Dixit, Mandal, Thanikal, and Saurabh (2019)
Corruption	Locatelli et al. (2017), Zhai, Shan, Darko, and Chan (2021), Campos, Engel, Fischer, and Galetovic (2019), Fazekas and Tóth (2018)
Poor execution	Garemo et al. (2015), Fazekas and Tóth (2018)
Shortcuts to completion	Garemo et al. (2015)
High maintenance costs	Grodach, 2010, Boelsums (2012)
Irrelevance to the needs of society	Oyeyoade et al. (2019), Boelsums (2012), Thamhain (2013)
Lack of community engagement	Beazley, Loftman, and Nevin (2018)

In inception, flagship project ideas are often fixed, limiting the planners from exploring alternatives and accepting these projects as being unique. Adding to this idea, these projects often have limited information from a city's residents concerning projects where, at completion, projects display a stark reality to the culture and heritage of a given location (Oyeyoade et al., 2019). The researchers also observed that these projects cover real-world problems such as poor municipal facilities, unemployment, declining industries, and insecurity.

Some schools of thought believed that those projects violate the motives behind public spending, income distribution, welfare, and equity. These projects focus on creating wealth but not distributing it (Oyeyoade et al., 2019). Due to the substantial investments that go into building those, the governments indirectly cater to the affluent and wealthy societal layers. In contrast, the needs of the poor are not directly addressed by these projects (Boelsums, 2012). Those projects attract criticism as city elements that cause fragmentation and alienate the residents living in the given territory (B. Bennett, Dann, Johnson, & Reynolds, 2014; Boelsums, 2012).

Some public rebuilding projects' criticisms are connected to the public policy and procurement framework for public projects (Kenny, 2006; Sanderson, 2012). Most high-investment public projects are built as a part of a portfolio of projects which carry interdependencies (Arlbjørn, Freytag, & Thoms, 2015; Miller & Lessard, 2001). Given the characteristics of high-investment public projects, these tend to be breeding grounds for corruption. Søreide (2002) elaborated in his work, with similar work followed by Flyvbjerg and Molloy (2011) how an invitation to tender, limiting the bidders according to experience, deviating from competitive tendering at times of emergency construction, and withholding certain information on confidentiality grounds can be attributed to corruption within high-investment projects.

Special Investigation Division Committee of Government reform in the US House of Representatives conducted a study to identify the corruption related to public procurement in post-disaster rebuilding. It studied 19 Katrina contracts, including a couple of multi billion projects. The researchers identified wasteful spending and mismanagement byways of overuse of noncompetitive contracts, poor contract planning, lack of trained staff to oversee contracts, bribery, and excessive reliance on subcontractors that resulted in favoritism and high contract prices (*Sifting through Katrina's legal debris: contracting in the eye of the storm*, 2006; United States House of Representatives, 2006).

Some of the flagship projects in New Orleans following Hurricane Katrina, such as levees, floodwalls, gates, and pump stations, leave the question of whether it is sensible to invest millions or billions of dollars in disaster-prone areas (Schwartz, 2018). According to the author, the investments have failed the test of time as some of the buildings that were built after the disaster needed fixing ten years on. The flood protection system taking over a decade to build will become inadequate in just four years due to the rising sea levels and is a prime example of flagship project limitations (T. Frank, 2019). As a remedy to project irrelevance in the medium run into operation, Japan's cities, following the earthquakes in 2011, delayed fixing plans for major projects and continuously surveyed residents to understand their changing needs (Ubaura, 2015).

2.11.1 Criticisms/limitations of large-scale construction projects in NZ

It is imperative to assess if the factors that cause limitations in large public projects in NZ are similar to those found elsewhere in the developed world. A study by Lessing et al. (2017) was based on a questionnaire survey of twenty-eight professional respondents from construction companies in Auckland. The study highlighted the limited time allowed for adequate design/consultation. The researcher stressed that incomplete design leads the contractors to determine the schedule ignoring unquantifiable items in the schedule. During construction, improper estimates push the delivery dates further (Lessing et al., 2017). The study identified a number of concerns regarding the design teams and suggested the adoption of BIM [Building Information Modelling] to minimise delays. The study lists the following factors to cause time overruns (Lessing et al., 2017).

- the project itself -original contract duration being too short, the type of contract, bidding and award, design complexities, improper review of the design and its constructability
- the client – delayed decision-making and approvals
- plant/equipment – not applicable in the FEP
- contractor -inadequate planning and scheduling of the project by the contractor, contractor's financial background, ineffective subcontractor performance, required variations, and delays in specialty imported materials
- The design team – design and design approval delays, incomplete design details, specification changes, design errors, lack of design coordination
- Labour -Skills shortage
- Communication – unclear communication of needs/requirements, unclear channels of communication, delay in response, and coordination issues within the team

- External factors – design errors resulting from a lack of local knowledge

Another research conducted with construction professionals in NZ identified scope changes, procurement methods, and optimism bias as the main three factors that cause cost overruns (Kumar, Skelton, & Kularatne, 2021). Another layer of factors was identified as secondary factors: design delays, scope creep, cashflow inconsistencies, project, risk and site management, communication, tenders/contract, labour issues, consent/approvals, legislation, and transportation (Kumar et al., 2021). The study recommended using BIM and ECI as methods to avoid cost overruns.

Driven by the increased demand, the construction sector has been battered by rising material costs, high workloads, builders' failing projects, international competition for a share of the market, labour shortages, instability of the commercial sector with construction companies going into receivership, and the most prominent companies removing themselves from the high-rise market (A. Gibson, 2018; S. Wilkinson, Sutrisna, Potangaroa, & Cameron, 2022). To make the situation better, the construction companies started to demand more detailed designs prior to bidding and split big contracts into smaller packages. Risk-sharing within the sector and fixed-price contracts that come under pressure against rising costs were noted as the most prominent concerns (A. Gibson, 2018).

2.12 Containing limitations of flagship projects

Looking at the literature makes the revelation that government planners can control public project limitations in two ways. This can be done either at the start or at the end as a lesson for similar future projects.

- 1) At the onset, a government may choose to manipulate the governance of public-funded projects at a country level through political processes and policy formation. In that sense, governance of projects refers to managing central government projects across different public entities through the use of institutional arrangements (O'Keefe et al., 2016; Volden & Samset, 2017; Williams, O'Keefe, Magnussen, & Glasspool, 2010). Governance of projects may include a combination of project selection techniques, managing a programme or a project portfolio within an organization, or using project management methodologies and/or reporting systems (Muller, 2016). The Governance Institute of Australia defines governance as “...encompassing the system by which an organisation is controlled and operates, and the mechanisms by which it, and its

people, are held to account. Ethics, risk management, compliance, and administration are all elements of governance (Governance Institute of Australia, 2022). Applying those tools is the most essential during the FEP phase of a public project.

A study that looked at different hierarchies of governance in Norway provided evidence that governance at the very start of a project is challenging because there is no formal start to the phase where often no one is informed how an idea is generated (Volden & Andersen, 2018a). For the purpose of this study, governance will be limited to the portfolio-level decisions taken by government planning officials prior to undertaking public projects.

- 2) Understanding the limitations of flagship projects through Social Impact Assessment [SIA] is the other way that the public can manage its projects. While policies and other directions are applied, SIA can be used on a project to assess its performance either at the start or after a project is complete. It is quite common that once a project is approved, many project owners do not look back on reported impacts to see their effects (Bond, Morrison-Saunders, & Howitt, 2013). Nonetheless, the possibility of such evaluations feeding onto future spatial planning was seen to benefit (E. Smyth & Vanclay, 2017). The researchers developed a ‘Social Framework for projects’, which surpassed all other existing frameworks by putting the well-being of an individual as a part of the society at the core of all its decisions (E. Smyth & Vanclay, 2017). It is vital to assess if well-being is a priority and how those projects may affect the well-being of an individual or society. Governments have been using impact assessments to determine the social outcomes of reconstruction since the 1970’s. Social Impact Assessment (SIA), by definition, is.

‘... the processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions’ (Vanclay, 2003; Vanclay, Esteves, Aucamp, & Franks, 2015)

2.13 Flagship projects and Front-End Planning (FEP)

Section 2.12 quoted researchers mentioning that governance arrangements should be applied at the very start of a project highlighting the importance of the FEP to the project outcomes. The criticisms and limitations identified through literature are mostly linked to the FEP of

flagship projects. It is fundamental to explore the FEP process of a large-scale project to understand the reasons for Flagship Projects.

FEP has been defined in many ways in past literature. In essence, FEP is the process that starts from the first phase of a project life cycle, which is the project conception and terminates with the decision of whether the project team is going to proceed with the project or not (Motta, Quelhas, de Farias Filho, França, & Meiriño, 2014; Williams & Samset, 2010). In simple terms, FEP is planning undertaken at the front end of a project before a decision to invest is taken.

Construction Industry Institute [CII] in the USA lists six direct benefits of engaging in Front End project planning (Construction Industry Institute, 1994). More certain cost and schedule estimations (Hwang & Ho, 2012; Sarde, Peth, Galli, & Katta, 2016; Sindhu et al., 2018), lesser scope changes (Sarde et al., 2016), better attainment of business goals, better understanding of risks (Bosfield, 2012; Sarde et al., 2016), better operational performance (P.Y. Sumanti & Agung Wibowo, 2011; Sarde et al., 2016), better chance of attaining sustainable goals (Ferrer, Pradhananga, & Elzomor, 2022; Ferrer, Rahat, Pradhananga, & Elzomor, 2022), and reduced inclination towards project failure (Flyvbjerg, 2013b; Hwang & Ho, 2012; Kock, Heising, & Gemünden, 2015, 2016; Oh, Naderpajouh, Hastak, & Gokhale, 2016; Sarde et al., 2016; Shiferaw, Klakegg, & Haavaldsen, 2012) are identified as benefits of Front-End Planning. As a result, FEP is considered a value addition to standard project planning (Edkins, Gerald, Morris, & Smith, 2013; G. Gibson et al., 2012; Samset & Volden, 2016).

There is an increased tendency for construction projects to involve a more significant number of project partners as a project moves from its planners onto the designers, engineers, and contractors. CII viewed that aligning those relationships in the FEP is vital for favourable project outcomes (Construction Industry Institute, 2012). Research work by Oh et al. (2016) concluded that a lack of input from constructors could result in issues with constructability at later stages in the project. A vast array of construction projects have the root cause of failure set in the FEP (Edkins et al., 2013; Hwang & Ho, 2012; Morris, 2011; Williams, Klakegg, Walker, Andersen, & Magnussen, 2012). The failure to put sufficient resources for the FEP and rushing the phase could put the permanent organisation under pressure to supply resources for its continued existence (Williams, Vo, Samset, et al., 2019).

Previous literature focusing on Critical Success Factors (CSFs) for construction projects has been thoroughly examined to find those factors directly related to the phases leading up to the start of actual construction work. (See Table 6).

Table 6 Critical success factors for large-scale construction projects that are linked to Front-end planning

Stage of FEP	Factors that are connected to the FEP that affect project outcomes	References
Feasibility	Clear/realistic objectives	Flyvbjerg (2013b); Hussein (2013); (Kog & Loh, 2012), Garemo et al. (2015)
	Project size	Kog and Loh (2012); Locatelli et al. (2014), Williams (2016), Rezvani et al. (2016), Patanakul et al. (2016), C. Chang (2013)
	Political/bureaucratic interference	Tabish and Jha (2011)
Concept	Project scope/project definition	Garemo et al. (2015); Jari and Bhangale (2013), Tabish and Jha (2011); Thamhain (2013)
	Integration to surroundings, culture, and heritage	Boelsums (2012)
	Community engagement	Beazley et al. (2018)
	Political/bureaucratic interference	Tabish and Jha (2011)
Detailed Scope	Adequate plans and specifications	Hall et al. (2012), Alshawi et al. (2012), Patanakul et al. (2016), Garemo et al. (2015), Kog and Loh (2012), Jari and Bhangale (2013)
	Constructability	Kog and Loh (2012)
	Risk identification and allocation	Garemo et al. (2015); (Kog & Loh, 2012; Zavadskas, Turskis, & Tamošaitiene, 2010), Hall et al. (2012), Alshawi et al. (2012)
	Capability of consultants	Kog and Loh (2012)
	Client top management support	Kog and Loh (2012)
	Project manager commitment/capability	Garemo et al. (2015), Williams (2016), Rezvani et al. (2016), Thamhain (2013), Patanakul et al. (2016), Janssen et al. (2015); Jari and Bhangale (2013); Kog and Loh (2012)
	Effective partnering between stakeholders	Tabish and Jha (2011)
	Project Team	Jari and Bhangale (2013); Tan and Ghazali (2011)
	Procurement method/contractual decisions	Alshawi et al. (2012), Patanakul et al. (2016), Janssen et al. (2015)
	Detail-driven design	Cantarelli et al. (2013)
	Accurate cost and schedule estimation considering future price escalation	Cantarelli et al. (2013), Garemo et al. (2015) Flyvbjerg (2013b), Alshawi et al. (2012), Thamhain (2013)
	Avoiding resource issues	Alshawi et al. (2012), Shenhar et al. (2016)
	Political/bureaucratic interference	Tabish and Jha (2011)

Researchers have tried to group the FEP into phases based on the sequence of engaging in any combination of the above factors. Three such models will be discussed in brief below along with the choice of the FEP process for this research.

One of the most noteworthy models was the one suggested by AngloAmerican (AngloAmerican, 2009). AngloAmerican is a global mining company with a portfolio that spans diamonds, platinum, copper, iron ore etc. They followed a seven phases model for the mining projects which generally carry serious risks. The highly complex high-cost, high-risk, and challenging environment has similarities with the flagships. Their phases model is shown below [Figure 6].

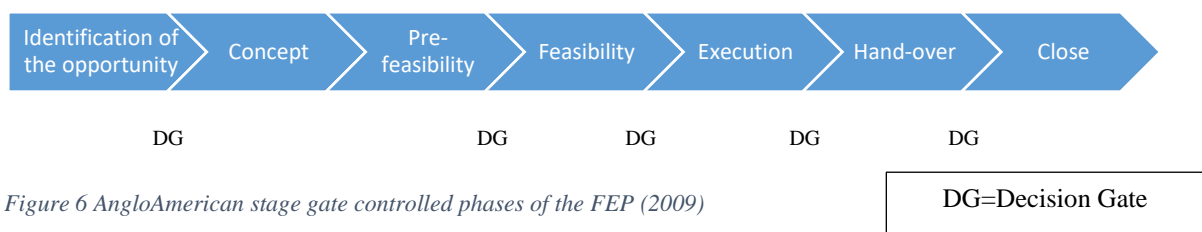


Figure 6 AngloAmerican stage gate controlled phases of the FEP (2009)

The downside of the above phase model is that an environmental scan is not considered a phase for an industry that continuously faces challenges in terms of high governmental regulations and restrictions, Non-Governmental Organisations' actions, and environmental risks in general (Lauwo, Otusanya, & Bakre, 2016).

Another model that was introduced to identify early warning signs of projects is the one by Klakegg, Williams, Walker, Andersen & Magnussen, 2010. It starts with a business development stage where the initial decision-making for strategic alignment takes place (O Klakegg, Williams, Walker, Andersen, & Magnussen, 2010). The rest of the stages are really an extended version of what is proposed by the CII. There are frequent Decision Gates [DGs] each at the start and end of the feasibility study, at the end of the development of concepts, and during pre-engineering [Figure 7]. A Decision Gate is periodic milestone where a decision is made whether to advance with the project, modify or quit.

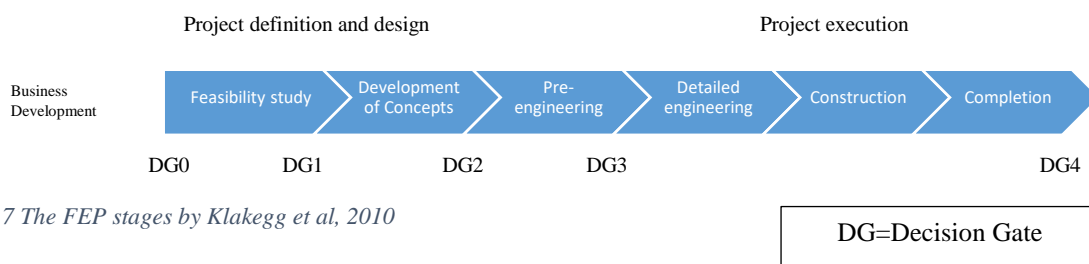


Figure 7 The FEP stages by Klakegg et al, 2010

The increased frequency of DGs ensured that the project was to be intensely monitored at each DG before it reached the engineering and construction stage. The downside of the model was that there were no decision gates post-engineering. This would not be a sustainable process model for highly complex flagship projects in an ever-changing post-disaster environment. Interestingly, unlike the majority of other process models, the one by Klakegg et al (2010) included a decision gate post-completion which would provide an opportunity to assess the end project against its stated objectives.

Figure 8 below is a process proposed by Hansen et al. (2018). They took the CII’s FEP process and modified it to include ‘key features’ that they believed were missing from the FEP process proposed by the CII. The process extends beyond the project’s feasibility stage to look at project inception onwards, leading up to approval for construction (Hansen, Too, & Le, 2018). The stages include Pre-Feasibility [Inception and Diagnosis], Feasibility [Formulation], Basic-Engineering [Preparation and Review], and Decision-Making [Decision] (Hansen et al., 2018).

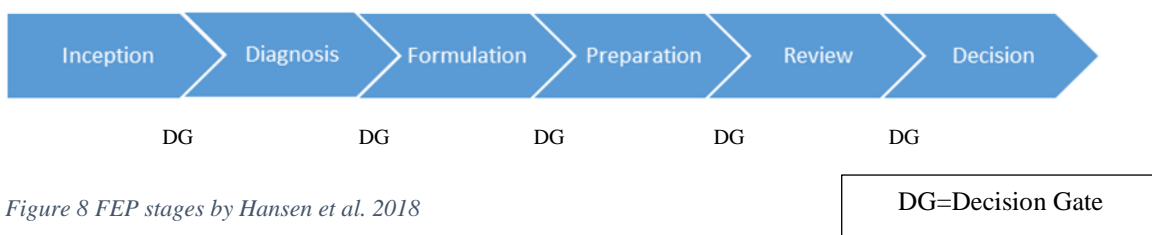


Figure 8 FEP stages by Hansen et al. 2018

Their model for the FEP process included a Decision Gate [DG] at the end of each phase as a monitor, review, and control measure.

Hansen et al. (2018) stated in their work that CII process model for FEP is a model that is widely used. They highlighted that the model lacked ‘key features’ of each of the stages. Due to the credibility of the CII as a leading resource provider with the backing of the University of Texas at Austin with a network of more than 130 leading owner, engineering-contractor, and supplier firms from both the public and private arenas, the Front-End Planning phases proposed by CII was promising despite the criticisms mentioned by Hansen et al. (2018). Moreover, it is the most widely used model in extant literature (Construction Industry Institute, 2012; ElZomor, Burke, Parrish, & Gibson, 2018; Esmailzadeh, 2021; Hansen et al., 2018; Safa, 2013, 2015; Sherman, Gibson, Merrow, & Parrish, 2021) [Figure 9].

Figure 9 is a graphical presentation of the process model proposed by CII. Each of the stages has a list of activities proposed for that stage (Construction Industry Institute, 2012). The project starts with a decision to move forward with a project idea which forms the first decision

gate. The rest of the phases are also separated by decision gates at the end of each phase. The process continues to cover a part of the project planning phase.

The next section will elaborate on stages 0, 1, and 2, namely the Feasibility, the Concept, and the Detailed Scope stages of the FEP process proposed by CII. Under each of the stages, areas of importance will be discussed under sub headings which will later be explored with the use of case study findings. The exclusion of the last stage of Design and Construction is justified because the scope of the study will only involve phases leading upto the detailed design.

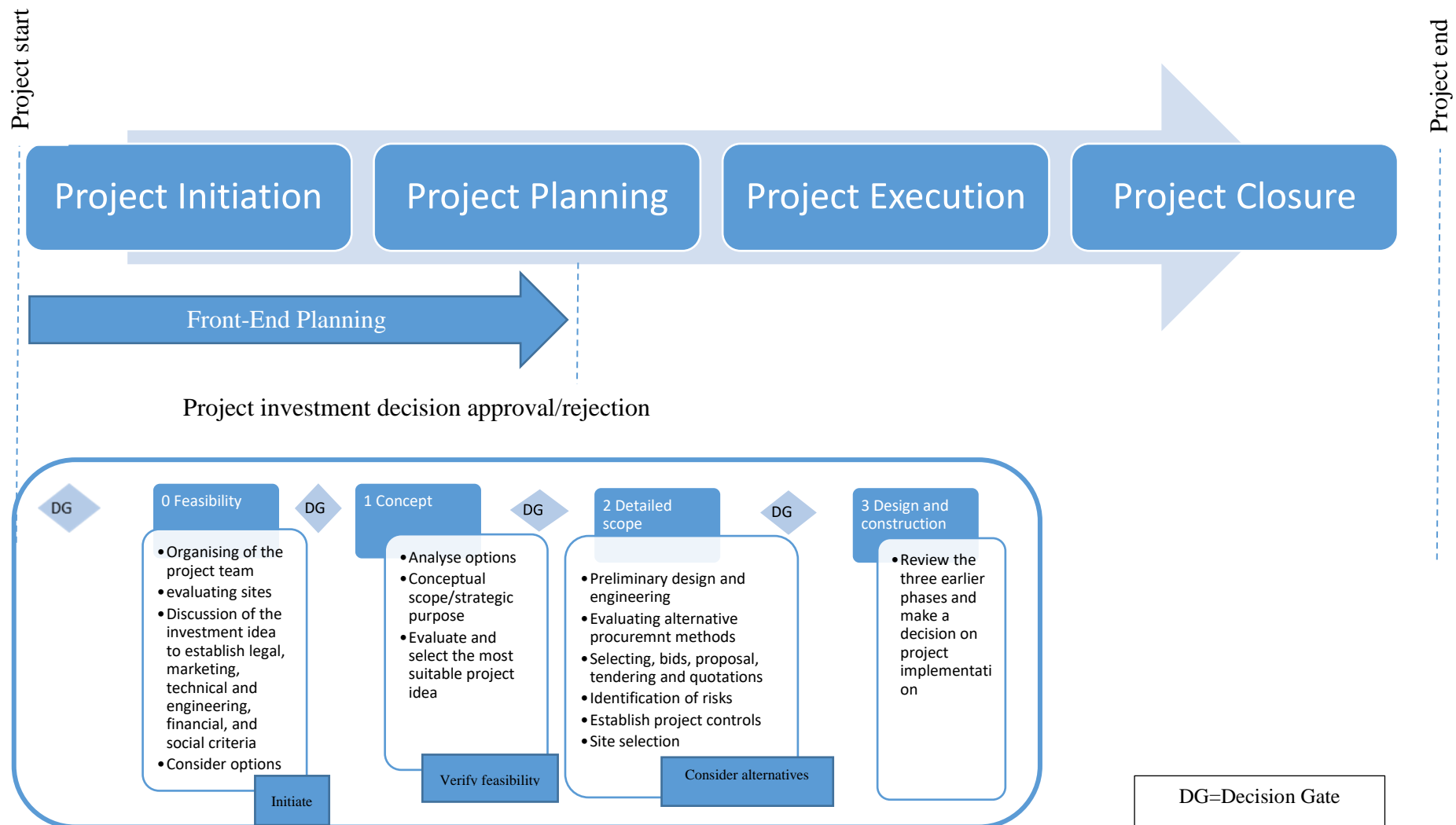


Figure 9 Front End of a construction project (Adopted from CII, 2014)

2.13.1 *Feasibility phase -FEP*

A feasibility study is a phase that determines the viability of a project before it is properly executed (Syed Alwee, Salehudin, Mohamed Sabli, Isnaini Janipha, & Maisham, 2019). The quality of a feasibility study is assessed by how well it answers the questions raised by the project's stakeholders (Logan & Jackson, 2016). As this proves difficult to achieve, the researcher will go with the classic 'Project Feasibility' definition by Graaskamp (1972), which is the measure of the fit between the context of a problem [risks and resources] and the possible outcome of the offered solution (Miles, Eppli, & Kummerow, 1998).

Many researchers included economic, financial, and technical feasibility in the feasibility study phase of a project (Ahmad, 2011; Mukherjee & Roy, 2017). Economic and financial feasibility are fundamentally different. Economic feasibility is the test that determines if the proposed project caters to a need expressed by a segment of the public. In other words, it is an estimation of the project's social costs and benefits (Shim & Kim, 2022). A financial analysis validates the project's affordability/financial viability. The cost-benefit analysis makes a part of financial viability and would be conducted after the feasibility of other areas is checked. The intention is to determine all of the costs from idea to market and ensure there is a way to achieve sufficient income as a part of the investment requirement (Cambridge Business English Dictionary, 2020; Nebraska Business Development Center, 2022b). Financial feasibility is concerned with the revenue of the proposed project. It is widely believed that cost-benefit estimations at this stage remain unreliable, with the final costs to the public being much higher than what the analysis would suggest at this stage (Grubba, Berberian, & Santillo, 2017). The technical analysis assesses if the project is technically realistic, including the location/site, manpower, hardware and software, and the technologies to be used (Corporate Finance Institute, 2022; Nebraska Business Development Center, 2022a; Pereyras, 2020).

There are others who broadened the definition to include legal, market, schedule and managerial, environmental, and social feasibility (Ahmed, Mohammed, Aswed, & Alyhya, 2019). It is recommended to take a balanced approach to include a 360-degree feasibility study to cover many of the above areas. It had been noted in a research study conducted in China using a sample of 27 public sector projects that the feasibility stage was restricted to demand and supply situations and completely ignored the market competition and therefore did not give a complete picture of the project's feasibility (Shen, Tam, Tam, & Ji, 2010).

It is considered vital to perform a feasibility study at the front end of a project (Hussain, Zhu, Ali, Aslam, & Hussain, 2018; Syed Alwee et al., 2019; Viswanathan, Tripathi, & Jha, 2020; Yildiz, Dikmen, Birgonul, Ercoskun, & Alten, 2014; X. Zhang, 2011). quarterly

A study involving 16 public construction sector experts in Pakistan revealed an ‘improper feasibility study’ to be one of the top eight factors that delayed the completion of public projects (Hussain et al., 2018). The benefits of engaging in the feasibility study include providing early indicators of risks/rework/errors to project managers (Hussain et al., 2018; Safapour & Kermanshachi, 2019), reducing design errors due to scope and finance attributes (Safapour & Kermanshachi, 2019), limit cost and time overruns and frequent project revisions (Hussain et al., 2018; Kazaz, Ulubeyli, & Tuncbilekli, 2012).

The dependability of the outcomes of the feasibility remains questionable in the case of public projects, as expressed by some of the leading researchers looking at the front end of public project planning (Williams & Samset, 2010). They concluded that important strategic decisions about the projects are heavily influenced by ‘social geography and politics’ by the top management (Narayanan & DeFillippi, 2012; Williams & Samset, 2010). In such contexts, the decisions by the decision-makers reflect the subtle manner in which the politicians try to execute policies adopted by the legislative body in power (Christensen, 2012).

Managing stakeholder interactions within the feasibility stage

A stakeholder is an individual who has an interest or a concern regarding a project (Corporate Finance Institute, 2021). Stakeholders within the construction industry can be classified into two groups according to the contractual or legal ties they hold in a project. Internal/Primary include those who either provide finance or are part of the project team or have a legal or contractual tie with the project (Aapaoja & Haapasalo, 2014; Atkin & Skitmore, 2008). External stakeholders include those who influence or are influenced by a project but are not bound by a contract or legal terms (Kirsi Aaltonen & Kujala, 2010).

‘Stakeholder management’ principally comprises (1) identifying the stakeholders, (2) assessing their respective and collective power and position in the project, and (3) establishing a management strategy to manage interactions (Edkins et al., 2013). On the topic of Stakeholder Management researchers mention the terms ‘stakeholder expectations’, stakeholder interests’, ‘stakeholder communication’, stakeholder salience’ and’ most importantly, ‘heterogeneous stakeholders’ (Assudani & Kloppenborg, 2010; Ma, Zeng, Lin, Chen, & Shi, 2017; Samset, 2011; Williams, Vo, Edkins, & Samset, 2019) which calls for a flexible governance

arrangement(Williams, Vo, Edkins, et al., 2019). If the stakeholders vary in all of the above factors, the approach to managing them needs to consider the differences and adopt a style suited to each one of them. Hollebeek, Kumar, Srivastava, and Clark (2022) suggested extending the ‘customer journey’ to cover the process a stakeholder goes through across all stages/touchpoints that shape the customer experience– the ‘Stakeholder journey’. Their argument provides a supportive basis for the assumption that, therefore, stakeholder management starts from the very beginning of the FEP. In order to keep the scope intact, the researcher will only include stakeholder interaction management which occurs after the identification and assessment of the power and position of the stakeholders within a project.

Focusing on understanding stakeholder interactions in the front end has proven crucial because it is the phase where the standing of a stakeholder is determined, and the stakeholder’s potential to influence the decision-making process is at its strongest (Kirsi Aaltonen & Kujala, 2010). It impedes the understanding of the stakeholder interactions at the front end as most of the research focuses on stakeholder management during a project's execution phase (Kirsi Aaltonen & Kujala, 2010; K. Aaltonen, Kujala, Havela, & Savage, 2016).

Stakeholder dynamics studies place great importance on the competency of the project owner/sponsor to engage and manage all the stakeholders in the project. In public projects, perhaps the most crucial stakeholder is the public, as the sponsor uses the money that is paid in by the general public for the common good. Research has repeatedly emphasised that the owner’s competency in managing external factors such as stakeholders and governmental/regulatory issues, risk, and the supply chain are the key (Thomson, 2011). The inability to manage stakeholder interaction can make the project team lose its focus – focus for estimation purposes is vital in the Front-End (Edkins et al., 2013).

2.13.2 *Concept phase -FEP*

At the concept stage of the FEP phase, the goal is to evaluate the fit of the objectives of the project with the requirements of stakeholders by identifying the high-priority-based output of the projects and picking the best solution (Construction Industry Institute, 2012; Samset & Christensen, 2017). The phase may shed light on unforeseen circumstances of the project and steer healthy dialogues between the project team and its stakeholders to tackle those issues (Safa et al., 2015). In terms of putting goals and objectives in place, those need to be aligned with those of the other stakeholders s' mainly the client's goals, as then they are more likely to be achieved in the context of complex projects (Mesa, Molenaar, & Alarcón, 2016).

The benefit of engaging in the process of determining and choosing between alternatives is that it allows the project team or the decision-makers to select the best out of the options that are available to provide a solution by way of a product or service (Williams, Vo, Samset, et al., 2019). The options can either be alternatives that consist of entirely new projects, other approaches to achieve objectives, or modifications to the offering of the current project

Samset et al. (2014) identified problems with the Concept phase where they believed the phase happened too late in the process. They also included the problems of politically pre-determined projects restricting the consideration of alternatives and opting for projects that act as a variant of the current solution on offer as a product/service (Samset, Andersen, & Austeng, 2014). A pre-determined solution to a problem kills the purpose of this phase (Patanakul & Shenhar, 2012; Samset & Volden, 2012). Resources are dedicated to the detailed planning of a single solution that questions the reliability of the chosen alternative as the ‘best’ alternative (Samset & Christensen, 2017). Another reason for ill-formed decision-making is the type of information used as the base for decisions on complex projects that involve the adoption of a novel idea as a solution (Grau & Back, 2015). Careful choice of information prevents the decision-makers from choosing to invest further in a pre-selected concept (Samset & Volden, 2016).

In an ideal situation, the concept phase should inevitably be linked back to the strategic purpose of the earlier stage (Williams, Vo, Samset, et al., 2019).

2.13.3 Detailed Scope phase-FEP

The detailed scope phase is one of the most crucial in the FEP, where the decision to invest would be made at the closure of this phase (Mahlangu, 2020). This phase consists of detailed Scope, preliminary design, and engineering, considering alternatives and selecting the procurement method for the project, Putting project controls in place, risk identification and management and budget, schedule, and benefit estimation (Construction Industry Institute, 2012; Williams, Vo, Samset, et al., 2019). These activities will be discussed as sub-topics in the following section.

Detailed Scope

Firstly, defining the scope of a project at the front end to a level one can call ‘complete’ reduces problems later on (Fageha & Aibinu, 2014a, 2014b, 2016). To determine and align the scope to the wider business strategy, the project decision-makers need to consult the business strategy

itself, the project owner's philosophy, and the project requirements (Khun-anod & Limsawasd, 2019).

Preliminary design and engineering

In the detailed scope phase, preliminary design and engineering would be the fifth step. It consists of preparing elementary-level design plans, sections, and elevations to scale, including preliminary grids and levels. The architects would also determine preliminary fittings, fixtures, hardware selections, and internal and external finishes. They would sample materials and prepare graphics to be discussed and approved by the client. Elements such as construction methodology, buildability, Health, and Safety have become important considerations (New Zealand Construction Industry Council, 2016).

Considering alternatives and selecting the procurement method for the project

The next step would be considering alternative procurement routes and selecting the most suited one to progress with. For this study, procurement will be limited to establishing the parameters for choosing a builder to undertake reconstruction work. Not determining parameters upfront may result in repetitive work and a waste of money (Kulatunga, 2011). Previous work emphasised using variations of D&B in place of traditional Design-Bid-Build, for procuring reconstruction projects due to the speedy nature of the former (Chester, El Asmar, Hayes, & Desha, 2021; Kulatunga, 2011). They further elaborated that having a single entity responsible for the work increases accountability and ensures quality reconstruction. Using the Post-Tsunami Sri Lanka case study, the author's conclusions endorsed the views expressed by some others. D&B offers quicker commencement and completion of work and thereby responds to clients' needs better. Additionally, it allows early engagement with an array of stakeholders and feeds their experiences into the design process for more effective and innovative process (Chester et al., 2021; Myburgh, Wilkinson, & Seville, 2008).

The large number of stakeholders, inadequate quality control measures, and the failure to set required standards and communicate them in the early stages of planning cause poor buildings that require rework and extended times and budget overruns (Kulatunga, 2011). They emphasised setting quality expectations around material selection, construction techniques, and building code regulations in the initial phase will facilitate the early identification of materials and the construction techniques required for the construction phase.

The literature concerning the identification and selection of suppliers for construction work following disaster events is limited. In the US, The Stafford Act states that ‘Preference shall be given, where feasible and practical, to those firms, organisations, and individuals residing in the area affected by the disaster (Stafford, 2013). It is criticised for being an option as indicated by the phrase ‘where feasible and practical.’ The act's content seems to eliminate the vast majority of small firms and serves a symbolic purpose. In the US, central/federal procurement is deeply connected to its objectives at a national level. Those may not necessarily be similar to the ones at the local level. The local government has little power to influence the nationwide procurement practices of the Federal government but is accountable to the business community to be a transparent procurer who acts fair to those ready to invest. In reality, this happens rarely. There have been examples of the ill-choice of supplier selection and the bidding process that drive cost and time overruns in post-disaster reconstruction projects (Waheeb & Andersen, 2021). The researchers studied 30 construction projects in Baghdad to identify cost and time delays in reconstruction projects to be the fourth most important factor.

Putting project controls in place

As the fourth step, project control is defined as ‘a process that encompasses the resources, procedures, and tools for the planning, monitoring, and controlling of all phases of the capital project lifecycle by the Construction Industry Institute (Construction Industry Institute, 2022). As components of the control process, they gave emphasis to estimating, forecasting, cost and schedule management, and risk management. Project Management Institute has linked project control to all of the project life cycle stages as a means of measuring project performance against the objectives to identify variances that need to be put right (Project Management Institute, 2013). It is vital that the project team determines the project controls in the front end by keeping scope, risk, and complexity challenges in perspective to have a more predictable and positive outcome (Pratap Chandran & Purayil, 2020).

Risk identification and management

As a part of project controls, risk identification, and management is the critical fifth step within the detailed scope phase.

In the definition of ‘flagship projects,’ the words ‘complex’ and ‘high risk’ are often incorporated (Farooq, Thaheem, & Arshad, 2018; Loftman & Nevin, 1995; Temelová, 2007). The complexity creates a risky environment for those projects. ‘Risk’ is defined as an unanticipated event or a set of events that could affect the accomplishment of project objectives

in the future (Axelos, 2017; Loosemore, Raftery, Reilly, & Higgon, 2005). The impact could either be a threat or an opportunity for the project. PRINCE2, in its 2017 guidelines, defined ‘risk management as the systematic approach to identify, assess, and then control those risks through the planning and executing risk responses (Axelos, 2017). overdesigned for the commercial opportunity, resulting. There is an abundance of examples of governments’ overdesigning for the commercial opportunity in the front end, which lead to complex and economically unsustainable project ideas (Beckers et al., 2013)

Researchers list factors that make it difficult for the project owner to engage in fruitful risk management exercises.

1. There is a lack of time to undertake the necessary research to identify, assess and put control measures at the bidding phase for the duration of the entire project (Loosemore et al., 2005)
2. The entire supply chain has a responsibility for risk management. However, the complex nature of stakeholder management, the large number of stakeholders, different stakeholder objectives (Guo, Chang-Richards, Wilkinson, & Li, 2014), and the different entry points into the supply chain make accountability and collective effort increasingly difficult.
3. Some important stakeholders, such as the managers that run the facilities, are not part of the tendering process (Loosemore et al., 2005).
4. The nature of competitive bidding is such that the bid writers tone down on risk identification as accurate risk details would result in their bid getting turned down (Loosemore et al., 2005; Waheeb & Andersen, 2021)
5. Many project owners do not have the sufficient skills or resources to manage risks as expertise mobilisation remain dependant on networking and relationships [who knows who] (Sun, Chang-Richards, Kleinsman, & Innes, 2021). The researchers looked at Kaikoura and Christchurch post-disaster resource management behaviour to arrive at its findings.
6. To match the bidders' estimates, the Quantity Surveyors and Estimators also ‘cook’ up their numbers that may lead to detrimental project outcomes (Loosemore et al., 2005)

Risk management links to many other aspects of the FEP. Any changes to the project’s objectives, scope definition, the project’s benefits, organisational culture and formation, project team organisation, dependencies on other projects in the portfolio, procurement and contracting

strategies, decision-making processes, project schedule, and the choice of project management methodology (Chapman, 2019). The new construction approaches like fast-track projects in the D&B tender where phases overlap shift the assessment of the business, detailed design, and construction risks to the front end. As the builder gets involved with the project early on for fast-track delivery options such as the Design-Build, the builder can take care of the inputs concerned with cost control, constructability, risk management, and determining feasibility upfront (Sindhu et al., 2018).

There is often not sufficient time during the bidding phase for the project teams to do the background search to identify, assess and control. A common difficulty for many project teams is that there is too little time during the bidding phase to undertake all the necessary studies related to risk identification, assessment and control throughout the life cycle of a project (Mbachu & Taylor, 2014).

In the NZ context, site risks, buildability, tight delivery timeframes, resource availability, subcontractor competence as project-related factors and poor design, short time frame to arrive at pricing, and incompetence of the estimator as pricing risks were rated among the top 3 risk factors (Mbachu & Taylor, 2014).

Budget, schedule, and benefit estimation

The last is to determine the budget and the schedule. Studies reveal important links between the defined scope and schedule and cost. Cho, Hong, and Hyun (2009) found that increased scope definition was associated with slower construction speed. The author described that complex projects, in particular, tend to take longer to be built but also have greater scope definition, leading to a correlation that could be interpreted as increased scope definition causing slower construction. But there is an array of studies that support the contrary, that improved scope definition has a positive impact on schedule performance due to the certainty of many aspects of the project early on (Chanmeka, Thomas, Caldas, & Mulva, 2012; Dicks, 2016).

Determining a realistic timeframe for the project is dependent upon proper plans to monitor and control, effective front-end planning and communication between project participants, adequate risk assessment, scope management, and a planned resource and change management programme, among other factors (Chanmeka et al., 2012; Nguyen et al., 2019; Robu,

Sadeghpour, & Jergeas, 2019; Tran, Molenaar, & Alarcón, 2016; Y. Yin, Choi, Jeong, & Touran, 2022). The list makes it clear that most factors could be controlled in the front end and occur before or around the same time as the schedule is determined. Therefore an accurate schedule is determined by the effective components of other areas in the front end.

There are, however, other factors for which the contractors are responsible. Especially in a post-disaster environment, access to resources could be challenging (Y. Chang et al., 2011; Y. Chang et al., 2012) Both Kulatunga (2011) and Y. Chang et al. (2012) mentioned that the unavailability and inaccessibility of resources could delay reconstruction. The latter agreed with the previous researchers that strengthening the legal framework to open up avenues to access available resources would be one of the significant factors (Y. Chang et al., 2012; Rotimi, 2010). Using locally-sourced resources increases local buy-in to reconstruction plans of the governments (Kulatunga, 2011; Lin, 2019). There is a common belief that a post-disaster environment experiences an excess demand for resources requiring the builder to pre-arrange alternative sources to obtain resources in the early stages of planning (J. Da Silva, 2010; Kulatunga, 2011).

In terms of budget estimation, the large gap between a project's initial cost estimate and the approved has remained an issue for a long time. The low initial cost estimate is to get the project approved (Andersen, Samset, & Welde, 2016). Due to limited information at the front end (Flyvbjerg et al., 2018; Love & Ahiaga-Dagbui, 2018) and extremely unrealistic cost estimates to push for project approval (Andersen et al., 2016; Flyvbjerg et al., 2018; Morten Welde & Odeck, 2017), the budget estimates remain much lower than what would be the cost at completion. Research work undertaken by Hatamleh, Hiyassat, Sweis, and Sweis (2018) to identify the critical factors affecting cost estimation accuracy ranked 'clear drawing and specification' as the most important factor. Their analysis indicated that architects and consultants influence construction project costs more than the builders. They further arrived at the conclusion that decisions at the front-end, namely during feasibility and early design stages, matter more than those taken at later construction stages (Hatamleh et al., 2018).

Tied with the cost estimation is the benefits assessment, as those are vital components of a Cost-Benefit Analysis. The expectation is that the CBA will have more certain estimates at this point. In construction projects, it is difficult to quantify the benefits (Manso, Teotónio,

Silva, & Cruz, 2021), and both cost and benefit criteria are often manipulated through political decision-making (Mouter, Dean, Koopmans, & Vassallo, 2020).

The lack of consistent cost-benefit analysis, mal-identification of risks, optimism bias in planning, and the strategic distortion of information used during the investment decision-making process can have detrimental effects on the final product that would be produced (Grubba et al., 2017).

Once the above criteria within the detailed scope phase have been ticked off, the owners should establish the business case early in the project life cycle before committing more resources (Lock, 2014; Merrow, 2011). Koskinen (2021) found through a two-year research study involving five companies from heavy industries that the business case continuously evolves with more precise details as the project progresses, similar to the findings of Williams, Vo, Edkins, et al. (2019), who mentioned that it has to be revised as necessary as the project advances. The business case will consist of the details arrived at during the detailed scope phase, including justification of the project, benefits analysis, risk analysis, and a cost and schedule estimation by taking all of the above into consideration (Williams, Vo, Edkins, et al., 2019; Zwikael & Gilchrist, 2022).

2.14 Guidelines for reconstruction planning- FEP of flagship projects

Despite the importance of the FEP of a project, there are no formal tools applicable to most projects as the FEP process often differs across projects (Vrijhoef & Koskela, 2000). The challenge with adopting a tool is that they often require time to learn to use the tool (Safa, Haas, Hipel, & Gray, 2013). The FEP does not allow sufficient time or resources for that. Therefore the researcher decided on the formulation of guidelines as a first step toward a systematic FEP process.

Guidelines, in general, are prepared with the intention of producing 'well-informed projects or programmes'. Guidelines are also expected to be beneficial to keep activities within certain policies, building codes, and standards, creating an action plan that transcends those (Mather LifeWays, 2008). Guidelines often produce a framework but seldom explain every step of the plan. Governing arrangements and planning guidelines available for different territories and governments across the world may differ (International Federation of Red Cross and Red Crescent Societies, 2012). However, there is value across those in that the planning guidelines

presented below apply broadly to the demands imposed by disaster impacts no matter what government is in power, irrespective of the territorial relevance. It remains; however that governance that is in place or that comes to play after the disaster imposes unique challenges for planning, response, rebuilding, and accountability.

The literature revealed useful frameworks that guide 'reconstruction.' However, those were often limited to a component dedicated to reconstruction in a framework focusing on either 'recovery' or 'disaster risk reduction' in general (Lloyd-Jones, Davis, & Steele, 2016).

1. Policy intentions based on large-scale disaster lessons experienced worldwide often act as guide documents for an organization's member nations
e.g., the world bank recovery framework (2010), UNISDR and IRP Framework (2015), SENDAI Framework for Disaster Risk Reduction 2015-2030
2. Guidelines/frameworks by international agencies such as Global Facility for Disaster Reduction and Recovery (GFDRR)
3. Country-specific operational structures mainly focused on early recovery, e.g., Federal Emergency Management Agency (FEMA) recovery guidelines
4. Research-based frameworks by independent researchers such as the Disaster recovery framework by Ian Davies and David Alexander (2015), Earthquake Recovery Framework by William Spangle and Associates

A document released by the Reconstruction Headquarters in Japan following the Great Eastern Japan Earthquake discussed

- the basic concept of reconstruction,
- the timeframe,
- response actions,
- incorporation of resources, including support from the national government, the scale of projects, financing of projects, and the schedule
- government policies, the structure of government reconstruction
- reconstruction from nuclear disaster
- follow up and changes to guidelines as needed.

The document above was restricted to the early stages following a disaster event with very little guidance on how to handle reconstruction work post-disaster.

To elaborate on limited attention given to reconstruction, the SENDAI framework only includes one target that is connected to reconstruction management. It proposed to reduce ‘the disaster damage to critical infrastructure and disruption of basic services’ to increase their resilience by 2030. In addition, Priority 4 of the SENDAI framework referred to disaster preparedness, response, recovery, rehabilitation, and reconstruction. Item 33 on the framework makes references to the role of national governments in bearing the responsibility of coordinating all concerned and affected parties of reconstruction. It also proposed a sequenced process where relief, rehabilitation, and reconstruction. Further, the framework emphasised mental health and psychological support for the victims, intended for a wholesome recovery. The drawback of the framework with respect to the current research is that it does not explicitly include any guidelines on specific public rebuilding projects or FEP of reconstruction work.

The literature search resulted in guidelines from various countries that have been put in place post-disaster to guide disaster planning, including a component focused on reconstruction as presented in Table 7 (International Federation of Red Cross and Red Crescent Societies, 2012; Mather LifeWays, 2008). The tick means the country had included the particular factor in their reconstruction guidelines and frameworks. Two decades ago, at the time of the Wenchuan Earthquake in China, the legislative provisions only provided guidelines for disaster response and not recovery and reconstruction (Lloyd-Jones et al., 2016). The lack of guidelines handicapped the delivery of projects in disaster-stricken areas.

Table 7 Characteristics of reconstruction by country

Country	United Kingdom	Australia	Japan	New Zealand
Characteristic of reconstruction				
Impact assessment		✓	✓	
Needs Assessment	✓	✓		
Prioritization/sequencing of activities				✓
Decision on the location of reconstruction			✓	
Coordination of community engagement and communication		✓	✓	
Establishing the leadership team		✓		✓
Incorporate local knowledge to planning			✓	✓

Focus on emotional wellbeing		✓		
Managing donations		✓		
Planning and permits		✓		
Master recovery plan		✓		
Risk management Ongoing project management tasks		✓		✓

Source: C. Bennett, Barber, and Fulcher (2010a)

There are many guidelines for planning after disasters that keep on getting refined with new experiences of disaster events, but none is universally accepted as the foundation to build upon (Alexander, 2015; Harahap, 2020). However, a unique feature of the current research is the placement of planning in the context of flagship projects. The unique nature and timing of those projects have created an audience who would find a review of planning guidelines helpful; a set of guidelines that would suit better for large-scale public projects in the aftermath of disasters. Notably, the available studies predominantly focus on guidelines for housing reconstruction (Ahmed, 2011, 2020; Bilau, Witt & Lill, 2015).

This review will essentially draw upon work conducted in the context of natural disasters. There exist no guidelines specifically for public projects that are formed post-disaster. As discussed thus far in this research work, there are many distinct consequences created by natural disasters that require a different planning process than is the norm. However, the author does not rule out essential planning knowledge from the general disaster literature, which can provide a solid structure for post-disaster construction projects by isolating important aspects of process and outcome.

Researchers have highlighted the planning differences between the reconstruction during ordinary times and the post-disaster phase (Hayat, Amaratunga, & Malalgoda, 2015; Hayat et al., 2019). The researchers, through their study, determined that due to limitations in resources and the need to rebuild faster, some of the phases may be less comprehensive and yet may present additional complementing components such as 'safety and security' and 'capacity building'. The case study specifically focused on road infrastructure reconstruction. However, the comprehensiveness of process guidelines or phases is determined by the depth of coverage desired (Perry & Lindell, 2003).

2.15 Chapter Summary

This chapter presented the context, concepts, objectives, issues, and the FEP of public projects. Discussion about flagship projects and their planning is limited and has been compensated by referring to large public projects to avoid the void. This review of the literature highlights the importance of understanding the nature, intentions, and outcomes caused by the mismanagement in the FEP phase prior to suggesting a set of guidelines for better management of the FEP. Figure 9 on Page 50 will be used as the conceptual model that will guide the study because it is the most widely accepted and used model for the FEP. Chapter 3 presents a detailed account of the methodology used in this research and the specific design chosen to explore the outcomes and their relation to the FEP of flagship projects.

Chapter 3 Methodology and Methods

3.1 Introduction

In the preceding chapters, the background of the study, the context, and the research aims and objectives were presented. This chapter introduces the methodological framework to explore the research question identified at the onset.

A thorough and well-structured methodology section allows the researcher to instill a sense of credibility about the researcher and his work in the reader's mind. Initially, the research process will be discussed in detail, and next, the validity of the research process will be examined. The research process included determining the purpose of the research, conducting a pilot study, a background literature search of disaster rebuilding using flagship projects, case study research design, data collection, data analysis, and write-up. The rationale for the choice of a case study design will be presented along with the study's philosophical stance. The study is framed around constructivism. This chapter will discuss how the paradigm and the theoretical perspective would inform the study. The validity of the research process will be a holistic evaluation covering construct validity, internal validity, external validity, and reliability.

The latter part of the chapter is dedicated to research methods, which is followed by a thorough portrayal of their application in this research. The researcher discusses ethical issues considered in light of this research. The final section discusses the credibility of the findings as a contributing factor to the quality and rigour of the research.

3.2 Purpose of the study

This research study aims to understand how planning in the front end affects flagship projects in post-disaster rebuilding and to produce a set of guidelines for the planning of post-disaster flagship projects. Accordingly, this research initially attempted to understand why flagship projects have delivered limited project results. Then, the limitations were studied in-depth to explore the factors that cause those limitations. Thus, this study allowed the detailed description and analysis of the 'patterns of limitations' and 'factors that cause the limitations' within the case studies. This was done by explaining the relationship of 'poor project outcomes' with the responses for reasons for these unfavourable outcomes, which ultimately gave rise to the question, 'How can a government best incorporate flagships into the urban fabric following a

disaster? Accordingly, this research study was able to provide ‘descripto-exploratory’ answers to the aforementioned research question as described by Saunders et al. (2009). Qualitative research studies could be categorised as;

- Exploratory, where the intention is to find out what is happening in a given scenario, ask questions, or assess a phenomenon in a different setup (Mills & Birks, 2014; Saunders, Lewis, & Thornhill, 2009; Swedberg, 2020).
- Descriptive where the purpose is to ‘describe’ a phenomenon in detail in its real-world context (Yin, 2014).
- Explanatory where the search is for causal factors to explain a particular phenomenon (Yin, 2014).

according to the underlying purpose or type of answer, a research intends to arrive at.

3.3 The methodology employed in this study

3.3.1 Philosophical stance

The typical point of departure of the research process involves determining its philosophical stance using a research paradigm (Ahola, Ruuska, Artto, & Kujala, 2014; Bhatta, 2018). Researchers perceive a paradigm as a set of commonly held beliefs and assumptions about ontological, epistemological, and methodological concerns (Johannesson & Perjons, 2014; Žukauskas, Vveinhardt, & Andriukaitienė, 2018). On the one hand, a research paradigm connects to ontology, where questions about the nature of reality, what units exist, and how these relate and interact with each other are studied. There are two main ontological perspectives: objectivism and subjectivism/Constructivism. Objectivism views reality as a given that is not affected by individuals and believes the world preexisted before individuals and will continue as a tangible entity irrespective of people’s actions (Freeman & Jones, 2018; Holden & Lynch, 2004). When applied to social sciences, objectivists assume that social phenomena exist external to individual members of society.

Subjectivism, on the other hand, upholds that reality is “created by individuals” and that the world is simply a “projection of the human mind” (Freeman & Jones, 2018; Lincoln & Guba, 2013; Morgan & Smircich, 1980). “While objectivists believe in a single reality, subjectivists believe that multiple realities could co-exist according to the different interpretations of the world. In the subjectivist view, social phenomena are regarded as a contextual outcome of the actions and perceptions of social actors that are in a continual process of revision through the

social interaction of such actors” (Jelinek, Smircich, & Hirsch, 1983; Mark N.K. Saunders, 2012; Sławewski, 2018). On the other hand, the ways in which people learn about reality is where epistemology comes into play (Johannesson & Perjons, 2014; Varpio & MacLeod, 2020). Finally, a research paradigm would find answers to methodological questions about proven ways of investigating reality and how to ensure that the produced content is valid.

As far as the research study was concerned, the researcher was not determined on a view of what was acceptable knowledge as the post-disaster construction environment is different from that of ordinary times. Hence, the researcher was not fixated on either a positivist or an interpretivist view. It should be mentioned that the research was not influenced by any theories but was driven by the research questions. The researcher strived to find the most suitable methods to understand and unravel knowledge about the research problems. Thus, with careful consideration, the philosophical position of this research was more aligned with interpretivism as there were not enough theories to base the current study on, and an in-depth investigation was required [See table 8].

Table 8 Research Paradigms

Paradigm	Positivism/Objectivism	Constructivism (subjectivism/Interpretivism)
Ontology ‘What is reality?’	There is a ‘single’ reality	Multiple realities exist.
Epistemology ‘How can I know what’s reality?’	Reality exists independent of the observer and can be measured using valid and reliable tools. Knowledge can be built through such tools to confirm or refute hypotheses pre-determined by theory.	Social context determines ‘Theory,’ and therefore, it is situationally and historically specific. Knowledge is based on interpretation and perception.
Theoretical perspective ‘Which approach do I use to know ‘x’?’	Positivism/post-positivism	Interpretivism
Methodology ‘How do I go about knowing reality?’	Mostly deductive. Experimental research/surveying	Mainly inductive. Ethnography, Grounded Theory (GT), Phenomenological Research, Action Research, Heuristic Research, Discourse Analysis, Deconstruction, Genealogy, Archaeology

Method ‘What tools/techniques do I use to find out reality?’	Primarily quantitative, including sampling, measurement and scaling, questionnaire surveys, focus groups, and interviews followed by statistical analysis in most cases subjected to the tools used.	Mainly qualitative using qualitative interviews, case studies, observations, narrative and theme identification, auto-ethnography, semiotics, literary analysis, and intertextuality
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3.3.2 Research Approach

In literature, there are generally two broad approaches to research design according to whether the study is based on literature or whether it generates a theory with the study’s data collection and analysis. The two extremes are the deductive and inductive approaches [See Figure 10]. The deductive approach is where the researcher uses past literature and develops a theory, and he/she will test the hypotheses during the research activity. On the other hand, in the inductive method, the researcher collects the data first, which will drive a theory. To elaborate, Inductive methods create some generalization from the collected data, whereas deductive methods test the validity of available theories through data collection.

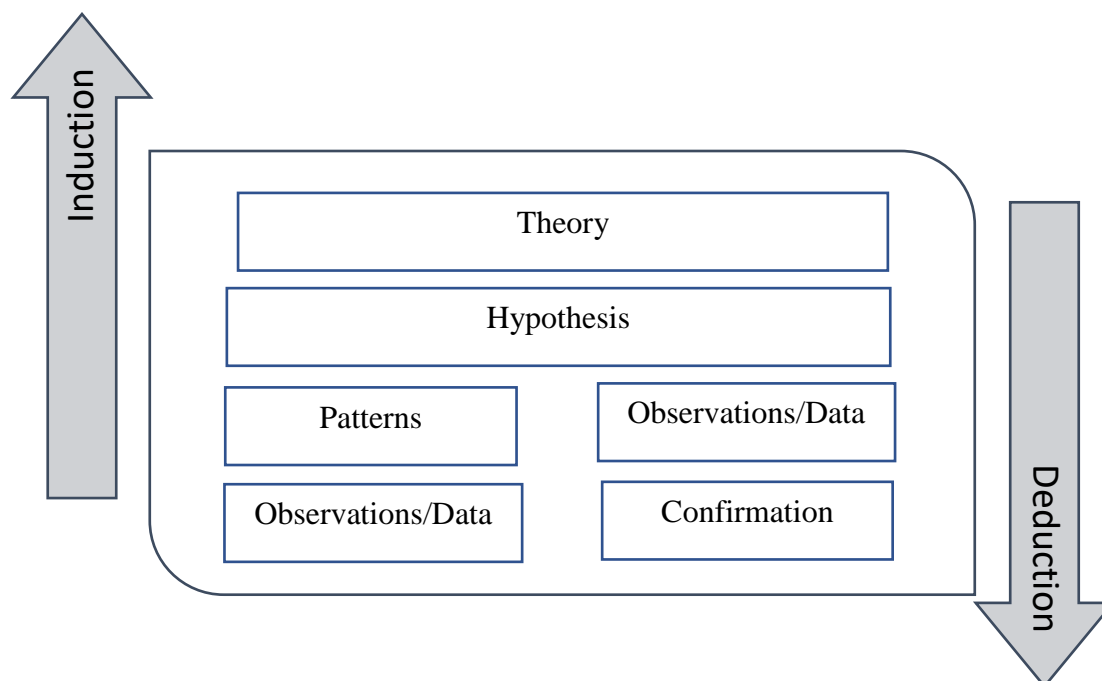


Figure 10 Research Approaches

As discussed in Section 1.5, limited research has been done in the current research area. The background information pertaining to this research study found in the literature was inadequate. A need to conduct further research to establish contextual settings related to this research study was identified. Therefore, this research study started with the inductive reasoning approach of

theory building through its pilot study. It then continued in the same philosophical stance where multiple case studies were used to create theoretical generalisations [See Figure 11 below].

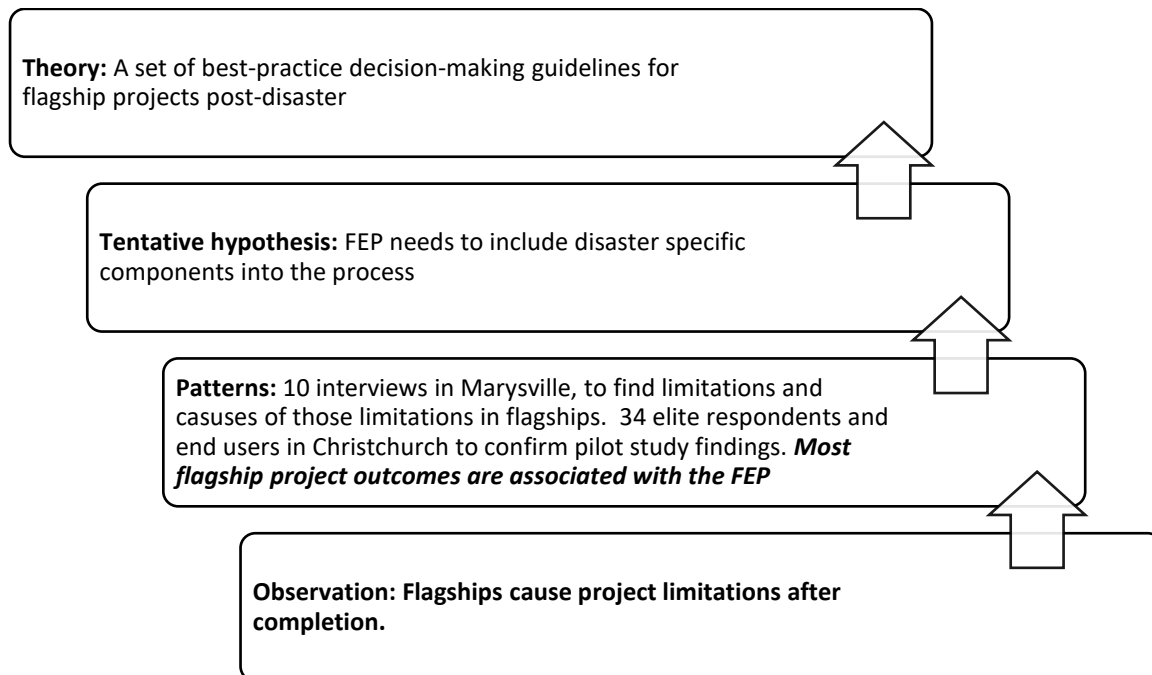


Figure 11 Inductive approach in the process to suggest a set of guidelines for FEP of flagship projects

3.3.3 Research Design

The study was conducted in two stages. The initial intention was to take two disaster events, one each in Australia and New Zealand, and compare how the front end of flagship projects contributes to city rebuilding. However, due to the unfavourable and unforeseen circumstances created by Covid 19 pandemic, the study design had to be altered.

The first part of the study was conducted in Australia as a pilot study as further data could not be collected or the findings be compared with the Australia case study. Nonetheless, the initial data collection activity formed a solid basis for the subsequent data collection exercise in New Zealand.

This study adopts an empirical qualitative research approach. A qualitative case study aids the researcher in exploring a topic to comprehend, create knowledge and define, rather than to quantify or test outcomes (Creswell, 2014; Creswell, Hanson, Clark Plano, & Morales, 2007; Miles, Huberman, & Saldaña, 2014). Based on R. Yin (2011), Halaweh (2012), Krueger, Mellat Parast, and Adams (2014), and Glaser and Strauss (2017), the overall research strategy is a mix of interpretive Grounded Theory and case study research methods. The lack of systematic research into flagship projects or, moreover the lack of research of any quality in

the Australasian context justified the use of both explanatory and theory-building approaches, as Glaser and Strauss (2017) recommended. Yin (2011) recommended developing a clear and comprehensive outline of the methods and procedures used when using the case study methodology.

Similarly, in the case study research and grounded theory literature, as Ravenswood (2011) quoted, Eisenhardt (1989) recommended leading the research study with a research protocol for the theory-building process. An initial review of flagship projects worldwide confirmed that the research problem had not been investigated in depth to facilitate hypothesis testing. The design, thus, involved an exploratory-descriptive study to obtain pragmatic and under-explored views on the subjects. This provides a subjective and interpretive understanding of the phenomenon (Stake, 2006). Yin (2011) advocates the use of case study research to answer “why” and “how” questions. This approach also necessitates theory building to understand the factors that cause limitations in flagships as an initial first step (Eisenhardt, 1989; Glaser & Strauss, 2017). To substantiate the descriptive-exploratory phase of the study, the researcher uses multiple case studies beyond the initial exploratory pilot case study (Stake, 2006).

The case study research design includes a single, exploratory, in-depth pilot case study followed by a more exploratory, cross-case analysis of three flagship projects in Christchurch. Problems, issues, and evidence identified in the exploratory pilot case study and literature sets the direction for further investigation. Though exploratory, the subsequent multiple case studies aim to test a tentative pattern of significant insights identified from the pilot case and the literature. Thus, it can be stated that the study was preceded by an exploratory, observational single pilot case study and an exploratory, instrumental multiple case study of three projects. Table 9 indicates the number of case studies, unit of analysis, main objectives, dependent variable, and primary method of analysis for the pilot case study and the subsequent multiple case study research.

Table 9 Characteristics of the pilot study and multiple case studies

	Pilot Study	Multiple case studies
Number of cases	One	Three
Unit of analysis	Flagship projects in Marysville	Flagship projects in Christchurch
Study Objectives	Exploratory/Descriptive	Exploratory and Descriptive
Dependent Variable	N/A	FEP

Main method of analysis	Descriptive, Grounded theory	Pattern Analysis
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The two questions of the initial study were “ How do you think the flagship projects have benefited Marysville?' 'What are the positive aspects of those projects? ' and ' What are the negative aspects of those projects?’ ” A basic framework of factors that cause project limitations was formulated in the pilot study. These factors were validated by applying those to individual case studies in Christchurch. Therefore the study will further attempt

- To validate the framework developed from the initial case study
- To understand and explain how the FEP collectively and individually shapes the final project outcomes
- To produce decision-making guidelines for planners of future anchor projects

According to previous research, there are five aims to the research inquiry: identification, description, generation of explanation, testing of explanation, and control. This research will ‘identify’ the limitations of flagship projects post-disaster, ‘describe’ the FEP process for flagship projects post-disaster and provide an ‘explanation’ of the differences and similarities across projects. It will conclude by identifying possible improvements or measures that could be implemented to enhance positive outcomes in the immediate environment.

Drawing on constructivism described by Stake, this research will employ the viewpoint of Stake (2013), where they defined multiple case studies as being components of a particular phenomenon (Creswell, Hanson, Clark Plano, & Morales, 2007; Stake, 2013). For the specific study, the case selection was based on the number of completed projects at the start of the PhD study. The initial blueprint carried 17 flagship projects. The projects had to be completed at the beginning of the study to assess planning outcomes. The government and its authorities had only completed five projects. Christchurch Justice and Emergency Services Precinct [CJESP], Christchurch central library, Christchurch Bus Interchange, the Hagley Oval, and The Earthquake Memorial were completed. The Hagley oval was only a renovation and enhancement of the existing facility. The national memorial did not directly benefit its users other than carrying a monumental value. Therefore, those two projects were omitted.

The study followed the literal replication route in choosing the case studies where selecting the case studies with similar settings is expected to deliver similar outcomes (R. Yin, 2011). The replication logic requirement of the multiple case study design method offers suggestions to

determine the number of cases. Researchers suggested picking 3-4 case studies if the cases are similar in nature (Mills, 2012). Three cases were selected. In the multiple case study approach, it is suggested that the selection of cases needs to demonstrate case appropriateness and adequacy. For suitability, purposeful sampling strategies for cases are commonly used. The cases chosen are pre-determined cases where early literature revealed the projects to display poor planning characteristics across those 17 flagship projects. Appropriateness for this study is when a case is classed as a flagship project on the blueprint and has been completed at the start of the study. In the study, the selection of cases is driven by the need to “create and test new interpretation’ rather than generalisation. If the number of cases is small, it is suggested that in-depth and rich data are derived from those cases. There is no general agreement on the number of ideal case studies in terms of adequacy, but a trade-off between the breadth and the depth can determine the number of cases selected.

3.4 Case study methodology-Multiple case studies

Yin (1994) defines “a case study [as] an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. An instrumental case study such as the one within this study, is where the researcher uses the case study to gain insights into a phenomenon (Crowe et al., 2011; Stake, 2006). In the current study, Christchurch Earthquakes and its flagship projects were not the prime focus but a tool to understand how the FEP can limit adverse project outcomes once the projects are completed. The focus remained on the results and not the topic.

Kothari (2004) explained the importance of methodology in guiding the selection and application of a suitable approach to be adopted in a research activity.

Disaster research studies can be organised into four overlapping areas of Preparedness planning, response, recovery, and mitigation. Recovery remains the least researched due to the cost and time length associated with longitudinal studies, but some researchers remain optimistic that those studies would improve organisational efficacy and reduce the suffering of the people (Phillips, 2014). They further added that areas such as infrastructure rebuilding, recovery planning, “green” rebuilding, business recovery, and psychological and spiritual recovery needs are some of the areas that benefit from a qualitative approach. Qualitative Disaster Recovery [QDR] often relies on a more flexible approach than that mandated by a traditional, quantitative, deductive, and positivist framework (Phillips, 2014). They voiced that the process adopted by the qualitative researchers not only discovers critical insights that

advance theory but offer reliable, evidence-based best practices. As stated in the opening chapter of the thesis, the aim was to generate an understanding of the FEP of flagship projects in New Zealand to produce a set of planning guidelines. In addressing this aim, the emphasis was on gaining different perspectives from all stakeholders involved in deploying those projects post-disaster. Associated with this is the belief that each stakeholder group may have a different experience, perceptions, and expectations of those projects. Employing multiple methods is therefore suggested to capture these potentially different perspectives for successful integration and understanding of a case study [Table 10 and Fig.12]. Figure 12 is a graphical representation of the information presented in table 10 to show the sequence more clearly.

Qualitative data that is considered descriptive in nature offers greater depth into human behaviour due to its subtlety and richness (Walliman, 2011).

Table 10 Research process adopted for the study

Research Design	Multiple Case studies
Ethics Approval	Ethics approval from the University of Auckland
Selection of case study and sample participants	Pilot case – One geographical location, eight projects with a bird’s eye view Purposive and snowball sampling Six stakeholder groups One geographical location, three flagship project sites Purposive sampling Snowball Sampling Six Stakeholder groups
Collecting data	Recruitment Field visits Semi-structured open-ended questions Documentation review Field notes Memoing
Data analysis	Pilot study: Grounded Theory [GT] analytical technique to code and categorise data, constant comparative analysis, analysing data as collected Individual Case Study Cross-case analysis Triangulation of data Framework/Diagram in the pilot study Set of guidelines in the main study
Managing data	Pilot Study: Manual + NVivo 12 Main Study: Nvivo 12

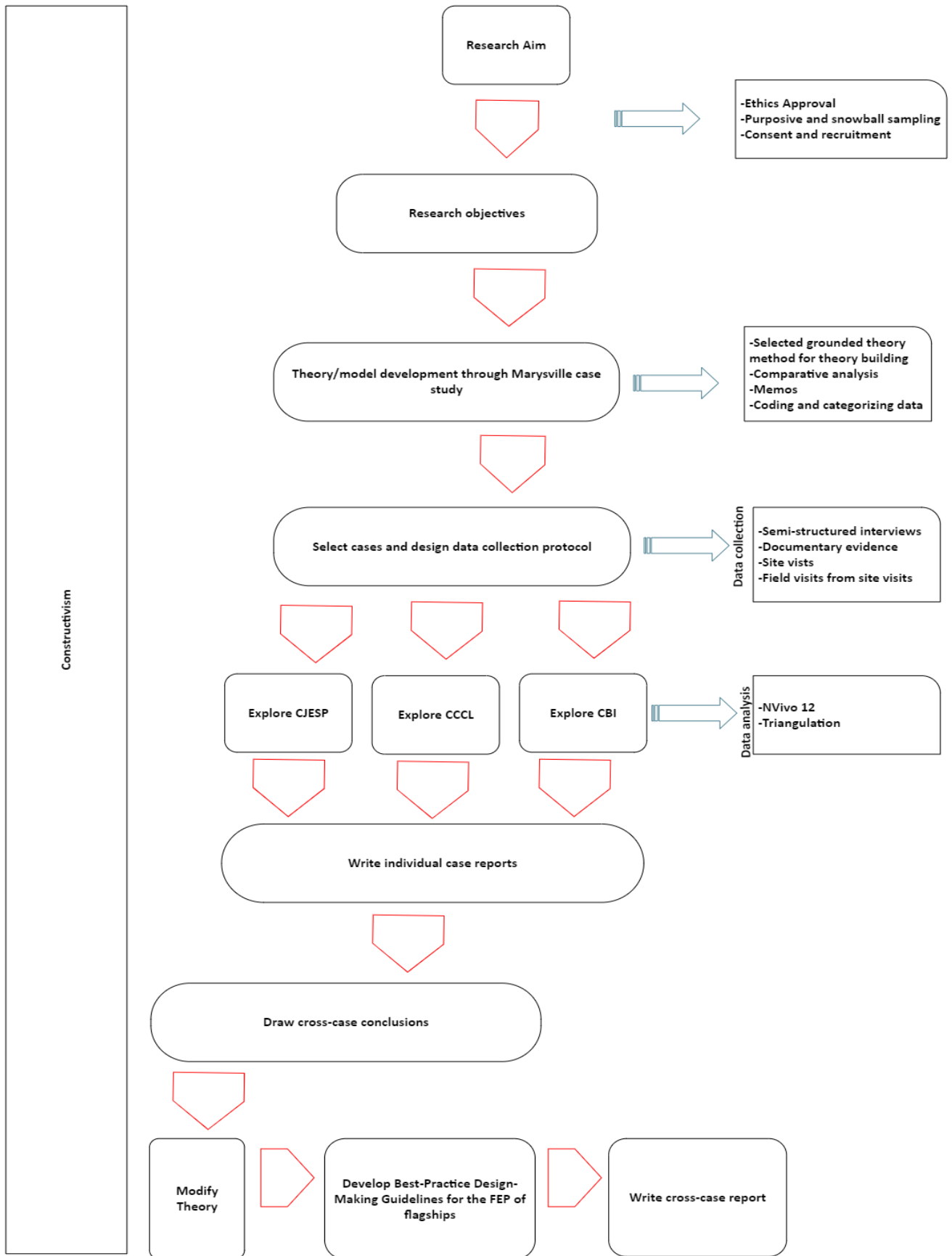


Figure 12 Research process followed for this research study

3.4.1 Data Sources

In case study research design, using multiple data sources is required for a holistic view of the case (Yin, 2014). Data sources in case studies typically consist of interviews, site visits, written material, and artefacts related to the case being researched (Stake 2006).

3.4.2 Case selection

The area of the research is not yet thoroughly researched, so the researcher prefers an in-depth appreciation of the issue of interest in its natural, real-life context. For this purpose, the case study approach is particularly useful (Crowe et al., 2011). A collective case study approach adopted for this study allows comparisons across several cases (Crowe et al., 2011). The findings may either test the theory in place or fall in place with the existing theory. This will allow the application of recommendations based on findings more appropriate to a wider geographic area.

Two case studies were used for the research study. Namely Christchurch Earthquakes 2010-2011, New Zealand for the main study, and Victoria Black Saturday Bushfires, 2009, Australia for the pilot study.

New Zealand experiences frequent earthquakes due to its location in the collision zone between two moving plates of the earth's crust. A large earthquake with a magnitude of 7.1 occurred in 2010 occurred 40km west of Christchurch and resulted in disruptions to water, power, and sewerage services. The next more severe earthquake occurred in 2011, with 6.3 on the Richter scale, causing extreme damage and destruction to land, buildings, and infrastructure in the central city and the surrounding area (Potter, Becker, Johnston, & Rossiter, 2015).

The media reported the Christchurch earthquake (2011) as the worst natural disaster in 80 years of the history of New Zealand. It was the second ever national state of emergency the country had experienced. It killed 185 people and injured several thousands. It is believed that many of

the deaths were a result of the falling structures that were already damaged by the earthquake in 2010. The one that followed as an aftershock caused further damage as it occurred on a previously unknown shallow fault line just 10 kilometres from the CBD. The economy was massively affected as 100,000 homes had to be demolished along with 1240 demolitions within the central city up to early 2016. Another 100,000 badly damaged homes needed extensive repairs. [See before and after Canterbury earthquake photos in Figure 13 below]



Figure 13 The Christchurch CBD pre-earthquakes in 2009 and post- earthquakes in 2011 Source: Schmidt Hammer Lassen

It was recorded as the costliest natural disaster for insurers worldwide since 1950. It was estimated that the overall cost of the damage caused by the earthquake was equivalent to around 10% of the GDP at the time (New Zealand Parliament, 2011).

Similarly, Australia is continuously faced with the threat of bushfires. Black Saturday bushfires (2009) were described as ‘the worst in Australia’s history’ by the Victoria Bushfire Reconstruction and Recovery Authority (VBRRA). One hundred seventy-three people were killed. 430000 hectares of land were burnt. The incident recorded the highest loss of lives from a bushfire in Australia. The total cost of the fires was estimated to be over AUD 4.4 billion (Victoria Bushfire Reconstruction and Recovery Authority, 2011).

Those case studies were carefully chosen, informed by the existing literature, prior appreciation of the theoretical settings, and also by the research questions that have been formulated for this study.

3.4.3 Selection of sample

Sampling is defined as selecting a small number of cases from a larger group (Walliman, 2011). To draw conclusions, the researcher would have to pick and recruit a few typical ones called ‘case studies’ using a sampling method. Methods in case studies additionally include procedures and techniques used for data generation, collection, and analysis, managing the data, and reporting the study’s findings (Yin, 2012).

Selecting a sample from a population can be done in two distinct ways. One is to draw a representative sample, and the other is to obtain an exploratory sample. The latter is mainly used when the researcher engages in a qualitative study that requires a small sample to probe an unexplored topic to discover new insights or establish new theories (Denscombe, 2014b). Next, the researcher has a choice between probability and non-probability sampling to obtain the sample. Probability sampling, adhering to its statistical influence, counts on the researcher not influencing the sample selection in any way but relying on the ‘normal distribution’ of events and picking random cases from the population (Denscombe, 2014b). This study chose the sampling approach at the other end of the spectrum; non-probability sampling, where the researcher dismisses random selection of cases unreliable but displays a choice in selecting a representative sample for the study (Denscombe, 2014b). As the author explained further, the respondents may be chosen due to their expertise or experience in the subject matter being researched.

3.4.4 Sampling procedure

According to the underexplored nature of the study, the researcher first used an exploratory sample, interviewing carefully chosen end users of the completed flagship projects. The respondents had to be frequent visitors to those facilities

- Marysville Community centre – Regular visitors to the gym or other related facilities
- Marysville Primary School – Parents who had a child or children attending the school

- Hotel and the Conference centre – visitors who had booked an overnight stay at the hotel

Purposive sampling is where the researcher draws deliberately selected sample cases based on some known attribute/attributes guided by either the relevancy to the issue being studied or due to the knowledgeability of the case (Denscombe, 2014b). The researcher can to an extent, make the sample a representative sample by ensuring a full range of people is included in the study through the way the sample is drawn (Denscombe, 2014b). The initial set of interviews revealed that project outcomes from the perceptions of the end users only offered information related to the post-delivery of the project. Their insights were useful in establishing what could have influenced those outcomes. However, a need to investigate the front end of projects diverted the study's sampling from a mere customer-oriented exercise to that of a holistic view of the deployment of flagships.

3.4.5 Site selection

Narrowing the focus to completed public-serving flagship projects led to the purposive selection of three case study sites that met the following inclusion criteria.

- The project is currently in operation and has been in operation for over a year
- The project is currently operated by the public sector/public sector entity

The researcher considered the accessibility to the project site and the possibility of participant recruitment in the selection process. Stake (2006) mentioned identifying one key person to assist in reaching other potential participants as a prerequisite for the success of this type of case study research. Following his recommendation, a key decision-maker within each organisation was identified and contacted early in the planning stage. However, this was somewhat unsuccessful in the pilot case study but was one of the success factors in the main case study. The chosen key people helped break barriers that existed in accessing other key contacts within the organisation.

3.4.6 Participant selection

The researcher needed in-depth knowledge about these projects that would be considered novel knowledge to establish guidelines for FEPof flagships. To assess the outcomes of flagship projects post-disaster, the researcher decided to seek insights from the project's receivers or end-users. But the pilot study revealed that the decisions and opinions of the stakeholders at the implementation end might be richer and more insightful than the end-user opinions. Therefore, the subsequent interviews that followed the preliminary interviews led to theoretical sampling, where a new route of discovery is created based on the development of a theory grounded in evidence (Denscombe, 2014b). The revelation that mismanagement of front-end project issues leads to limited project outcomes once completed gave the research project a new direction. To explore these areas in the main study, it was also understood that the insights have to come from key informants or experts. These people at the director level or top management level had to be reached. The first people that were recruited named, proposed, and introduced the researcher to new potential participants that fit the researcher's sampling frame [Figure 14].

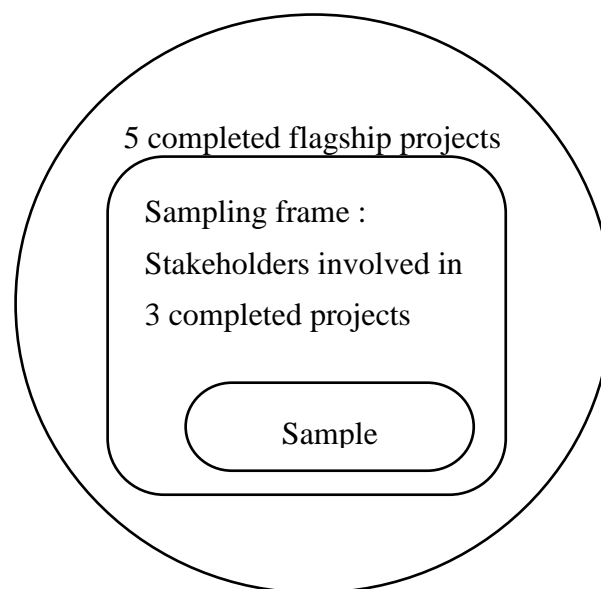


Figure 14 Sampling frame for the study

This led to Snowball sampling being used to reach a sufficient number of respondents. Denscombe (2014) recommended snowball sampling being compatible with qualitative studies that use small-scale exploratory samples that may also involve theoretical and purposive sampling. The main study included a selection of planning officials [government officials], architects, consultants, builders, operators [the management staff of the facilities], and users.

The participants will be drawn from several organizations.

New Zealand

- Government officials of Canterbury Earthquake Recovery Authority, Christchurch City Development Unit, Ōtākaro limited, Regenerate Christchurch, and Christchurch City council and project teams as planners of flagship projects (5 organizations)
- Contractors that built the three projects
- Architects involved in the three projects and the blueprint
- Consultants that rendered their services to the three projects and to the blueprint
- End-users of Christchurch Justice and Emergency Services Precinct, Christchurch Bus Interchange, and Tūranga, as the only completed projects at the start of the study

Australia

- Government officials of Victoria Bushfire Reconstruction and Recovery Authority, Community Recovery Authorities, Local councils such as Murrindindi Shire Council, Department of Planning and Community Development, and Reconstruction Advisory Board as planners of anchor projects
- End-users of Marysville Community Centre, Marysville Convention Centre, and Marysville Primary School as completed flagship projects

The literature revealed the type of people who have influenced the decisions with regard to flagship project generation. These people were selected due to them being the ones able to provide the most useful or relevant data to the study. The samples chosen for a study must convey a sense of the trustworthiness of qualitative data analysis (Elo et al., 2014). As a means to achieve this, inclusion criteria for participants were developed and applied in the selection [Table 11].

Table 11 Participant inclusion criteria and rationale for engagement

Inclusion criteria	The rationale for engagement Main case study	The rationale for engagement Pilot case study
Planners with more than ten years of experience in the public sector	Dominant stakeholder group to have shaped the flagship projects Have the most influential and the strongest decision-making power. Considered key informants for the study because of the decision-making capacity within the organisation	Same as previous
Consultants [have had to work within government sector projects before with more than ten years experience]	Engage with the project teams at various levels to offer specialised services upon which the design success is determined Considered key informants for the study because of the decision-making capacity within the organisation	Not included
Designers [have had to work within government sector projects before with more than 10 years experience]	The stakeholder group to have remained with the project the longest Considered key informants for the study because of the decision-making capacity within the organisation	Not included
Builders [have had to work within government sector projects before with more than 10 years experience]	The entity that creates the visions put forth by the above stakeholders Considered key informants for the study because of the decision-making capacity within the organisation	Not included

Operational staff [have to be in a management level capacity]	The entity that runs the facility and serves the public to fulfil their needs. The customer experiences the product whilst interacting with this particular stakeholder group Considered key informants for the study because of the decision-making capacity within the organisation	Same as previous
End user [Frequent users with specific criteria for each project]	The receiver of the public project/service The stakeholder that decides how the flagship projects are perceived	Same as previous

Source: Author's own

The researcher experienced difficulties obtaining a larger sample size as some of the professionals did not wish to participate in the study due to organizational objections or obligations as they perceived that the study could reveal commercially sensitive information. The researcher made an attempt to explain the benefits of having an opportunity to explain their role in city rebuilding, to add to the existing knowledge of flagship projects, and to create new learnings for those involved in city rebuilding post-disaster. They were convinced that the findings would help them plan post-disaster reconstruction more productively in future events. As a result, the overall post-disaster reconstruction process can thus improve. Those companies involved were won over by drawing their attention to the feel-good factor - the satisfaction of contributing to the betterment of the city/town rebuilding process through contributing to the creation of best-practice guidelines to establish flagship projects.

3.4.7 Ethical consideration

Ethical considerations become particularly relevant to qualitative studies due to the nature of the study's procedures and can be situational and context-specific (Arifin, 2018; Øye, Sørensen, & Glasdam, 2016). The ethical approval for multiple case study research was obtained by the Auckland University Human Participants Ethics Committee on 14.09.2018 for three years. The Reference Number was 021973. Each participant was sent/given a copy of the

consent form and the Participant Information Sheet that set out the objectives, the nature of the study, and the interview process. The documents highlighted voluntary participation, confidentiality, and anonymity of participants and aggregate use of data, data storage protocols, and the use of information, withdrawal, and support offered during the study. The anonymity and confidentiality of the participants were crucial to the researcher as the study unveiled project-specific findings. The data collected, recorded, and transcribed were de-identified to ensure non-traceability to participants. In snowball sampling, it was hard to safeguard the anonymity within the same organisation, but the researcher ensured that it stayed within that entity alone.

3.3.8 Risk Management

A risk management strategy with some contingency planning was developed early on in the process to identify the risk of revealing commercially sensitive information by the participants. The researcher adhered to ethical principles, including beneficence and non-maleficence, towards its participants. For example, while the risk of recalling the personal experience of the disasters was low, the ethical application process identified those instances and offered details of counseling services. The questions were formed to understand the facts around rebuilding through specific projects, not focused on the actual disasters themselves. The researcher determined alterations to data collection in the event of the failure of the main methods. Timeframe revisions were also applied due to the impact of the Covid on the study and failing to return to Australia for the second phase of data collection and validation. The Australia case study was restricted to a pilot study.

Lastly, the risk of being in unfamiliar places, traveling to Australia, and recruiting study participants who are at high positions in their respective positions carried risks of failure but were managed well by having second-best options at all times.

3.5 Data Collection – Qualitative over Quantitative data

In order to maintain its holistic approach, a case study approach often involves a number of tools for data collection. It is believed that approaching the same problem from different angles would be a holistic effort and will deliver similar findings (Crowe et al., 2011). However, qualitative methods are more commonly used than quantitative methods because of the preference for rich and deep insights (Crowe et al., 2011).

The major constraint of case study research is the low representativeness of the issue that is being researched. However, this is minimised by its ability to offer a greater, more comprehensive, and in-depth understanding of a phenomenon (Easton, 2010). In other words, it offers an opportunity to unravel cause and consequence or to find out the why and how of a situation, albeit limited to a few instances.

This research study used qualitative methods to arrive at research objectives. The reason for adopting a qualitative approach is that in-depth insights into the subject matter are limited and therefore preferred. Qualitative research offers a closer look at the individual's point of view, whereas quantitative methods focus solely on facts that obstruct the proper understanding of real experiences (Seale, Gobo, Gubrium, & Silverman, 2013). Furthermore, it is expected that qualitative research will convey 'depth, diversity, subtlety, and complexity' (Denscombe, 2014a).

3.5.1 Interviewee recruitment

The researcher did an internet search on the companies that have been involved in flagship projects since the Canterbury Earthquake in 2011. The official company websites contained information about the key people who were involved with those projects. The participants' email addresses that were available to the public were obtained. The researcher wrote to potential interviewees inviting them for an interview. Those who agreed to participate were

then sent more information [the Participant Information Sheet and the Consent Form]. Those who turned down the invitation were asked to nominate suitable participants who are employed at the highest decision-making level of their respective companies. The response from the Christchurch case study-related participants was relatively better than the Australia case study. For the Australia case study, the majority of the respondents were recruited after the researcher physically visited the sites and explained the research and the benefits in a personal setting [at a café, in a private museum, and the information centre]. The researcher was able to recruit 11 interviewees for the pilot study and 34 participants for the main data collection exercise.

Some of the final interviews were conducted via zoom in 2021 to check the validity of the data collected in 2019.

All of the interviewees from Christchurch and two interviewees from the Marysville case study volunteered to be contacted during the PhD for any areas that the researcher may think needs a bit more clarity. Those voluntary gestures have proven very useful in probing into areas of interest within data.

3.5.2 Pilot study

A pilot study refers to a small-scale version or a trial run of a larger study. The pilot study also addressed methodological questions. The pilot study was conducted in Marysville, Australia, involving 11 participants who belonged to the government planning, regional council, facility management, facility users, and business owner categories and helped deliver a holistic view of the outcomes of flagship projects experienced by different stakeholders which formed the basis for the main study. The pilot study was conducted with the objectives 1) To test the methodology, 2a) To provide evidence for future research focus by exploring the types of Flagship projects that have been built in Marysville, Australia, following the Black Saturday Bushfires 2009, 2b) To provide evidence for future research focus by understanding the

limitations of flagship projects in post-disaster rebuilding following Victoria Black Saturday bushfires, 2009

A data-driven model revealed that most factors that affect project outcomes are rooted in the front end of a project. The model was combined with the extant literature to arrive at a collection of front-end planning factors that causes limitations in flagship project post-disaster.

The pilot study is presented in Chapter 4 of this thesis.

3.5.3 Interviews

Interviews in person are expressed as social encounters where the participants engage productively to produce retrospective insights into their behaviours in the past through verbal and non-verbal cues (Cowan, 2011; Seale et al., 2013). These can be in the form of experiences, emotions, and thoughts. It is identified as a qualitative tool to dig deep into themes and responses in the research using a pre-determined set of questions as a guide.

The interviewer will be guided by a list of questions that he/she is seeking answers to, but the interviewee will have the liberty to develop ideas and speak more vividly on the issues that interests her/him. It is flexible in terms of the sequence of topics discussed, but the interviewer will guide the interviewee to discuss the areas of interest in the topic researched. This approach will also allow the researcher to explore new lines of inquiry as guided by completed interviews.

A holistic view of flagship projects and their role in city rebuilding post-disaster are expected through these interviews. The research involves semi-structured interviews to be undertaken by the government officials as planners of anchor projects, the contractors, consultants, sub-contractors, designers, and end-users of anchor projects during the research study. A total of 30 interview participants from each country will be included in the sample, constituting 60 interview participants in total from both Australia and New Zealand. The initial participants were identified through project reports, corporate websites, and through Professor Suzanne

Wilkinson. The initial round lasted from November 2018 to August 2019, covering both Australia and New Zealand. Three interviews were conducted via zoom due to covid restrictions and lockdowns to test the validity of the data collected in the earlier phase. The findings revealed no difference from the outcomes stated earlier by the respondents.

The type of interview utilised was expert or key informant interviews. An expert can be defined as a person who has the responsibility for and the accessibility to the decision-making process to develop, implement or control a solution (Meuser & Nagel, 1991). An expert holds specific knowledge, an influential position within the decision-making process, and influences the structure that others rely on (Bogner, Littig, & Menz, 2009).

Bogner et al. (2009) distinguished three types of expert interviews based on their epistemological functions; exploratory, systematising, and theory generating. Theory generating expert interview as one of the three is frequently used to interpret data under the inductive theory development method. It was considered a promising tool for investigating and analysing the increasingly complex and informal decision-making process (Kaiser, 2014). The definition fits with the objectives of the study to find out the limitations and the factors that cause the limitations of public flagship projects.

As per Bogner et al. (2009), the benefits of the approach included,

- possible suggestions of other experts in the field to contribute to the study,
- gain easy access to the elite respondents through one initial contact,
- the easy point of entry to obtain respondents as the top layer makes their own decisions whether to participate or not.
- Quick results,
- The respondent could be motivated to participate

- if the researcher belongs to the same field as the expert
- the self-awareness of the scientific relevance of their contribution,
- desire to make a difference/improvement in the society/problem area

Key Informant Interviews are beneficial as a part of an initial assessment of an organization or a community issue allowing for an insightful and profound overview of the problems (Lavrakas, 2008).

Grounded theory analytical technique for model building

It is expected that the initial case study would result in a Substantive theory. According to Denscombe (2014) substantive theory is a product of a localised research exercise. A number of substantive theories would collectively formulate a formal theory that can be applied across a vast number of settings (Denscombe, 2014). The researcher opted for the GT method as previous literature lacks in disaster-relevant studies that would explain the FEP process.

3.5.4 Documentary Evidence

Documentary evidence played an important role in the research study. Researchers have warned against drawing solid conclusions without corroboration. Documents can be biased data gathering tools because the researcher has the liberty to choose, and the extent of the use of their reflexivity is user-dependent (Gorsky & Mold, 2020). Researchers' skills come to play when they are expected to use their interpretive and analytical skills within set contexts, meanings, and language (Gorsky & Mold, 2020). When the researcher fails to behave as mentioned above, problems of accessibility, credibility, diversity, and selectivity may result (Denscombe, 2014b; R. Yin, 2014).

For the purpose of this study, the researcher relied on credible sources wherever that was possible [government publications, material published by private consultancy, government

websites, reports, and blueprint documents that were used earlier in the process]. Where the researcher was unsure about the source, they cross-checked its validity through another research method. For example, asking for clarification from the interviewee respondents who volunteered to be contacted during the research study period or cross-checking the validity of one online newspaper article against a credible national newspaper content]. The documents were excluded where credibility could not be established.

The government planners and flagship project participants were careful not to share documents that contained commercial sensitive data or financial information. As a result, some of the areas could not be probed.

3.5.5 *Field notes*

Field notes are notes a researcher takes whilst in the setting of a case study (Phillippi & Lauderdale, 2018). Field notes mainly include researchers' ideas, thoughts, and queries regarding their study observations and interviews and the participants' verbal and non-verbal behaviour within the study context (Flick, 2018; Phillippi & Lauderdale, 2018). Researchers tend to use 'field notes' to enhance data and to make data more context-specific when using most qualitative research methods (Creswell & Poth, 2016; Flick, 2018).

The researcher took field notes on every trip to flagship sites both in Marysville and Australia. Details about the physical sites, any signage on or near the premises that proves its day-to-day use as a building, any useful information the researcher overheard in the background, notes taken during interviews/while 'people watching' at public places such as the library and the bus interchange in Christchurch. Field notes also included brainstorming mind maps to connect those to emerging ideas/findings. Additionally, the notes helped in recalling conversations that the researcher had with the respondents, and this proved useful when a person was contacted to clarify a grey area.

3.6 Data analysis

For the pilot study, the data were subjected to concurrent data collection and analysis, coding and data categorising, constant comparative analysis, storyline, and memos as part of grounded theory analytical methods (Chun Tie, Birks, & Francis, 2019; Kolb, 2012). With the grounded theory analytical technique, the researchers derive knowledge about the study focus from its participants to build theories grounded in data (Birks, Hoare, & Mills, 2019; Chun Tie et al., 2019). The Grounded Theory analytical technique was used in the pilot study to create, analyse and integrate reliable factors that may limit favourable outcomes of flagship projects post-disaster, rather than generate theory. The ‘inductive, iterative, and interactive’ nature of the method allows the researcher to gain more solid conceptual realities driven by the data (Charmaz & Belgrave, 2012). The data was analysed under the Grounded Theory analytical method first and then using content analysis to validate and confirm the findings of the Grounded Theory analytical technique.

For the main phase of data collection, interview transcripts, notes taken during visits to the actual project location, and project-related documents were uploaded to Nvivo. For case studies, a systematic and well-documented method of managing and analysing data is recommended (Stake, 2006; R. Yin, 2014). Consistency of the use of the method in analysing data across cases also increases the credibility of the findings.

Analysis process

The researcher undertook content analysis to arrive at common themes, differences, patterns, and explanations that opened up new avenues for data categorisation, in each case separately and then collectively (Miles et al., 2014; Stake, 2006; R. Yin, 2014). For the pilot study, the researcher adopted ‘analyse as you go’ method, that requires the researcher to analyse data as it is collected, linking with the field notes, memos, and other project-related documents.

3.7 Synthesising and managing data

3.7.1 Triangulation

By definition, triangulation refers to using multiple methodological resources of data (Merriam & Tisdell, 2016; Miles et al., 2014; R. Yin, 2014). Researchers may draw from multiple data sources by gathering data from different time periods, locations, or perspectives. Triangulation during the pilot case study include

-Comparing and combining all data sources continuously using the Grounded Theory analytical method to understand the outcomes of projects and the factors that cause those limitations. Data sources complemented one another to help verification, enhancement, and clarification of outcomes. For example, field notes and memos augmented documentary evidence related to the Marysville context, and documentary evidence supplemented face-to-face interview data about project outcomes and the factors that cause those outcomes.

Triangulation used in this study include

- Interviewing people who hold different viewpoints or possess varying amounts of power, such as interviewing higher-level directors and operational staff within one project
- Physically visiting those projects to observe project outcomes in two different geographic locations
- Conducting interviews at different periods in time – Started the pilot study in 2019 in Marysville, Australia, followed by interviews in Christchurch in 2019, 2020, and 2021 over ZOOM to verify the fit for the time of previously collected data (Kolb, 2012; Merriam & Tisdell, 2016).

A recommendation from Miles et al. (2014); Stake (2006) was to cross-check analysis and interpretations with a critical colleague or participant. Such an approach ensures greater

accuracy of the processes and the interpretation of data. On completion of each interview in the pilot study, key points from the field notes were clarified with the respondents for verbal confirmation of their accuracy. Transcripts were returned to the respondents to check for accuracy in what they wanted to say, and any proposed changes were made within the transcripts. For accuracy and correct interpretation, the transcripts were read and listened to many times. Supervisor input was obtained on the coding and categorisation of data. This process facilitated clarification of analysis and guided the research process, and challenged perceptions about the data (Miles et al., 2014; Stake, 2006).

How the research work covers trustworthiness criteria has been explained using the Table 12 below.

Table 12 Trustworthiness criteria covered within the research study

Criteria	Techniques	Techniques in this research study
Credibility [Internal validity]	<ul style="list-style-type: none"> -A detailed description of the research process -Prolonged real-life engagement -Persistent observation -Triangulation (sources, methods, researchers) -Peer debriefing -Negative case analysis 	<ul style="list-style-type: none"> -Phased literature review to ensure unbiased analysis of data A detailed description of how the pilot study for the generation of an FEP process was conducted (Chapter 4) -Contacting interviewees after the study to clarify areas - Visiting actual project sites to conduct the interviews in both the pilot and the main studies -Observation of real-life project locations for all the projects, evidenced by author's own photography used in the thesis -Triangulation (sources, methods) - a previous academic mentor assessed the methodology and the findings of the study

	<ul style="list-style-type: none"> -Referential adequacy -Member checks (process and terminal) -Pre-test the data collection instrument -Develop a list of sample interview questions -Choosing a suitable Unit of Analysis -Correct sample size -Data saturation 	<ul style="list-style-type: none"> -compared pilot study findings against raw data -provide a copy of the transcription and share any reports that were written using their data -Conducting a pilot study before the main research to test methodology and the suitability of expert opinion -The pilot study tested the appropriateness of the semi-structured interview questions that could help achieve the research aim -Continuing interviews until data saturation is reached.
Transferability (External validity)	-Thick description: establish relevance	Thick description of the case and findings Purposive sampling
Dependability (reliability)	<ul style="list-style-type: none"> -Peer examination – another researcher conducting the analysis -Getting colleagues from a know-how of the discipline to share ideas about the research and its findings -Triangulation techniques -Stepwise replication – different researchers carrying out separate inquiries to be compared later -Audit trail – a step by step record for traceability -Examine the research process of how data were 	<p>Triangulation</p> <p>-The researcher conducted a thematic analysis post-pilot study to check the accuracy of the Grounded Theory Analytical Method.</p>

	collected; stored; and their accuracy	-Consistent and organised data collection, analysis, storage, and maintenance.
Confirmability (Objectivity)	-Confirmability audit: -Triangulation and audit trail processes -Observe the product to confirm the findings, interpretations, and recommendations are data-driven	-Product examined to confirm the findings, interpretations and recommendations supported by data
All four criteria	-Reflexive journal (the document the learner writes to keep track of its journey, progress and learning)	-Field notes -Memos in the pilot study phase

Source: Creswell and Poth (2016); Kyngäs et al. (2020); Lincoln et al. (1985); Nowell et al. (2017)

3.7.2 *Storyline*

Storyline is a research strategy that can be incorporated into research methodology to facilitate theory integration and enhance presentation and readability (Birks, Mills, Francis, & Chapman, 2009). In this study, the purpose of adopting a storyline was to create a consistent narrative of the findings of the pilot case. Definitional statements were used in this research to capture the essence of a point made in data (Birks et al., 2009). Storyline was particularly useful in explaining the process of understanding the limitations of flagship projects. Aligning the final key categories together with a storyline created an uninterrupted and complete narrative about how end users and stakeholders perceive flagship projects (Birks et al., 2019).

3.7.3 *Illustrating and memoing*

Star (as cited in Strauss (1987)) described the role of illustrations in visualising the story and finding any gaps in the theory. Illustrations are used in the research to explore developing concepts and relationships and visually present the outcome of the Grounded Theory analytical method (Birks et al., 2009).

Memoing was used frequently during the pilot study to aid the reflexive process that the researcher undergoes. It helped to take notes of what the researcher experienced while on site, their thoughts and reflections, and any vital project-related details. (Miles et al., 2014; Stake, 2006; R. Yin, 2014). Memoing helped the researcher determine some of the questions during the semi-structured interviews to gain clarity. The memos proved useful in coding and analysing the data (Miles et al., 2014).

3.7.4 Computer-generated data

Nvivo11 and 12 data management software were used for effective and efficient data collection, management, and analysis (Brandão, 2015). Respondent transcripts, key documents, field notes, and typed memos were stored within Nvivo as main data sources for analysis. One central location for the storage of data ensured easy triangulation and comparison for cross-case analysis.

3.8 Chapter Summary

This chapter presented the methodology and the methods used for the collective case study for the collection, analysis, and reading of data. The chapter sets out the choice of qualitative data-gathering methods and justification of the same. The study will be based on a case study approach using semi-structured interviews to gather data. It will rely on expert interviews to collect insights from those who have been part of the flagship generation at the highest level of decision-making within their companies. It is expected that the guidelines would be more refined with the use of expert opinion. In the following chapter, the pilot case study is presented.

Chapter 4 **Pilot Study**

4.1 Introduction

This chapter aims to discuss the findings of the pilot study. It starts with the background information of the pilot study data collection, including methodology, research objectives, and respondents' background information. The chapter then proceeds to the study results, which are arranged in two sections. 1. Section related to the interview questions, study participants, and data triangulation, and 2. Section related to flagship projects. The results obtained from the pilot data collection form the basis for case-study-based interviews, which become the primary data source in this study, as discussed in Chapter 5 onwards. It also provides an overview of the performance of flagships ten years after the 2009 bushfire disaster in Marysville.

4.2 Pilot Study objectives

In Chapter 2, the literature review presented highlighted that there is minimal literature on flagship projects post-disaster. It confirmed the need to understand limitations and the factors that cause those limitations in flagship projects created after a natural disaster. Post-implementation reviews to assess the impacts of those projects on communities, businesses, and the economy [social impacts] are limited. It is imperative to explore if these projects, their timing, and implementation serve the purpose that is justified at inception and if the limitations identified for flagship projects, in general, apply to those built post-disaster.

The case study was chosen as the pilot study for the following reasons:

1. The researcher decided it was a suitable time to assess the outcomes of the projects since ten years had passed post-fires in Marysville
2. All projects had been completed except one.

3. Neither the government nor an assigned independent agency had undertaken a formal post-completion review on projects in Marysville
4. The proximity and accessibility to the case study location for observational and interview purposes
5. The similarities between the two countries in the way the rebuilding was handled using flagship projects and the spending in proportion to the population [Approximately \$43bn for an urban population of 389,900 in Christchurch versus Approximately 50 million for a population of 400 in Marysville in 2016]
6. Pilot case is similar to those flagship projects found in NZ or elsewhere in the world post-disaster and therefore makes a worthy case to study. As explained in Chapter 2, Section 2.9, flagship projects are identified as being recovery agency-led, slow to be built, voted in by the public, with the people being at the heart of decision-making (Bidwell & Dell, 2011; Crawford & Morrison, 2021; Darabi, Zafari, & Milani Nia, 2013; Hawkins & Maurer, 2011; Olshansky, Hopkins, & Johnson, 2012; O'Neill, 2015b; Smart, 2012; Stevenson, Emrich, Mitchell, & Cutter, 2010; Thiruppugazh, 2016).

A pilot study was conducted by interviewing stakeholders of flagship projects to identify the limitations of flagship projects post-hand-over.

More specifically, the objectives of the pilot study were as follows

1. To test the methodology
2. To provide evidence for future focus
 - 2a. To explore the types of Flagship projects that have been built in Marysville, Australia
 - 2b. To understand the limitations of Flagship projects following the Black Saturday bushfires in 2009

2c. To identify the reasons for the limitations of Flagship projects

4.3 Case study background

Marysville is a picturesque town 100kms northwest of Melbourne with a pre-fire population of 520 in 2010. It is located in a severe bushfire-prone area in the state of Victoria. On 7 February 2009, 400 fires burned across 78 communities, over 430000 hectares of land, and affected 109 towns. One hundred seventy-three people died from the incident, with 2029 dwellings destroyed. The incident also marked the highest ever loss of lives from a bushfire in Australia. The fires, better known as the Black Saturday bushfires 2009, were described as 'the worst in Australia's history by the Victoria Bushfire Reconstruction and Recovery Authority (VBRRA) just after the fires in 2009. The death and destruction were not limited to people and buildings, as over 11,000 farm animals, 70 national parks, and nearly 1000 kilometers of streams, rivers, and creeks were destroyed (C. Bennett, Barber, & Fulcher, 2010b). One of the most significant fires took place in Murrindindi. Kinglake and Marysville were the most affected areas. In the Shire alone, 106 people were killed, with 75 registered businesses and 16 total losses of government facilities destroyed (Murrindindi Shire Council, 2009). It also left 1397 houses damaged beyond repair. The fires caused damage estimated to be over AUD 4.4 Billion, including the values placed for loss of lives and insurance claims, which is the most significant contributor to the cost (Gray, 2010). The preparedness for the extreme weather was not adequate to face the events that unfolded on the fateful day of February 07, 2009.

A recovery authority named Victoria Bushfire recovery and reconstruction Authority [VBRRA] was handed the responsibility to lead the recovery and reconstruction work in the bushfire-affected areas. VBRRA, with an independent consultancy firm, formulated the 'Marysville and Triangle Urban Design Framework' [MTUDF] that focused on the economic and social revival

of the affected towns post-fires. The framework proposed eight catalyst projects for Marysville, the town that was hit the hardest out of the towns in Murrindindi Shire [Table 13].

Table 13 Marysville Flagship Projects

Flagship project	Description (Observations from the field trip)
Essential retail (including a general store and fuel station)	<p>The return of a general store and a petrol station were regarded as essential and cost around \$ 1 million.</p> <p>A convenience store which stocks groceries and a fuel station with two pumps. Bigger supermarkets are at least ½ hour from Marysville (In Healesville). The fuel stations are available in Narbethong, 14kms South of Marysville, and in Buxton, 12kms North of the town.</p>
New tourist accommodation (Vibe Hotel) and a convention centre	<p>A private-owned and operated hotel and conference facilities together offer the capacity to house 300 attendees with five event rooms and 100 accommodation rooms. It also has a spa, a wellness centre, Radius bar and grill, and a conference and exhibition space that can cater to 430 people. The overall cost was \$28 million.</p> <p>The hotel marketed itself as sourcing local ingredients and employing local people.</p>
New police station	<p>The nearly \$1 million relocation project was to bring the police station to the main street to indicate the return of security and safety of the town. The police station housed three police officers at the time of the field visit in 2019</p>
Community hub	<p>The Community centre integrated Early Childhood Education, Primary Education, Out Of School Hours Care (OSHC), and maternal healthcare facilities in a precinct type of building. The intention was to build some strategic relevance between the buildings and to offer a more streamlined service. The Primary School offers education to 49 [in 2022] children and was rebuilt in the same location, whilst the rest was integrated. The project had a total cost of \$15 million.</p> <p>Marysville Primary School with 150 year history was reopened to the public a year after at the same premises but as a hub that includes a recreation centre, the town's kindergarten, and maternal and child healthcare centre to</p>

	appreciate the links between the three (Marysville Primary School, 2014). The school has a total number of 61 students (Good Education Group, 2020).
Gallipoli park	The Gallipoli Park Precinct comprises of recreational and community facilities and an open space constituting of a park, a lake, and a memorial garden. There is a gym and a basketball court within the premises. The project cost \$1.5 million.
The regeneration of the town's main street and landscape.	A lot of work needs to be done as the reality is far from the designer's drawings that were proposed for Marysville.
Marysville Heart	The proposal wished to re-establish the detailing of the public space of the most popular street in Marysville – Murchison Street, supported with better access and an enhanced look. The project cost was \$1.4 million. It was designed as a place for events and celebrations that links the commercial streets to the natural beauty and history of Marysville. The project cost was around \$1 million.
The creation of a walking and cycling trail linking the small towns of the Marysville Triangle region.	This project has not been completed as there is currently no trail that connects the triangle. The estimated cost in the aftermath of the disaster was \$1 million. In the Marysville and Triangle Economic Development Strategy, developing these trails has been included in the action plan in November 2019.

4.4 Pilot study data collection

A pilot study data collection exercise was conducted in Marysville, Victoria, Australia, in August 2019 [Table 14]. The researcher conducted eleven face-to-face semi-structured interviews with the government planning staff or the project owners, the current management staff and volunteers that run flagship projects, the frequent users/residents of the flagships, and the town's businessmen to achieve the aforementioned objectives.

Table 14 Interviewee details for pilot case study in Marysville

Interviewee code	Number of interviewees	Description	Selection criteria
R1-VBRRR R2-VBRRR R3-Murrindindi Shire Council	3	Recovery Personnel, including VBRRR and the regional council staff	direct experience in planning for/handling flagship projects post-disaster for at least a year since inception
R4- Marysville Primary School R5- Hotel R6-Marysville Community Centre R7-Marysville Information Centre	4	Volunteer / the management of Flagship projects	have worked in their roles since handover for at least a year
R8-School community R9-Community centre user R10-Hotel Stayer	3	Frequent users of flagships/residents	Use the facility more than 3 times a week and have resided in Marysville pre-fires and remained post-fires to rebuild their homes and community life
R11 - Townsmen/businessman	1	A business owner in Marysville Towncentre	run the business before bushfires and post-bushfires to understand the impact the flagship projects have had on the business environment

The potential respondents were identified through a web search to list all the planning staff involved with the flagships in Marysville following the bushfires in 2009. Those people were then contacted via email to invite them for an interview. The response rate was low, and the

research trip was arranged with only two confirmed interviewees, both belonging to the planning cluster of the interviewees. The screening criteria meant that the respondents had to be employed in their role for at least a year since the inception of the Flagship projects plan in 2009. As it has been ten years since the disaster, many people have returned to their original roles, specific disaster recovery organizations have been disbanded, some people have changed their employment, and the current staff was unfamiliar with the disaster rebuilding activities of the past. The majority of the contact information was obsolete. The trip to Marysville was justified even though only two people confirmed their participation in the interview process. The data collection was an additional activity that the researcher had already planned alongside attending the Australian Disaster Resilience Conference [ADRC] 2019 to present a poster and was hopeful of finding some relevant contacts at the event. The event gave prominence to the bushfire event 2009 as it marked its 10th anniversary.

The initial set of participants was purposively selected for their managerial level roles in planning for catalyst projects in Marysville. Purposive sampling was chosen because it was paramount to ensure the right people who could answer the research question were recruited (Charmaz & Belgrave, 2012; Glaser et al., 1967).

Once in Marysville, the researcher visited the flagship projects in their physical locations, met with the management, and arranged for further interviews. The management and the volunteers had to have a minimum of one year of experience in their role to be eligible for interviews. The Information Centre staff directed the researcher to the residents who had lived pre-fire and remained in Marysville post-fires. This was a relatively simple task for the staff, who knew many of the residents in the small town of 500+ residents. These people were first asked for their consent to be introduced to the researcher. Similarly, frequent users of the Community Centre facilities and the school community were identified, with the selection criteria being;

using the facilities more than three times a week and belonging to the school community for longer than two years, respectively. Finally, the researcher recruited business owners who had been living in Marysville both pre and post-fire.

The interview process

The interviews were semi-structured open-ended questions lasting 30 minutes. The number of interviews was decided upon as soon as data saturation occurred. The interviewees were asked to explain the type of flagships built in the town and the reasons for undertaking those projects.

The interview questions were designed to collect information about the factors that limit the public projects from achieving the objectives, the project outcomes, and the lessons that can be learned for future public projects post-disaster. The main questions were, 'How do you think the catalyst projects have benefited Marysville?' 'What are the positive aspects of those projects?' and 'What are the negative aspects of those projects?'. The researcher obtained certain project-related documents and the progress of the projects and visited the completed buildings. The researcher stayed overnight at the Vibe Hotel as a guest to get a first-hand experience of one of the most significant flagship projects in Marysville.

4.5 Comparison of generic literature findings with case study specific findings

Previous studies in post-disaster reconstruction in the last ten years have mainly utilized individual case studies through the use of questionnaire surveys (S. Chang, 2012), semi-structured interviews (Hall et al., 2012; Walker, de Vries, & Nilakant, 2017), and comparative studies involving multiple case studies. Most focus on housing reconstruction (Y. Chang et al., 2011; Coffey & Trigunarsyah, 2012; Daly & Brassard, 2011; Onoda, Tsukuda, & Suzuki, 2018; Y. Zhang & Peacock, 2009), with limited studies on the built environment. Out of those in the

built environment, the majority are concerned with identifying issues, exploring the implications, and suggesting future solutions (Amaratunga & Haigh, 2011).

As suggested in Chapter 2, the literature review was conducted in stages under the Grounded Theory analytical approach (Dunne & Üstündağ, 2020; Martin, 2006, 2019).

Martin (2006) suggested an iterative approach to literature review consisting of non-committal, comparative, integrative, and transcendence phases to researchers that take a Grounded Theory analytical approach. The researcher followed the approach taken by Martin (2006). The process of reviewing the literature is presented in Table 15 below using the phases suggested by Martin (2006).

Table 15 Phased literature review process

Literature Review Phase	Description
Non-Committal	<p>For the Research Proposal development for this research, the researcher undertook a literature review in the first year of study. A literature review was needed because 1) The ethical approval to conduct the research needs a solid research proposal justifying the topic and direction that needs a look at the previous related studies. 2) An approach that has not considered literature may lack the knowledge to form achievable and suitable research direction and objectives and conduct a ‘real’ critical analysis (Corbin & Strauss, 2014; Dunne & Üstündağ, 2020; Martin, 2019). 3) Glaser (1998) recommended familiarising oneself with substantive areas related to the topic, but it is hard to determine boundaries of the substantive area without familiarising oneself with it (Dunne & Üstündağ, 2020).</p> <p>The researcher entered the pilot study phase with an openness to accept any theories that may emerge. This was achieved through an effort to refrain from committing to preconceptions that may result from the extant literature (Corbin & Strauss, 2014; Thornberg & Dunne, 2019).</p>

Comparative	<p>Comparisons took place at the initial and intermediate coding phases of the pilot study.</p> <p>The researcher considered related literature to allow cross-validation of data found in the pilot study.</p>
Integrative	<p>The researcher undertook this phase during the final phases of theory development in the pilot study to enhance the robustness of the emergent grounded theory.</p> <p>Charmaz (2014); Martin (2006, 2019) suggested a few steps for reflexivity, to ensure that the researcher would not be influenced by already established theories. The researcher used memos and site visit notes, a diary of how the pre-conceived thoughts relate to the current study, and a description of the steps taken for theory generation.</p>
Transcendence	<p>The researcher tested the credibility of the Grounded Theory by doing a content analysis of the pilot study data post-Grounded Theory process to test the applicability of the Grounded Theory, transcending specific data analysis methods.</p> <p>Grounded Theory transcended in the sense that it conceptualised the data of the pilot study- most of the project outcomes post-handover are rooted in the Front-End Planning phase of a project.</p>

Source: Martin, 2006, 2019

The first part of the literature was to get a general idea about the project. Literature related to flagship, catalyst, large-scale public construction, and anchor projects, large-scale project issues/problems/shortcomings, outcomes, success, and failure, recovery agencies, post-disaster projects, Hurricane Katrina 2005, Great East Japan earthquake 2011, Marysville and Victoria Black Saturday bushfires 2009, Christchurch and Canterbury earthquakes 2011. As the pilot study moved on to the phase ‘code generation,’ the following areas have been explored under literature review. Planning, building/urban planning, project planning, Front End Planning, Front End Loading, procurement planning, procurement of projects, Stakeholder engagement,

Christchurch Justice and Emergency Services Precinct, Christchurch Bus Interchange, and Christchurch Central City Library/Tūranga.

This study followed an empirical qualitative research approach. Based on Halaweh (2012); Krueger et al. (2014); R. Yin (2012), and Glaser and Strauss (2017), the overall research strategy combined interpretive Grounded Theory and case study research methods. Grounded Theory is a holistic approach that performs an open inquiry of a lived moment in a natural setting by analyzing the participants' experiences systematically (Lewis-Pierre, Kovacich, & Amankwaa, 2017). It is recommended for studies that have a weaker basis of previous literature on a phenomenon under research where Grounded Theory will eventually result in a theory grounded in data (Chun Tie et al., 2019; Glaser & Strauss, 2017; Glaser, Strauss, & Strutzel, 1967). It annulled the view that qualitative data lacked rigor by introducing a systematic and structured approach to collecting and coding data leading to a theory (Chun Tie et al., 2019; Glaser & Strauss, 2017). Similarly, a case study approach allows for an insightful exploration of a phenomenon in its real-life context (Crowe et al., 2011; Denscombe, 2014a; R. Yin, 2012). R. Yin (2014) recommended researchers investigate the holistic aspects of a case, which can be achieved by gathering data from wide-ranging sources. Looking at the phenomenon from the researcher's viewpoint allows for an interpretive understanding of the 'why' and 'how' questions within the subject investigated (Glaser & Strauss, 2017). The under-researched context of post-disaster large-scale public projects justifies using both approaches for explorative theory building (Glaser & Strauss, 2017). Simultaneously, it also serves the purpose of conducting a cross-check of whether the factors that limit results under routine construction apply to post-disaster rebuilding.

Three qualitative research methods were employed to understand the failures in public projects post-disaster: Semi-structured face-to-face interviews, a field visit in 2019, and document

analysis from 2009-2020. Document analysis consisted of documents and reports related to Marysville's rebuilding, and those were considered under the Grounded Theory approach [except for objective 1, which used content analysis] along with interview data to identify recurring themes.

In this study, the literature review played a comparative and integrative role where previous work was used to validate data-driven concepts and themes and created some interaction between those and the extant literature for robustness, as presented in Table 16 (Giles, King, & de Lacey, 2013). The study's objective was to provide evidence for future focus and to test the methodology; therefore, adopting a case study approach was deemed useful.

Table 16 Factors that cause limitations in projects evident within the Marysville case study

Factors that cause limitations in Flagships	Reference	Marysville Case Study-Pattern matching
Lack of planning	Hall et al. (2012), Alshawi et al. (2012), Patanakul et al. (2016), Garemo et al. (2015)	The most recurring code generated from the initial open coding exercise
Lack of stakeholder commitment and community participation	Garemo et al. (2015), Williams (2016), Rezvani et al. (2016), Thamhain (2013), Patanakul et al. (2016), Janssen et al. (2015)	Stakeholder management issues and lack of community involvement
Project complexity	Locatelli et al. (2014), Williams (2016), Rezvani et al. (2016), Patanakul et al. (2016), C. Chang (2013)	Not overly complex as the projects cater to the needs of a small town
Overoptimism	Flyvbjerg (2013b), Garemo et al. (2015)	Overoptimism is transferred to project plans that residents expect to see.
Underdefined scope	Garemo et al. (2015), Thamhain (2013)	Limited information to decide scope
Poor risk assessment	Garemo et al. (2015), Hall et al. (2012), Alshawi et al. (2012),	Compressed timeframes and political pressure limit risk assessment.
Poor cost and schedule estimation	Cantarelli et al. (2013), Garemo et al. (2015)	Fast-paced rebuilding keeping to cost estimations
Poor/incomplete design	Cantarelli et al. (2013)	Compressed timeframes
Project organization set up including the leader and the management	Garemo et al. (2015), Locatelli et al. (2014), Thamhain (2013), Patanakul et al. (2016), Alshawi et al. (2012), Hall et al. (2012), Rezvani et al. (2016), C. Chang (2013)	Politically-driven selection of personnel for recovery management

Factors that cause limitations in Flagships	Reference	Marysville Case Study-Pattern matching
Lack of integration to surroundings, culture and heritage	Boelsums (2012)	Loss of history and heritage buildings due to the recovery plan
Ineffective public governance, rigid laws or policies	Garemo et al. (2015)	Rigid laws to realize project goals on time
Influence of political processes	Lahmann et al. (2017), Patanakul et al. (2016), Alshawi et al. (2012)	Time-consuming political processes
Governance set up and lack of coordination with local government	Alshawi et al. (2012), Platt (2018)	Central government-led rebuilding and a secondary role of local government
Contractual problems	Alshawi et al. (2012), Patanakul et al. (2016), Janssen et al. (2015)	Short-sighted decision making concerning procurement
Underestimation of costs leading to poor quality Disregard to future price escalation	Flyvbjerg (2013b) Alshawi et al. (2012), Thamhain (2013)	Donor-driven builds but have to be locally managed after handover
Resource issues	Alshawi et al. (2012), Shenhar et al. (2016)	Funds were readily available, and human resources were outsourced at the start
Low construction productivity	Garemo et al. (2015)	Construction pitfalls and quality issues
Corruption	Locatelli et al. (2017)	Not mentioned
Poor execution	Garemo et al. (2015)	Disjoint between planning and execution
Shortcuts to completion	Garemo et al. (2015)	Time compressed completion

Factors that cause limitations in Flagships	Reference	Marysville Case Study-Pattern matching
High maintenance costs	Grodach, 2010, Boelsums (2012)	Costly for the local council
Irrelevance to the needs of society	Oyeyoade et al. (2019), Boelsums (2012), Thamhain (2013)	Too grand for the simple town
Lack of community engagement	Beazley et al. (2018)	Lack of input into the recovery and planning of the town

4.6 Coding and constant comparison: A Grounded Theory approach

The interview data were audio-taped and transcribed to increase accuracy. Based on the interviews, the researcher undertook a preliminary mapping of the limitations of flagship projects. The data collected from fieldwork were codified using the open coding technique at the start, where the data created themes. The early themes from preliminary mapping were analysed alongside theoretical issues identified in the flagship projects under normal circumstances. Mapping was driven by thematic analysis, where sentence-to-sentence analysis of transcripts, notes, and other material obtained from the interviewees generated themes and codes (Glaser & Strauss, 2017; Glaser et al., 1967; Mortell, Ahmad, & Abdullah, 2018). The process started as soon as each interview was completed. Next, thematic coding results led to a narrative description which was then combined with quotations, supportive documentation, and field notes that resulted in the categorisation and narration of several themes (Owen, 2014). This ensured accuracy as the content was still fresh in mind. Any new themes or categories that developed subsequently were added to the list of primary codes and categories until data saturation occurred where no new themes or sub-themes could be identified (Lewis-Pierre et al., 2017). ; a process known as constant comparative analysis.

There are two main approaches to coding at the two ends of a continuum. Theory-driven approach constructs themes and codes based on concepts or theories developed by earlier researchers. In contrast, data-driven approach uses raw data to establish themes and codes inductively (Arshad, Ahlan, & Ibrahim, 2013). Thematic analysis used in the current research stands in the middle of the continuum where themes and codes are developed based on the theoretical limitations identified for flagship projects under normal circumstances and from the inductive process of primary data (Dunne, 2011; Eisenman, Cordasco, Asch, Golden, & Glik, 2007).

The process resulted in 36 concepts which were then sorted into 11 categories [Appendix 5]. The researcher further grouped these categories into six by combining overlapping or similar ideas.

The subsequent analysis involves analysing specific categories of themes based upon the Grounded Theory methodology developed by Glaser and Strauss (2017) and Glaser et al. (1967) combined with a case-oriented strategy developed by R. Yin (2014). From the grounded theory analysis, the researcher identified emergent concepts and variables, and subsequently, links between the concepts and variables were identified. Consequently, a data-driven model has been created.

The open and axial coding process generated six themes [Appendix 5]. The six themes were issues related to i) Governance, ii) Planning, ii) Execution, iv) Post-completion, v) Stakeholder Management, vi) Monitor, Review, and Control. These issues were further grouped into the project life cycle stages due to the ease of analysis and presentation. The stages and the factors that cause limitations are graphically presented in Figure 15 below. The specific stages are a) Front-End Planning Phase, which includes Planning and Governance at the higher level, b) Project Execution Phase, which includes Construction; and c) Post-Project Phase, which includes Operations and Maintenance of a flagship. Stakeholder management would affect the whole of the project lifecycle, with monitoring, reviewing, and controlling of plans mostly influencing the stages beyond Front-End when the plans contain more detail and therefore need periodic controlling and reviewing.

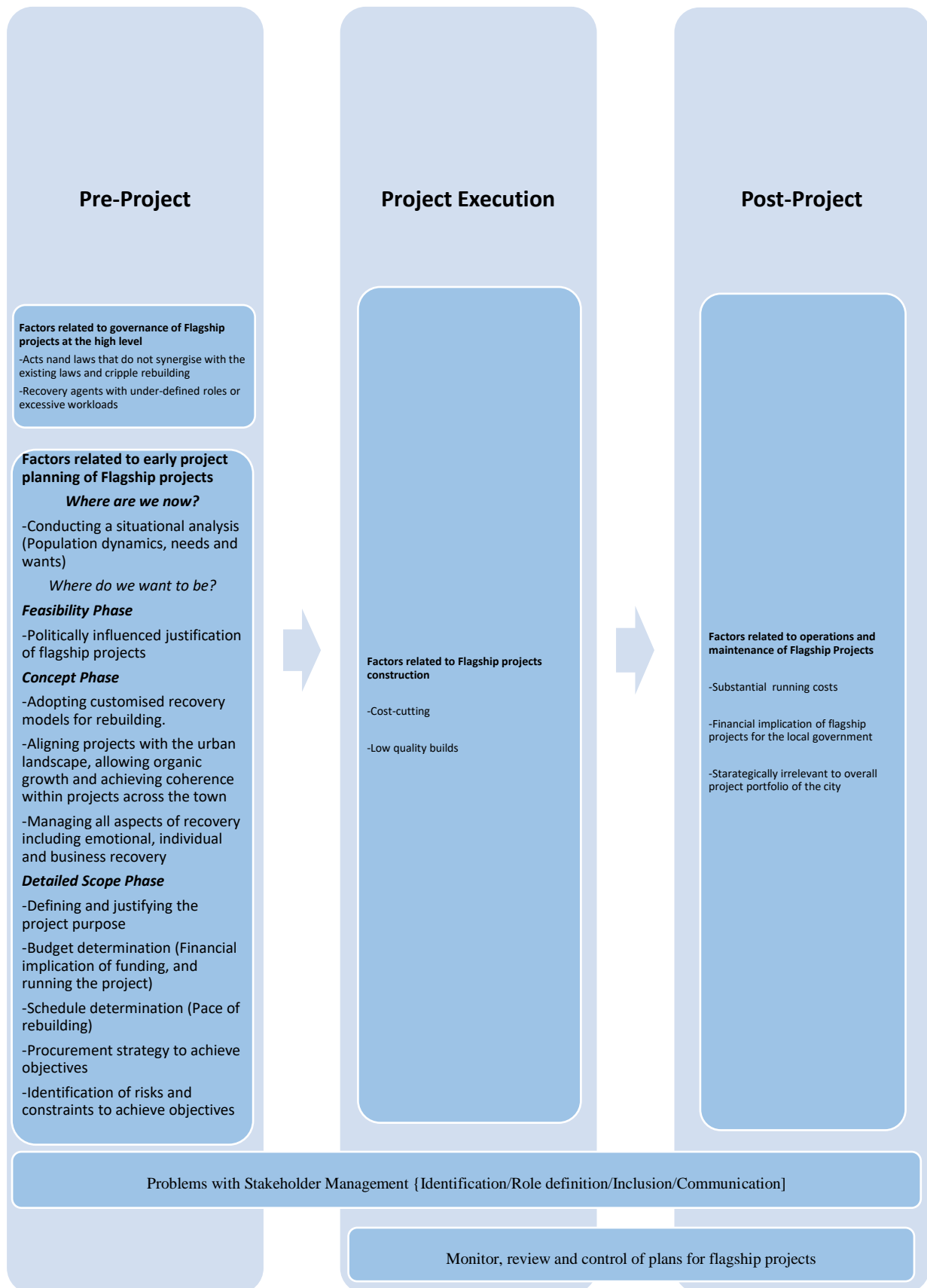


Figure 15 Factors that caused limitations in Flagship Projects in Marysville, Australia post-bushfires 2009

The above model [Figure 15] was formulated by rearranging the factors found in the literature and combining them with data. As seen by the model, project governance in terms of acts and laws that facilitate rebuilding and recovery agents that understand and are knowledgeable about the recovery needs of its people overarch the recovery process, as previously mentioned by Garemo et al. (2015). Disaster rebuild planning that follows as an immediate next step emphasises understanding the changing environment, having a clear purpose, allowing time for risk management, procurement management, the budget, and the pace of rebuilding programmes.

Disaster-related factors that were mentioned by case study respondents, such as uplifting emotional stance of people, active involvement in plans, and two-way communication, are vital for the acceptance of projects post-handover. Adopting new plans to align with the current building stock and customizing global frameworks to suit the disaster point were also strongly recommended.

4.7 Pilot Study Objective 1.

To test the methodology

Research methodology is about solving the research problem systematically (Kothari, 2020). It includes research methodology and a deep and thoughtful process of the logic behind choosing certain research methods. In the pilot study, the researcher wanted to test that face-to-face interviews and the sampling were appropriate for the research question. The researcher chose the interviews as the data gathering tool, using the example of previous researchers in disaster management (Francis et al., 2018; Mannakkara et al., 2018; Neeraj, 2022). The chosen research method was the most suitable, given the under-explored nature of the subject. The pilot study revealed that adopting semi-structured open-ended questions was the most appropriate as it opened avenues for future research focus.

In terms of sampling, initially, the researcher was fixated on obtaining only the end-user and the planning officials' insights on flagship projects. The researcher aimed to interview

- the end-users of the project to gather insights on how the project outcomes are perceived by them and
- the planning officials to learn about the intentions of those flagship projects within a social context.

It seemed relevant as the end-users experience the actual end product, and those outcomes of the flagships were the fruits of planning by the officials in the government. Another reason for the choice of respondents was to keep the scope within manageable levels.

Soon into the process, the researcher realised through the initial interviews that many respondents linked the outcomes to the pre-construction stage of the project. The planning officials also referred to the shortcomings of the other stakeholders, such as the construction companies and the designers. The finding enlightened the researcher that for a holistic data-gathering exercise to understand the flagship project outcomes and the factors that cause those outcomes, all stakeholder views on the process were needed.

The planning officials did not necessarily belong to any specific management category but were mainly from the middle management of VBARRA and the Regional Council, who had experience with the projects. The experience with the initial respondents made the researcher understand that it was essential to reach the top level of the decision-makers in their respective organisations. The middle management or the workers on the ground mostly followed orders. They lacked the knowledge at the higher level of decision-making [the reasons for investment decisions, specific outcomes of projects that are only known by/available to those at the top level, etc.]

The researcher shifted its focus from a user-driven data-gathering exercise to one driven mainly by experts in the field. They also happened to be the project stakeholders at various phases within a flagship project.

4.8 Pilot Study Objective 2a.

To provide evidence for future research focus by exploring the types of Flagship projects that have been built in Marysville, Australia, following the Black Saturday Bushfires 2009

Eight Flagship projects were proposed by the independent consultancy group that prepared an Urban Design Framework for Marysville and the Triangle suburbs. Marysville is situated within the context of the geographic triangle created by the towns of Granton, Narbethong, Buxton, and Taggerty (VBRRA, 2009b). There has been a close community network between the towns in terms of sharing services and employment opportunities for economic benefits (VBRRA, 2009b).

R1 and R3 mentioned that the projects were proposed after carefully considering the strength of the town as a tourist destination and its potential to generate income for the town's entrepreneurs. Figure 16 matches the objectives of the Urban Design Framework with the proposed projects and the opportunities that were identified at the time. The proposed eight projects directly addressed one or more of the objectives stated in the planning stage [Figure 16]. According to respondents R7 and R9, the projects aimed to improve what the town had pre-fire or build something novel to fit the image of a growing suburban town. According to respondents R3 and R5, the government strived to reconstruct better, bigger, and greener with the opportunity presented as a result of the fires. There was a lot of bureaucratic interference in the selection of flagships. R1 added

"It was hard to get an argument to determine whether this sort of investments are the most appropriate".

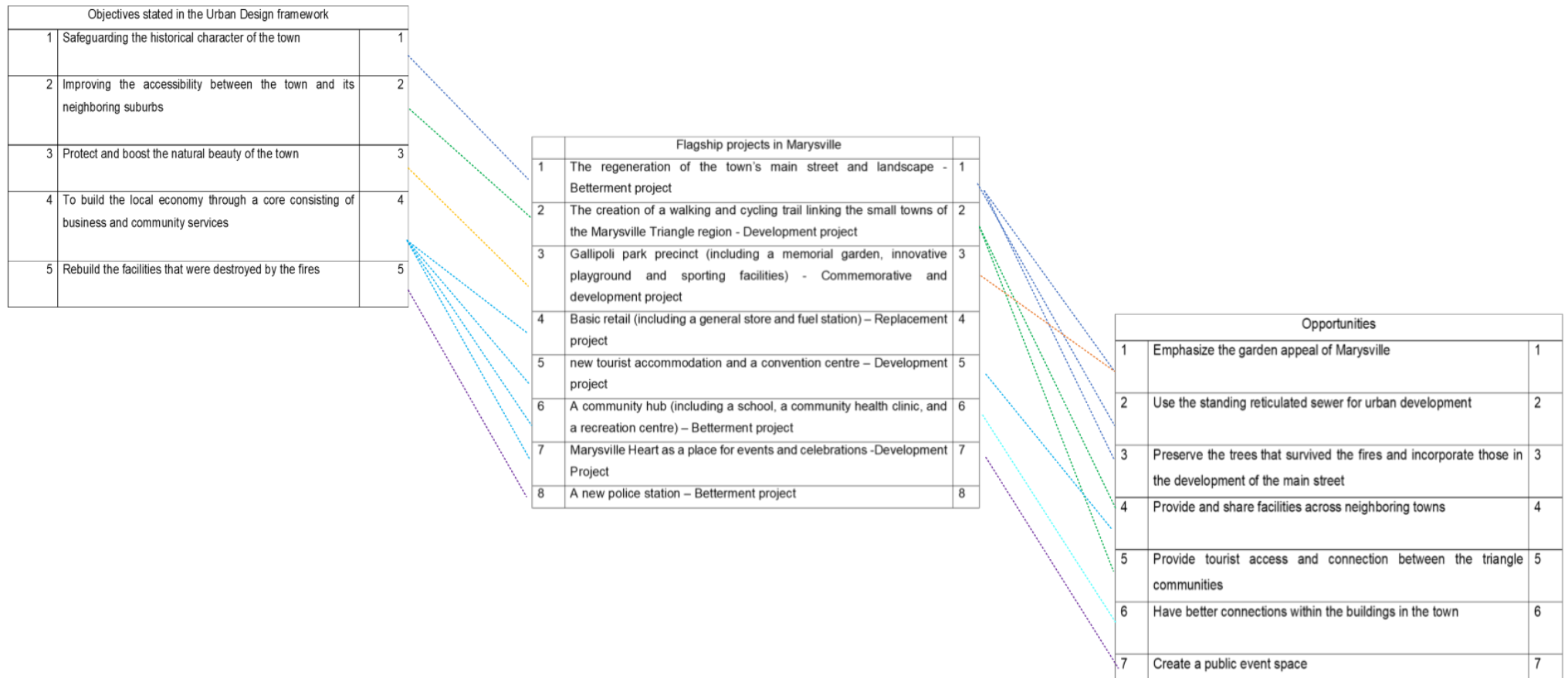


Figure 16 Marysville flagship projects' objectives versus the opportunities

The projects did not specifically address tourism promotion or enhancement, but it was expected that the cycle trials, the convention centre, and the accommodation would bring in more visitors. The planners had carefully created the projects to match the opportunities presented by the fires and the profile of Marysville as a suburban town and to achieve the objectives of the wider Urban Design Framework. R5 and R7 added that except for the supermarket, the rest of the projects could be categorised as betterment reconstruction or total new developments.

“This lovely little town. They wanted to make it into a big thing. And I think they were trying to do it to please people, but I think they didn't need to go that far. You couldn't still get that little feel. Yes. Sports places need to be fixed because sporting is a big thing there. They did that to lift morale. I think there have been too many things. Businesses were going, ‘we want this, and we want that’. And the government was trying to please everybody. Once these projects were finalised, after they were decided on, they consulted the people.” [R7]

VBRRRA official R1 pointed out a clear understanding of how the projects need to be sequenced to help Marysville recover faster as a community. The strategy was to build those that would help them gather as a community.

“The school was identified as a project that needs to go first to establish a meeting place and hope to get the lives back to normalcy. Department of education had a template for schools within the region, and their mission was to roll that out..”

The regional council struggled to think of ways to staff and maintain the proposed facilities, and people took time to ‘get their head around volunteering.’

“Bigger questions for the council were smaller towns were demanding for infrastructure to compensate for what had happened to those that could help recreate their communities, but there were problems as to how these facilities could be maintained and staffed.” – R1

As a result, the performing arts centre lacked a viable business case to get approval for the investment.

“There was a strong perception within the community that a performing arts centre would recover Marysville. Specially the seniors believed that. But the economic case for that was weak where some argued that people would not go through black Spur in the middle of the night or in the middle of winter to see a performance”. - R3

The answers by R1 and R2 suggested that on the majority of occasions, the choice of projects was a politically driven decision based on competing interests of the Regional Council.

4.9 Pilot Study Objective 2b.

To provide evidence for future research focus by understanding the limitations of flagship projects in post-disaster rebuilding following Victoria Black Saturday bushfires, 2009

This section will discuss the project limitations once flagship projects were built and handed over to the public.

4.9.1 Changes to ‘place identity’

The Police station, the Convention Centre, and the Hotel involved modern-looking facilities that changed the quaint image associated with the town. The residents R8 and R9 mentioned that it was hard for them to initially accept the changed atmosphere brought about by the new builds. R9 said

"Contemporary architectural interpretation of buildings in a highly fire-prone area resulted in the buildings that were out of character for Marysville"

R8 held the opinion that

"The projects named as catalysts have not done the job. Barry's Phoenix Museum, the Lolly Shop, and The sculpture garden are better drawcards for Marysville. It would have been better if the government focused on enhancing those places instead".

Additionally, demolitions such as the town's swimming pool, angered the residents, as those were the places that brought together the community over leisure activities.

4.9.2 Low-quality builds

The opinions of R8 and R9 suggested that the buildings suffered from quality issues due to the speed of rebuilding. As an example, Marysville Primary School experienced needs for repairs a couple of years into operation. The struggle was that the school relied on the financial aid of the school community as both the State government and the local council were not responsible for the maintenance and repair costs.

R4 mentioned

" We count on the wonderful school community to help maintain the school facilities for their children. The parents come together when there is a need for repair. That was what happened when drainage issues recently caused flooding."

4.9.3 *Less than optimum use of capacity*

The planners had not arranged for a permanent management team upon completion, as most of these facilities are run by volunteers who have jobs elsewhere. As a reason, some of the public assets were closed to the public on certain days of the week.

R6 added that most facilities did not have a contingency plan when their primary use was limited. The community center was closed unless there was an event.

The school used the community center for gymnastics as it had partially funded the project.

4.9.4 *Disintegrating ties among buildings*

The projects do not fit strategically with the other city elements to achieve reconstruction goals of income generation. The lack of supportive infrastructure limited the overall success of individual projects. Referring to practical issues, R10 pointed out that the hours of operation of the businesses do not serve the needs of the conference-goers, who often walk into an empty town centre with closed shops. The spillover benefits of these projects, therefore, remain low. Individual businesses have reasons for the closure, where weekdays are usually dull business days in Marysville. Some of the shops specially cater to the ski season. During the rest of the year, those shops remain shut, and therefore, the streets remain empty without much activity.

4.10 Pilot Study Objective 2c.

To provide evidence for future research focus by understanding the factors that caused the above limitations of flagship projects in post-disaster rebuilding following the Victoria Black Saturday bushfires, 2009

4.10.1 *Factors related to Governance*

Post-disaster legislative changes

Seven [out of 11] respondents felt that the governance and legislative changes introduced post-fires to aid reconstruction did not synergise well with the existing laws or with what was needed to be done on the ground. Residents displayed strong place attachment, and the respondent held the view that accelerated rebuilding in the same place was to keep people calm during the reconstruction process. They further pointed out the delays of the government in implementing stricter land-use planning regulations that will carefully look into each proposal for construction work in bushfire-prone areas. A resident, R9 criticized that planning application outcomes lie solely in the hands of the Shire council.

R4 expressed the view that rebuilding at a grand scale in a fire-prone area was seen to be short-sighted.

"It was a highly politicized environment. It was hard to get an argument to determine whether those sort of investments are the most appropriate."-R4

R3 added that building regulation laws need to reflect bushfire risk-reduction standards for public facilities such as schools to be sustainable and strategic developments.

R1 and R2 admitted that the governance structure was 'complex.' VBRRRA, as a recovery and reconstruction agency, found its role to be one of 'trial and error', where it took months to determine its roles and responsibilities.

"People were drawn from different governmental organisations and consultancy firms which resulted in not having a process structure that came from the perspective of what a public authority needed to ensure as a due process a fair and equitable process."-R1

Recovery agents with under-defined roles or excessive workloads

VBRRRA, as the entity responsible for reconstruction work, had many responsibilities that stretched beyond reconstruction, which were difficult to organise and prioritise at the start. R1 mentioned that VBRRRA's competing interests meant that it was difficult for the Authority to be committed to long-term planning for reconstruction. The excessive workload involved in community development led to many wasted opportunities for commercial investments. Lost opportunities created a void in income generation and economic revival that was expected through reconstruction projects.

4.10.2 Factors related to planning in the front-end

The factors that led to limitations in Front-End Planning are identified to be in two phases. The first phase involves looking at "Where we are now?" and the second phase is to find out "Where do we want to be?"

The first phase included understanding the situation created by the disaster event, as explained below.

Situation analysis

Data analysis revealed that Marysville's rebuilding happened in two distinct phases. The first phase was focused on understanding the status created by the bushfires. This included the effects on population dynamics created by resident migration (temporary and possibly long-term), and the residents' needs and wants regarding the building stock.

"Renewal and recovery is a strategic process that takes time. The dynamics and the parameters that were there before the fires have changed after the fires, and we need time to evaluate each phase and then understand what first wave investment needs to be about and then wait for the first wave to settle and then consider the second or third wave". – Urban Planner

A private consultancy group did a situation analysis for Marysville prior to formulating the urban design framework. R1, R2, and R6 voiced that rebuild did not allow for lengthy situation analysis, and less attention was given to the projections of how these factors may change post-fires to affect the proposed projects.

P15 added that the Marysville population is not static but rather a semi-permanent or a floating population where most people own holiday homes in Marysville but live elsewhere permanently. They suggested a mechanism that would bring people back and offer them local jobs that would work better for Marysville. However, a challenge remains in the form of having a large portion of the elderly and the reluctance of people to join the workforce due to their convenient benefit status. As a result, some local businesses often have to recruit people from neighboring towns. Limited economic activity also meant most jobs were mainly available during winter, with increased footfall to Marysville.

The repercussions of the new demographic characteristics were that due to limited economic activity, people had gone to neighboring towns for work and returned during the weekends.

P16 explained,

"It's difficult to make Marysville a permanent home because there is some business during school holidays, skiing season and the weekend, but the rest of the times, there is hardly any business. It's like a vicious cycle where fewer people lead to lethargic businesses and low incomes which drive more people away from the town".

As explained earlier, the second phase in the planning in the front end was concerned with checking the feasibility of each project. Under feasibility, justifying the need for the project, checking the applicability of recovery tools to the local setting, ensuring the strategic fit, and managing emotional, personal, and business recovery were identified as crucial. The ways in which those factors caused limitations in the projects are discussed below.

Politically-influenced justification of Flagship Projects

Immediately after the flagship projects were completed, it was clear that the Hotel, as one of the Flagships, was the only project that created employment opportunities for a limited number

of people. The rest of the projects had to be run by volunteers. The rest of the people traveled in and out of Marysville to neighbouring towns for employment.

Respondent R1's views revealed that VBRRA preferred to carry out welfare projects over profit-oriented projects, as some of the clauses that guarded VBRRA's conduct had restrictions on using financial aid on projects that are profit-led. As per R3, the debt situation of the local council was irrelevant as the officials were overwhelmed with the response to the Victoria Bushfire Appeal Fund that received billions of funds for rebuilding. Income generation within the town was hampered as a result. These projects were regarded as a means to facilitate income generation and not as objects of income generation.

The following explores the factors in the concept stage of each project that caused limitations found in Section 4.9

Customising international rebuilding tools

VBRRA was established within three days of the fire event. It was seen as applying a standard international solution to disaster management that undermined the role of the local government. According to R3 the plans and visions that had taken years to formulate were dismissed, and a national recovery plan was put in place instead. R4 mentioned that

"An internationally borrowed solution may be appropriate for big cities, but for a small town such as Marysville, a more tailored approach was needed. VBRRA understood this all along and tried to make changes to the way it operated, but the people did not understand exactly what VBRRA was supposed to do".

At the planning stage of the projects, there were people offering pro bono services from consultancy firms. Neither the local government nor the state government officials were confident about how these services would contribute to the overall design framework and long-term planning. The respondents, R1 and R3, believed recovery should be locally led, with the regional and state government playing the facilitators' role.

Coherence among city elements

R3 emphasized that when VBRRA started out, there were not many models on how to embark on those projects. Projects individually had clear objectives at the onset yet failed to collectively achieve the visions for Marysville.

Respondents R5 and P8 felt that the government needs to invest in the public buildings and have a coherent plan in place within the town before they can expect an increase in tourist numbers and spending.

Some residents question the relevance of precinct type of buildings to a small town such as Marysville. Some of the buildings that were added to Marysville were perceived to be too grand. The newly built police station houses only three police officers.

Marysville is in a prime location that attracts eco-tourists, and the walking and cycle trail linking small towns of the Marysville triangle region would have added value to what Marysville can offer as a tourist destination. However, the trail is yet to be completed.

Managing emotional, personal, and business recovery

The residents were of the opinion that accelerated rebuilding did not help achieve the intended economic benefits. Residents felt that the government's focus was on Marysville for the first five years to rebuild from the funds that flowed in. The support to rebuild individual businesses was almost non-existent and was mainly the responsibility of the individuals. The town struggled to achieve its pre-fire status due to the hardships the residents underwent emotionally and economically.

The residents were in unison that VBRRA made an effort to prioritize emotional recovery, where small achievements were recognized and celebrated as a community at the start of the rebuilding process. With time, the focus on emotional recovery became less prominent. Resident P18 said

"Even after ten years, the trauma of the disaster is very much present. Everyone has or knows somebody who was directly affected by the fires, and individual recovery is still ongoing".

R2 added that

"Social aspects and individual recovery need to be taken care of before the failures of the building atmosphere could be put right."

The lack of support for personal, emotional, and business recovery have made residents more critical of and unaccepting of the newly built public buildings.

In the detailed scope phase, determining the project's purpose, budget, schedule, procurement strategy, and understanding project risks were prominent factors that could influence flagship project outcomes. Those factors are described below.

Underdefined project purpose

Marysville's rebuilding was accelerated due to the need to show visible government commitment to rebuilding. The respondents R2, R9, and R11 were in unison that the reconstruction as a whole reflected

"the government cutting corners in order to rebuild faster and building assets that were not the most needed." -R9

Consequently, quality issues, maintenance and management issues, and the absence of a plan for optimum use have been the most concerning issues faced by the facilities.

R1, as a VBRRRA employee, opined that sporting facilities were a popular choice of government planning officials to lift the morale of the townspeople. Short-sighted planning has resulted in a basketball stadium in a town known for its football team.

R9 said that a year-long business development plan should be prepared to ensure the investments are worthwhile.

Issues of transparency around procurement methods

VBRRRA designed and procured some projects jointly with Murrindindi Shire Council. For others, the authority undertook a monitoring and reporting role for which there were lead agencies, and their building and design standards were applied across regions. Five out of eight projects (Marysville Multipurpose Community Centre, Marysville Heart, Gallipoli park, Murchison Street upgrade, and the drainage upgrade) were designed and constructed by an international property and infrastructure group that specialised in city development. A bushfire Reconstruction Steering Committee with representation from VBRRRA, Murrindindi Shire Council, and Major Projects Victoria were to guide project and contract management of major projects.

Designing, cost estimation, and consultancy services in the aftermath were pro bono. This resulted in a lot of time wasted on procurement decisions due to inconsistency in decisions leading to procurement. Respondent R1

"There were people from various organizations offering pro bono services from consultancy firms. Some of the people thought they had come into physically rebuild the town, whereas that wasn't the case."

VBRRA wished to release multiple projects to major contractors in packages for cost savings and better resource management. The residents felt that the above decision had limited the opportunity for the local companies to be a part of rebuilding their town.

Defining the planning officials' role post-completion at the onset as part of risk management

P4 and P5 opined that the government's role beyond completion was unclear. If the projects were going to be grand, there was a need to define and agree on how the government would aid those projects to achieve objectives. P2 opined that the investment decision needed to be reconsidered unless there was an agreement at the FEP phase. The former added that the popular opinion was the government had a massive pool of funds that could fund large projects. Rapid rebuilding at the time and hasty planning did not allow time to formulate decisions and an action plan of how the government could best support the completed projects. P5 said

"...the government took a backseat, and it was unclear how these projects can be integrated into the optimal functioning of the town in the long run."

The conference centre was promised some conferences since the hotel's opening, but with time, the government support had faded. VBRRA planning staff member said Narbethong, a neighboring town, was given a community hall that can seat 150 people and competes for conferences with that of Marysville.

4.10.3 *Factors that affect most of the project lifecycle*

The data collection provided evidence that managing stakeholder interaction throughout the lifecycle ensures better project outcomes post-disaster.

Problems with stakeholder management - identification, inclusion, interaction, and communication

There were examples of difficulties in identifying all of the stakeholders and defining and understanding their roles within the projects. There were issues with the representation of stakeholders within the projects, especially the residents. The earlier phases included the residents in the decision-making, but as the projects advanced, the residents were mostly excluded from the process. Communication and engagement were mainly to inform of the decisions taken for the project and to deliver information about the progress of the projects.

VBRRA placed the public at the heart of its recovery journey, and this was reflected in all of its published work and programmes. However, most of the respondents [R1, R2, R3, R7, and R9] felt that this was difficult in practice. Most of the residents were undergoing emotional struggles to participate in long-term planning. VBRRA, in its conduct, tried its best to include all layers of community in its planning. However, R1 suggested that some small-scale business owners felt left out of the planning process, and there were apparent communication issues between VBRRA and the community.

According to the officials [R2 and R3], some residents demanded high-investment projects that would not be strategically relevant to the small rural town affected by the fires. The result was the failure to properly understand the role and the impact the residents had on the overall project plans. Non-inclusion, non-engagement, poor communication, and management resulted in the public considering the rebuild as a more 'government-driven' process.

Most respondents at the grassroots level, R4, R6, and R8 [Resident respondents within the sample], believed that not all the eight proposed projects had been carried forward to completion. However, when inquired from the VBRRA staff and the urban planners involved with Marysville rebuilding confirmed that seven projects, except trails linking neighbouring towns had been completed. The lack of realization of whether the projects have been completed is due to two reasons as per the views of P5. On the one hand, the projects were communicated to the public as grand and perceivable improvements to the building stock within the town, and on the other hand, communication of the progress of these projects at each phase of its lifecycle was ignored. R6 added

"The reality of how the town looked was a stark difference to the expectations created by the description of the town at the initiation of the plans. For example lot of the work in the public realm was to do with improvements to the drainage system and was not openly visible after construction. Likewise, the outlook described by the images presented to the public takes years to look anything like that... it's a gradual transformation of the nature growing and adapting to the surroundings – well-grown trees and more private investments would eventually bring about the ideal town setting".

For R1, rebuilding Marysville primarily offered two key lessons for future flagship projects. It is vital to understand at the outset 'What type of investment was needed?' and 'What type of people to engage with?'. P5 elaborated on this view by adding

"VBRRA placed the community in the centre of all its operations to send out the message that it would be a public-led recovery. In practice, this was difficult to

achieve as community representation was often questioned. In the early days the authority people went and spoke to the most resourceful, best articulated, best-educated and least affected, least traumatized people, but they should really think whether decisions can be based on the views of people who are least affected by one. It came to bite us back because the people that have been left out of the process came to say you are not representing us. It was mostly to do with class and where you were in society".-P5

4.11 Discussion

The data revealed that factors identified through literature for standard projects mostly apply to post-disaster public projects. The location and type of flagship selection would determine the extent of return in the form of increased employment opportunities, inward private investment, higher land prices, competitive international image, or improved inner-city accessibility (Patrick Loftman & Branden Nevin, 1996; Oyeyoade et al., 2019). The flagships were built with the intention of helping Marysville to rebound economically by bringing in tourists. The objectives have fallen short, according to the 2018 statistics. The absence of an integrated tourism plan and an accommodating infrastructure stock seem to put Marysville behind its targets (See Table 17).

Table 17 Marysville's key targets in 2009 versus the achievements in 2018

Key targets to achieve in 2012	Status in 2018
Vibrant main street open (more than 15 shops)	Eight as listed in MIRA
Accommodation rebuilt (more than 400 beds)	247 in 2018
Strong events calendar (more than 20 events per year)	9 in 2018
Competitive year-round visitation and spend	Mainly restricted to weekends, day trip, and the winter season.

Source : Murrindindi Shire Council (2019); VBRR (2009b)

The most common traits of limited project results are due to cost and time overruns and scope creep (Flyvbjerg, 2014; Locatelli et al., 2014). However, in Marysville, projects were within the planned time frames and set budgets. It should be noted that the speed of Bushfire rebuilding in the town was in line with those elsewhere in the world (O'Neill, 2015a). Still, the data revealed that the process of rebuilding was rushed and therefore failed to appreciate the project environments that change frequently. As T. Frank (2019) and Schwartz (2018) demonstrated through rebuilding following Hurricane Katrina, the quality of the assets is questionable in Marysville. The quality has been overlooked in a bid to rebuild faster. The

respondents [R8 and R10] also questioned the purpose of spending millions on assets in a highly fire-prone area.

Flyvbjerg (2014) criticized that it is common to find the planners of flagship projects lack relevant experience in managing those projects proved true in the case of Marysville, where the planners failed to understand the post-fire situation thoroughly nor did they determine the needs of the residents before undertaking the projects. Oyeyoade et al. (2019) discussed that, eventually, the lack of information or clarity at the start could result in projects not meeting expectations and not fitting in with the image of the town. Marysville planning officials opting for state-of-the-art fire-proof designs created a town that was 'out of character' for its residents.

The facilities that were built did serve all layers of society, going against the finding that flagship projects cater to the wealthy affluent class (Boelsums, 2012). In Marysville, the projects are primarily welfare-related. It should be further researched how this point could differ for a more developed city in their undertaking of flagships.

The term corruption has been a difficult topic for R3, who did not mention corruption directly, but there were strong statements about contract awards being restricted to a couple of construction companies. According to researchers deviating from competitive practices and demonstrating poor contract planning form part of the corruption in public procurement (Flyvbjerg & Molloy, 2011; *Sifting through Katrina's legal debris: contracting in the eye of the storm*, 2006)

In the case of Marysville, over-optimism, as mentioned by Flyvbjerg (2013b) and Garemo et al. (2015), is conveyed to the public through project plans. According to 5 [out of 11] respondents, the projects failed to match the image of Marysville that the early communications had delivered to the public. R5 added that the outlook of the town once the projects were completed was a total contrast to what was promised at the start of the process.

Participants' statements regarding planning shortcomings were the most common theme spontaneously mentioned. Those influenced the shortcomings during project execution, post-project, and throughout the project. A model driven by data and backed by literature was presented in section 4.6 above.

As the final part of a Grounded Theory exercise, it is recommended that the researcher dedicates a part of the discussion section where they compare established theories and then present the benefits and the limitations of the study (Dunne, 2011).

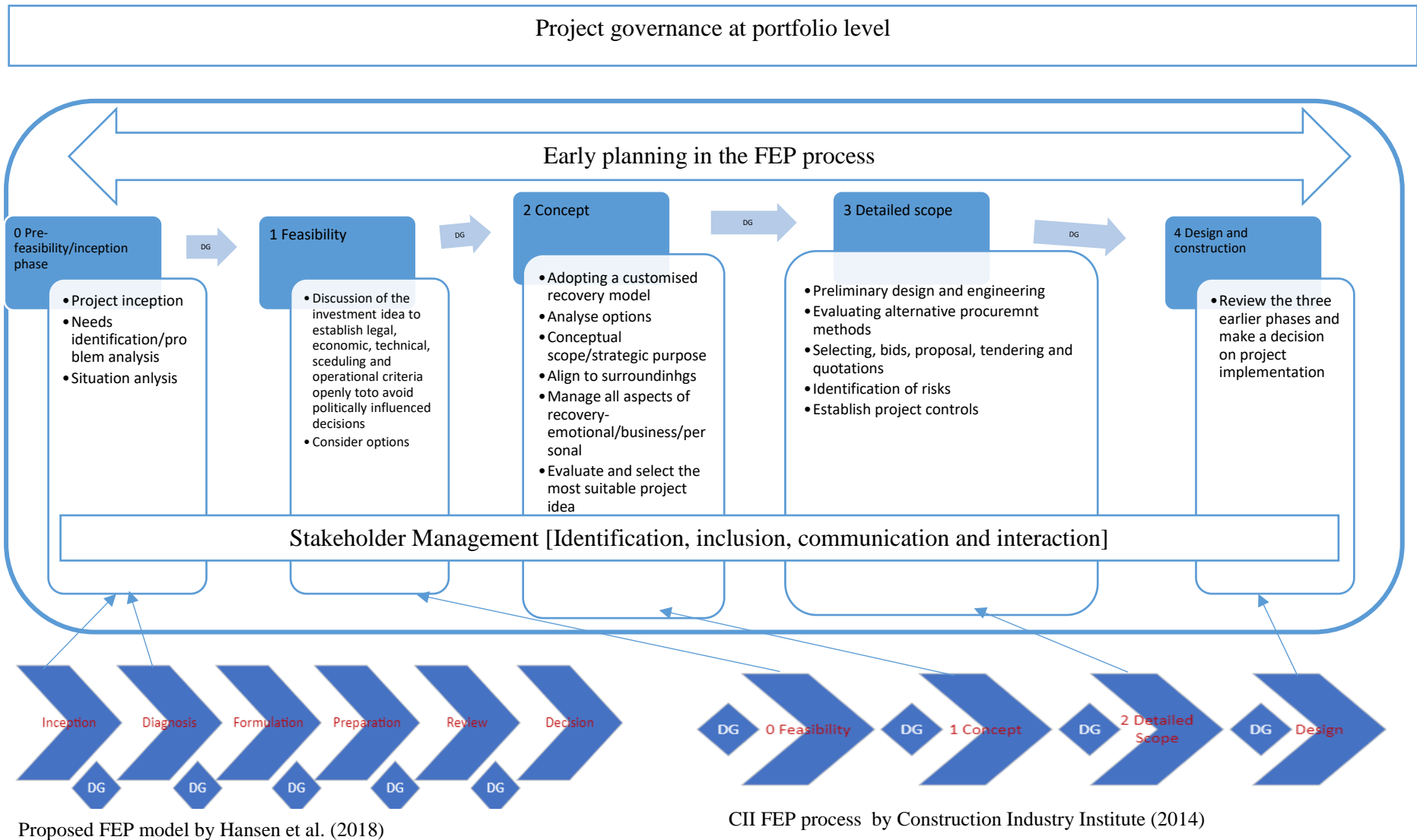


Figure 17 FEP process resulting from the pilot study

To open a discussion of the merits and drawbacks of the model presented, a visit to the literature review is needed. The criteria found in the FEP for Marysville have been compared with the components of other FEP processes, as identified in section 2.12. The factors within the FEP process have been rearranged within Figure 17, which is essentially a crossover between the two previous FEP models suggested by CII (2014) and Hansen et al. (2018). In the pilot study, it was confirmed that some modifications that were essentially influenced by the post-disaster context may be needed. The pilot study data revealed that spending time to understand the changes to the population, their characteristics, and a projection of how those would affect the selection of flagship projects need to be carefully examined prior to engaging in the feasibility stage. The new modified version of the project included the pre-feasibility stage, mainly constituting situation analysis, project inception, and needs identification/problem analysis. Some recent works have included the project's feasibility stage to look at project inception onwards leading up to approval for construction (Hansen et al., 2018). Hansen et al. (2018)'s literature-driven model had 6 phases, each separated by a DG. The proposed model is, therefore, a cross-over between the Hansen et al. (2018) model and the one proposed by CII - as the most widely used model in extant literature (Construction Industry Institute, 2012; ElZomor et al., 2018; Esmailzadeh, 2021; Hansen et al., 2018; Safa, 2013, 2015; Sherman et al., 2021).

The model represents the changes created by a disaster where the steps within the FEP have altered quintessentially. The governance, as mentioned earlier overarches planning. Stakeholder management is a process that runs entwined with each of the stages of the FEP. It has proven that the FEP process for a post-disaster large-scale public project takes a different route to FEP and therefore needs to be approached more cautiously. It requires considerable time in the first phases to understand the environment created by the situation.

A limitation of this model, which perhaps confines its ability to be applied across different disaster scenarios, is that the factors within each of the FEP phases are unique to the type of approach by the government [top-down/bottom-up planning], type of governance arrangements in place at the start of planning and the source of funding [donor-driven/state funded/Private and Public Partnership].

4.12 Chapter Summary

The pilot case study was an exercise that allowed the researcher to understand the limitations and causes of limitations in Flagship projects in Marysville following the 2009 bushfires and

to test the appropriateness of the types of respondents to interview. At the time of data collection, which was nearly ten years post-disaster, no formal post-completion review had been done for any of the projects. The reviews were limited to VBRRRA reporting on the flagship projects in its progress reports that came out periodically. The absence of an assessment compelled the researcher to look into the impacts created by those flagships and the factors that act as culprits that drive those impacts.

Eleven years after the fires that ravaged Marysville, the findings of this study revealed that there were factors that were specific to the town that were not mentioned in the limitations of public projects/factors causing limitations in previous literature. The economic and social revitalisation that was expected as spillover benefits of these projects has been limited due to the factors described above. The literature search and the pilot study data confirm that the factors that drive limitations in flagship projects could be mostly case-specific and, therefore, may need location-based and case-specific advice when it comes to planning.

Analysis of the literature and the case study data reveals that the majority of limitations of major investment public projects result in the management of the front-end of the projects, which includes public governance and early project planning. The factors that need to be managed throughout the project lifecycle include Stakeholder Management. Monitoring, reviewing, and control of those projects matter during execution and post-completion.

The contribution to knowledge will focus on managing factors that cause adverse outcomes and could lead to better results in the event these projects are interwoven into the urban landscape following a disaster. The study has resulted in a data-driven model that is a crossover between two models found in the literature. This model will be used as the basis for the main study.

The researcher decided to limit their focus to identifying and discussing factors that cause limitations in flagship projects in the Front-End Planning stage. The reason was that most of the factors identified through the case study belong to the Front-End Planning phase and seem to profoundly influence the success of the subsequent stages. The main study will therefore explore a) Governance of projects b) Planning in the front end of a project c) Stakeholder Management throughout the stages.

Chapter 5 Results-Christchurch Flagship Projects

5.1 Introduction

This chapter begins by reporting the findings from the collective case study. Findings are reported across four chapters, the fourth being a comparative discussion of the findings of the preceding three chapters. Where a researcher considers multiple case studies in his/her research study, there could be two types of analysis: ‘within-case’ and ‘cross-case’ (Eisenhardt, 1989; R. Yin, 2011). The within-case analysis provides a thorough description of each case and themes that arise from it (Creswell & Poth, 2016; Houghton, Murphy, Shaw, & Casey, 2015); cross-case analysis is performed to analyse themes across cases to draw out similarities and differences (Eisenhardt, 1989; Miles & Huberman, 1994). In qualitative data analysis, ‘themes are developed that capture and unify the nature of the phenomenon’ (DeSantis & Ugarriza, 2000). For a holistic analysis, the inter-relationships between cases need to be studied without settling for merely exploring themes as separate entities (Ayres, Kavanaugh, & Knafl, 2003). Stake (2006) explained that in collective case studies, while a researcher may want to report the findings as detailed as possible, this is often problematic as it will result in a lengthy story that ‘exceeds anyone’s knowing, anyone’s telling.’ In a collective case study, Stake (2005) emphasised a better strategy of ‘winnow and consolidate’ and strive to report collective findings from the cross-case analysis. This is the approach followed in this research work.

In this chapter, the three case studies and the study participants are described. The subsequent four chapters present the major categories that represent the key findings from this study. Chapters 6, 7, and 8 summarise the common themes across the three cases, with case-exclusive outcomes and variances for a specific case reported within the wider setting of the category. This type of writing develops an understanding of specific issues. It provides a holistic and in-depth understanding of the planning of flagship projects post-disaster, which achieves what Stake (2006) described as a manageable and comprehensive representation of a collective case study approach.

5.2 Case studies-Christchurch Central City’s flagship projects

As explained in Chapter 2, Section 2.9, Christchurch flagship projects had the common planning traits of being recovery agency-led, slow to be built, voted in by the people, with the residents being at the centre of all decision-making (Bidwell & Dell, 2011; Crawford &

Morrison, 2021; Darabi, Zafari, & Milani Nia, 2013; Hawkins & Maurer, 2011; Olshansky, Hopkins, & Johnson, 2012; O’Neill, 2015b; Smart, 2012; Stevenson, Emrich, Mitchell, & Cutter, 2010; Thiruppugazh, 2016)

With the knowledge of the above-mentioned planning pitfalls, the study aimed to understand how planning in the front end affects flagship projects in post-disaster rebuilding and to produce a set of guidelines for planning post-disaster flagship projects. Three flagship projects in the CBD of Christchurch were chosen as the case studies for this study to achieve the aim. The perceptions of all stakeholders of those three projects were then explored. Stakeholders’ perceptions of each project presented similarities and differences based on the nature of the project, procurement planning, and public involvement despite the fact that those flagship projects were designed and at least partially funded by the Central government.

All three projects were public facilities and had welfare objectives. Each project dealt with the stakeholders described in earlier chapters as relevant participants for the research. Each project offered a community service such as library services, public transport connections, and justice-related services. Variations were evident in the level of general planning, public involvement, and procurement planning. Each site is currently operational, and those were the only three projects to have been built from scratch and completed fully at the start of the study (late 2017). At the start of this study, the completed projects were attracting public scrutiny due to higher operational costs, fewer users than anticipated, and benefit shortages. Table 18 provides a comparative overview of the three cases. The table captures the most distinguishing characteristics of each case. Knowing those characteristics are important.

Table 18 Comparative view of the three case studies

	Case Portfolio	Case 1	Case 2	Case 3
Case study	CCRP	CJESP	Tūranga	CBI
Project period	April, 2012-July, 2012 3 months	October, 2013-September 2017 3 years 11 months	August, 2013-October 2018 5 years 2 months	July, 2013-July, 2015 2 years
Type of project	Public rebuild planning project	Public service enhancement project	Public welfare project	Public transport project
Contract type	N/A	D&B ECI contract	D&B	D&B
Client	CERA	The MoJ	CCC	CERA
Cost	N/A	\$300 Million	\$92 Million	\$53 Million

Current asset owner (As of December 2021)	N/A	The MoJ	CCC	CCC
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5.3 Study Participants – Flagship Project stakeholders (Individuals)

Multiple stakeholders (individuals) were recruited across the three cases. In total, 34 interviewees consented to be a part of the study, with 16-17 participants recruited per case. Participants were recruited from the following stakeholder categories.

- Government planning officials, referred to as planners (P) hereafter, who finalised the Christchurch blueprint and determined the projects in the blueprint. This group included CERA, CCC, Ōtākaro, and Ecan employees
 - Architects (A) who were involved with the designing of the chosen projects and the Christchurch blueprint
 - Builders (B) that undertook the construction of the chosen projects
 - Consultants (C) of the chosen projects, including Project Management firms, Structural engineering firms, and cultural consultants
 - The operational staff (O) of the chosen projects who have been working in a similar capacity before the disaster and who continue to work in the chosen sites
- E.g.
- Lawyers with more than ten years of experience
 - Library staff that worked in the previous Christchurch Central City library
 - Management level staff of the previous Bus exchange
- End-users (E) of the chosen projects who are frequent users except for CJESP

Input from the creators of the public asset, the parties who run the asset, and those who use it were required for a holistic understanding. The largest category was the end-users [13] as the most important stakeholder for a public project are the end-users as they assess the usefulness of the project (Karlsen, 2002; Toor & Ogunlana, 2010). Recruitment of contractors was not successful for CJESP despite multiple attempts to reach those at the highest level, such as the General Manager and the ones from the board of Directors and territory Managers. All failing, the researcher visited the Auckland branch to get a contact for the interview. Later it was revealed that as a policy, the construction company employees are not allowed to give their opinions on projects or disclose project information unless their Public Relations Officers do

it. As an alternative, the researcher recruited a respondent from another construction company who had experience constructing Christchurch flagship projects. The respondent's industry knowledge and experience during the time compensated for the lack of input from the CJESP contractor to an extent.

Table 19 Details of study participants

Organisation	Interviewee code	No	CCCL	CBI	CJESP	In General	Other projects that they have been involved in
Government Planners (Chch blueprint team, CERA, Ecan, Otakaro, CCC)							
	P1						All
	P3						
	P4						
	P18						
	P2	5					7 Convention centre, East Frame, Bus Interchange, multi use arena, metro sports, earthquake memorial, Avon river precinct,
Architects							
	P6						
	P19						3 projects including Metro sports, covention centre and CJESP
	P5	3					
Contractors							
	P7						
	P8	2					
Consultants							
	P10						
	P20						
	P21						
	P22						
	P9	5					
Operational staff							
	P11						
	P23						
	P24						
	P12						
	P33						
	P34	6					
End Users							
22-24 End Users 3 CJESP	P25, P26, P27						
25-29 End Users 5 CCCL	P28, P29, P30, P31,P32						
30-34 End Users 5 CBI	P13, P14, P15, P16,	13					
Total		34	34	17	17	16	34

Table 19 presents a breakdown of participants recruited within each project. The researcher deliberately withheld the details that could make the respondent identifiable. Their positions would not be revealed in the data. The highest level positions, such as the CEO/Managing Director, along with a company name and project name, could be easily identifiable. All respondents in the professional categories had more than ten years of experience in their professions, except the operational staff of those projects. All participants held a bachelor's degree or higher other than the operational staff and the end-users who were not asked the question. The study benefitted greatly from the participants who came on board, as over 75% of respondents had worked on multiple projects across multiple roles. E.g., The structural engineers had worked as earthquake damage assessment consultants in the aftermath of the disaster or a CERA employee being recruited to a role at Ōtākaro. Except for one respondent in Category P, all other respondents in Category P and Categories A, B, and C were males.

Except for the end-users, the respondents can be classified as 'professional elites'. The latter is a term used to address those at the highest level of power who have accumulated vast knowledge in their field and are known to be a group hard to reach (Chaban, Elgström, Kelly, & Yi, 2013; Goldman & Swayze, 2012; Hertz & Imber, 1995). In the corporate world, elites are defined in relation to their field of research as: "an informant (usually male) who occupies a senior or middle management position; has functional responsibility in an area which enjoys a high status in accordance with corporate values; has considerable industry experience and frequently also long tenure with the company; possesses a broad network of personal relationships; and has considerable international exposure" (Welch, Marschan-Piekkari, Penttinen, & Tahvanainen, 2002). Often, these respondents representing a wider organization like to express their views in detail (Harvey, 2011). Usually, their views were enriched by the ground-level management staff, who were more involved at the ground level. The respondents often took the details and information from their colleagues on matters that needed clarification, and therefore two people from the same level of authority conveyed similar views. There was a general suggestion by the company leadership that one or two people from the organization could suffice. This feature in data resulted in quick data saturation.

5.4 Flagship Projects and governance of projects at the portfolio level

During the interview process, all the respondents unanimously agreed that the exercise leading up to each individual project's design and planning started on the wrong footing. Governance

at a higher level, essentially the legislative changes introduced at the onset, will be discussed in 5.4.1. onwards in this chapter.

Chapters 6-8 present detailed accounts of the three case studies of this research. Circumstantial elements that make each case stand out and those that influenced the outcomes for each project are highlighted. The researcher's observations of the projects, as they were experienced during visits, are included. These descriptions aim to familiarise the reader with the projects and provide contextual background for the case study findings.

5.4.1 *The Christchurch Central Recovery Plan [CCRP]*

The background

Christchurch Central Development Unit [CCDU], as a sub-unit within Canterbury Earthquake Recovery Authority, was responsible for the flagship projects in the Central Business District. Monday, 30 July 2012, it released the blueprint for the city, precisely 103 days following its appointment in April 2012. The plan had proposed changes to make the city greener, create a stronger identity that safeguards cultural values, establish a compact city core, make the centre more accessible, and create spaces fit for living, working, and playing. The plan set out projects for each of those areas with implementation timelines and concept design details, and locations for most of the projects. It showed close similarities to the draft prepared by the CCC in 2011 but was said to be based on the ideas gathered through public consultation. The locations of the projects meant that the minister was to use his powers to designate sites for this purpose. Most of the sites belonged to private owners. The CER Act 2011 allowed the compulsory acquisition to avoid delays that may result due to negotiations. Compensation for lands was to be determined later, where compulsory acquisitions may be needed. The plan also contained statutory changes in the form of changes to the district plan that would be overridden by the powers of CERA. The concept designs for the 17 flagship projects had several lead agencies for each project. The project owners were to have a project team develop the designs further, determine procurement routes, and prepare detailed business cases to secure funds from funding sources.

It also identified challenges Christchurch faces on its road to becoming a modern city. Those were limited to the structural outlook than any environmental/external factors. Promoting the inner city as an investment hub and a community space, using surplus empty spaces wisely, integrating buildings, and weaving the eastern area into the overall central city area were among the identified challenges.

The interviewees agreed that the idea generation for CCRP was an exceptional public opinion-seeking exercise. Just ten weeks after the disaster, CCDU designed strategies to gather rebuilding ideas that used public educational institutes and digital and print media to encourage people to submit ideas through the website- shareanidea.org.nz (Carlton, 2013; Greater Christchurch Group, 2017; Johnson & Olshansky, 2016). The public was asked to provide ideas on

- The usage: What activities would they do in the centre?
- The arrangement: What businesses and public places do they want in the city? How would they want to commute within the centre?
- The means: How can the centre get the public to return?

There were also idea drop-off locations in major public venues within Christchurch. 106,000 ideas were gathered by the campaign. A draft plan was released within 100 days. The exercise used a wide array of occupational sectors such as activists, urban planners, open space planners, architects, and consultants. Boffa Miskell, Resource Co-ordination Partnership (RCP), Warren and Mahoney, Populous, WoodsBagot, and Sheppard and Rout were a few of the companies that got involved (Amore & Hall, 2016). The process included getting the required skillful people under one roof, stakeholder briefing, writing the functional briefs, and determining the locations and deliverables of the whole programme and each project separately. Local knowledge and international best practice were given priority.

The design

Following a competitive selection process, a consortium of consultants representing a variety of disciplines like activists, urban planners, engineers, project managers, landscape architects, and urban designers had the task of designing and positioning the flagship projects within Central Christchurch.

The architects were given a short period of about a month for actual design work with extended periods for sign-off from various government authorities.

The consortium identified flagship projects based on the CCC draft and the public feedback, located them within the CBD and established strategic links between them, and provided guidelines for surrounding areas (Amore & Hall, 2016; Canterbury Earthquake Recovery Authority, 2012b; Canterbury Employers' Chamber of Commerce, 2016). The final revised version of the blueprint plan was published in July 2012 with details around the 17 flagship

projects (Brownlee, 2012; Canterbury Earthquake Recovery Authority, 2012b, 2016a). It took one year and five months post-disaster to lock in the final design for the rebuilding of central Christchurch.

The process

The legislative powers of CERA facilitated the rapid placement of flagships allowing the Minister to shorten the process of designating land under the Resource Management Act 1991 (Supreme Court of New Zealand, 2015). The significant effects of the designation were that the landowners were subjected to compulsory acquisition of their lands or voluntarily agreed with CERA to obtain those and waive off on the provision of land use consents (Canterbury Earthquake Recovery Authority, 2016a, 2016b). There were restrictions for construction work within the CBD while the priority remained flagship projects (Sheppard, 2014). The government perceived it as mandatory to get the city functioning as per usual, before investors could return (Wilkinson, Crampton & Krup, 2018). Those restrictions preventing private construction were deemed necessary to unveil the plans in place for Christchurch. Convention Centre, Avon River Precinct, The Frame, and the Metro Sports facility were indicated as the first projects that would be built. The aim was to bring people back to a more compact CBD that facilitated ‘Live, Work and Play’ concept of CCRP (Canterbury Earthquake Recovery Authority, 2012b) [See Figure 18].

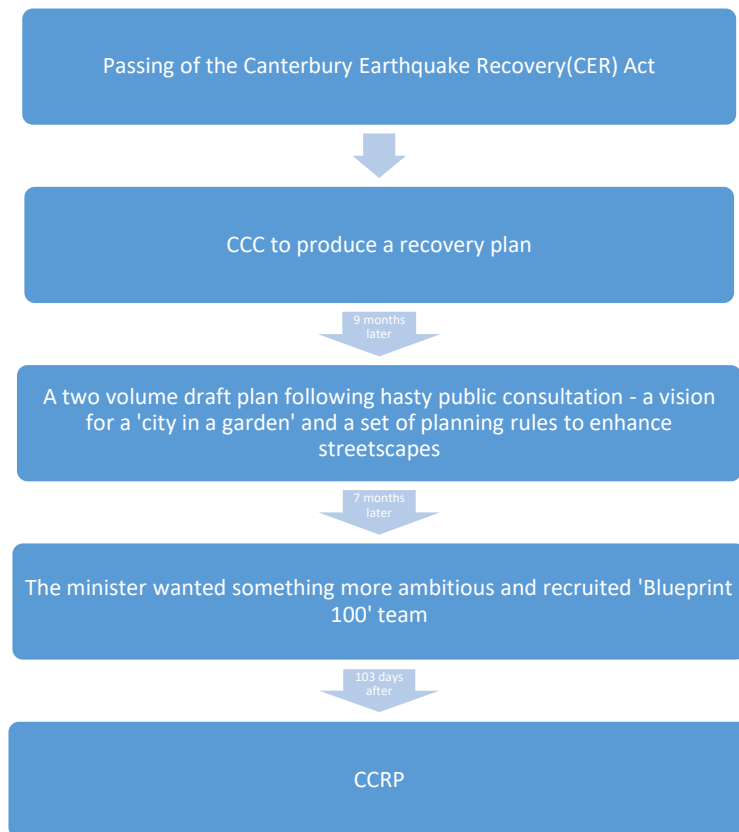


Figure 18 The process of arriving at CCRP

Each individual project had separate project leads and project teams. From a basic concept design in the blueprint, those had to be separately developed with a business case to secure funding from the Crown. There was no clear direction on how the financial requirements/investments for the projects would be met.

5.4.1.1 Immediate project outcomes of CCRP

Once the blueprint was finalised and released to the public, the following outcomes became apparent [Table 20].

Table 20 Immediate project outcomes of the CCRP

Period of outcome	Outcome of CCRP	Factors that caused the outcome
Short Term	Over-ambitious and over-optimistic plan	<ul style="list-style-type: none"> -The FEP of the blueprint process was rushed -The timeframes for completion were based on concept designs in the front-end -Financial ownership/cost-sharing of projects was not determined in the front-end

		-The Project Team lacked knowledge about procurement and commercial know-how
	Ineffectual design concepts	The 100-day process did not allow for detail. The proposal was limited to concept ideas during the front-end planning to be further developed later in the process.
	Non-strategic locations	-Required unwanted demolitions and private land acquisitions to allow for the blueprint plan to flourish -Limited strategic effect as the first projects to be completed did not advance as planned
	Uncharacteristic fit for 'public' project definition	-Projects that made the blueprint plan were not the projects chosen by the public during consultation. -Projects were not checked for strategic fit within public project portfolios or long-term plans for Christchurch during the early planning - Too costly for the size and population of Christchurch
Medium Term	Unwanted demolitions	-A politically driven process that ignored/concealed risks at the front-end
	Absence of an order of importance for construction	-Individual projects with complexities had issues to be resolved before advancing, such as determining cost ownership, land acquisition, remediation, business case modeling, stakeholder consultation, government negotiations, etc. at the front end

Each of the above will be discussed further and supported with interviewee quotes where appropriate.

Over-ambitious and over-optimistic plan

The blueprint was overoptimistic and did not take time to understand the post-disaster environment or the needs of the residents (P1, P21, P22). The public consultation process covered many layers of society and gathered a vast number of ideas, but the blueprint plan that was released had dropped many of the popular choices made by the residents, such as the light rail system that connects the city's key locations. P23, P27, and P31 felt that the list of projects stuttered in the ground holding up what was expected as spillover effects.

P30 was quoted saying,

“They are called ‘anchor projects’ as just like an anchor they are stuck in the ground and hold up Christchurch’s economy from moving forward.”

Many of the projects, such as the stadium and the South Frame, were scaled back due to the increase in land prices. The scale back meant changes to the designs. The process also held back the private landowners for over two years until 2015 because of the uncertainty around the acquisition of their lands [P1].

A top official of CERA voiced that the blueprint was too ambitious that it created uncertainty and drove people away. P1 added

So the key thing for a government to do or a leader to do is to try and reduce uncertainty so that people can invest. I think the blueprint was so ambitious. We actually reduced certainty about the rebuild and drove investors away because we were so ambitious. It’s that simple.”

A risk-averse investment approach resulted from a team that tried to micro-manage every detail, and the CCRP could not move forward due to the formation of a team that lacked the commercial sense behind investment decision-making.

Ineffectual design concepts

The projects that were proposed were concept designs, with most of them having designated locations within Central Christchurch. The project teams had to develop each project concept into viable business plans after the blueprints were finalised. Some projects were delayed because there was a requirement to present a solid case of how the identified risks would be handled. The budgets for individual projects were not determined within the blueprint, but those were decided later when the designs were more detailed. Some of the projects that were in the blueprint were later scrapped as they failed to produce viable business cases to get the Crown’s approval for funding.

P19 suggested that the consortium should have been allowed to continue for longer. They pointed out that some design aspects needed convincing CERA and the crown to implement. Referring to the green frame that compressed the city and the South Frame, P21 said that the initial idea involved the purchasing of a lot more private land. The consortium did not have the time to evaluate, analyse, and understand the implications to present a case for their vision for the Green Frame. As a result, the Green Frame had not been realised as they envisaged.

The officials had to drop the idea that they envisaged at first and had to rely on the process.

“We didn't have a lot of time to evaluate and analyze a lot more and understand the implications of it all. We just had to do it and move on as it transpired”.-P21

P21 added that additional documentation that should go with the plan had been looked over. They said the minister only ever signed the blueprint documentation but did not make use of another 200 or so pages that came with it.

Non-strategic locations

Participants unanimously agreed that, except for a couple of projects, the locations of the rest were decided by looking at what land was available. There were barriers to the selection of specific designs as those called for a lot of buying/acquisition of private land. Those were proven to be time-consuming and difficult. P1 labeled the Crown as a ‘bad property developer.’

I remember when we started off the blueprint process and we had this big map of the city and the Minister...he said let's put it here... do it here... this over here and bring this down... I mean, that works well over here, too...” P1

Uncharacteristic fit for ‘public’ project definition

P1 said that the flagships were used as tools to win over people’s trust in the government. The welfare objective of public projects was therefore lost, as they mentioned,

“I think that the blueprint was written for the wrong audience. The blueprint was written for the voters.”-P8

The projects had large investment requirements and were too grand for the population of Christchurch. Referring to the South Frame housing development project, they mentioned

“We were terrified of building it cheap, to begin with and making it affordable because that makes everything else out of the development cheap. This is about money and the minister not being embarrassed by selling stuff at a loss. The crown can't sell the land that they bought at a loss because the minister looks like an idiot and if he sells it at a profit he looks like he ripped off the people who he bought it from.” -P1

Opportunities to rebuild were turned down because the Crown wanted to build anew rather than fix things. Irrespective of the type of project, the respondents [P1, P5, P7, P19, P21] believed that the government planners feared building small. P5 took the example of the Auckland Harbour bridge being too small to cater to the needs of the bridge users during peak hours. They were quoted saying

“The minister had that bias...You know we underbuild here in New Zealand. We massively underbuild these projects..., you know even after seeing how well the rugby stadium was going. You know, with that harbour bridge, it’s too late”.-P5

They had the opinion that planning for large-scale projects is secondary when compared to restoring some normalcy to the lives disrupted by the disaster

“The whole mindset after the disaster was so wrong because the time function of getting these fundamental facilities back is so important - I think we really screwed up”- P18

Unwanted demolitions

Strategic placement of buildings meant demolishing buildings that could have been saved through renovations. Backed up by engineering reports, those buildings were taken down, or renovations were canceled due to the need to make way for new flagship projects.

Absence of an order of importance for construction

The blueprint suggested that the Convention Centre, arts and cultural venues, the public transport hub, the stadium, and metro sports facilities would be given priority as previous facilities have been lost due to the disaster [P21].

In reality, those projects that secured a contractor had an agreement on cost-sharing and had the business cases approved had quick starts. Large projects with complex designs needed time for land acquisition, land remediation work, extensive stakeholder input, business case modeling, contractor/owner negotiations over cost, and thorough plans for risk management. As a result, the stadium, the metro sports facility, and the Convention Centre got delayed. Due to price escalation of resources, budget blowouts, and complexities around designs, the projects had to be reduced in scale than what was proposed in the blueprint. Those factors made inevitable shifts in the order of priority.

The order of priority was made for two reasons

- Sports are a big part of the life of Christchurch residents. Giving priority to those projects would help bring in a mass of people who would spend time at other key places in the city, thereby generating revenue. It would also instill a sense of trust within people about the government’s commitment.

- With the establishment of precincts such as the convention centre, related key places such as hotels and tourist-centred facilities can emerge. This would create an influx of tourists.

Failure to get those projects off the ground had delayed the intentions of the blueprint plan- to open up opportunities for other businesses, to bring people back into the city, and get them to spend their time and money for the economic revival of Christchurch. At the individual project level, the shortcomings of the governance of projects transformed into the following.

- Designs that were done in 2012 had become obsolete in certain aspects.
- The plan that was rushed lacked detail. This resulted in scope creep and an increase in budget for certain projects
- Public opinion was not reflected in the final blueprint. This resulted in the public disapproving of certain flagship projects
- The FEP process was lengthened due to land acquisitions, stakeholder consultation, and cost-sharing arrangements prior to the detailed scope phase
- The Feasibility stage proved difficult for some of the projects on the blueprint. Those have made the blueprint through political influence and had to be scrapped.

5.5 Stakeholder Management at the portfolio level

Stakeholder Management at the portfolio level was unorganised and ineffective. Refer to Figure 19. The coloured oval shapes show the links between different stakeholders. Overlaps between the shapes suggest interrelationships between parties. It was a trial and error effort to link up with all the stakeholders of the project. The most effective communication happened at the start of the exercise, where CERA kept the relationship with the public intact. This approach resulted in a growing trust in the rebuilding commitments of the government. The communication became less frequent as the projects were locked in and individual project planning commenced.

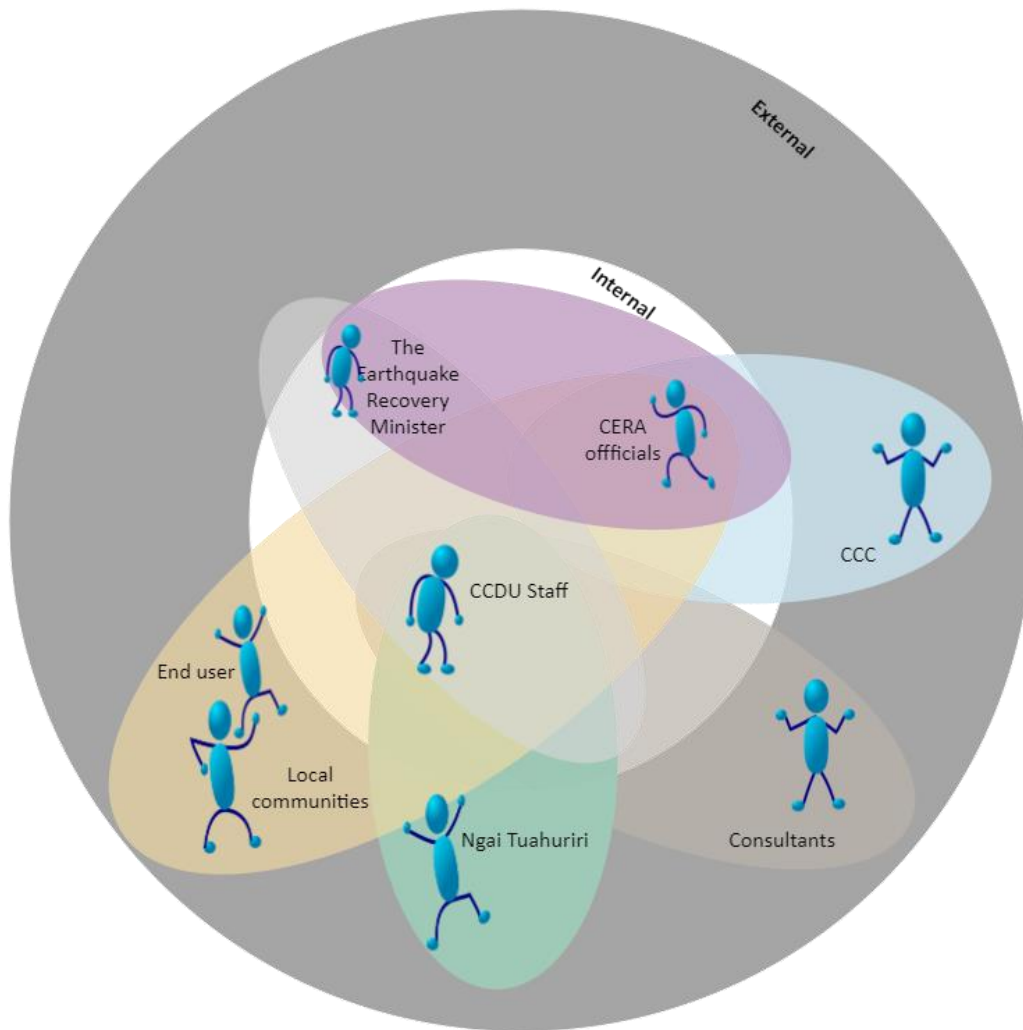


Figure 19 Stakeholder mapping at portfolio level post-earthquakes 2011 in Christchurch

CERA/CCDU with the general public

CERA prepared and carried out a community engagement strategy and framework to enable residents to participate in decision-making. CERA sought the advice of specialists in psychosocial disaster recovery when it prepared the strategy and framework. CERA led a community response named 'Community in Mind' to carry out psychosocial recovery together with non-governmental and community organisations. At the start, CERA employees with authority mingled with the people on the ground to understand the aftermath of the disaster. They published a monthly progress report called 'Greater Christchurch Recovery Update' with advancements related to flagship projects.

Later, the communication became an informatory session about the decisions rather than a participatory approach.

CERA/CCDU with the stakeholders

Governance arrangements at the start meant that CERA and CCDU did not have a clear distinction between what was expected from each entity.

In 2012, the head of the unit, was reporting directly to the Earthquake Recovery minister even though CCDU was a sub-unit within CERA. CCDU held a policy and a delivery role. There were suggestions that those should have been separated.

Quality of personnel at the agency level

At the outset, driven by the pressure to put the programme management together, the people who had been in government services or had strong ties to the government in leadership roles were appointed to top levels within CERA and CCDU. The person to lead CERA was headhunted based on having a strong portfolio of leading strategic and operational development projects at the Board or Chief Executive level, having a credible character, having strong relationships with both the government and the leading private sector companies, and having displayed excellent communication and relationship management skills and strategic and operational leadership. Similarly, CERA appointments were mainly made through invitation. P1 criticised this approach as “a failed attempt to bring together people who did not have deep know-how of the requirements.”

CERA and CCDU were considered the backbone of the rebuilding portfolio of central Christchurch. CCC criticised the CCDU’s leadership in its work on the city’s flagship projects. They called for changes to appoint professionals with a more profound understanding of investment and business realities. Once the projects moved to the implementation phase, the lack of commercial know-how to promote projects to the outside world to drive investments was seen as a major drawback.

P5 and P21 expressed the view that the people-centered approach that CERA promoted at the start had many hurdles along the way. CCC was struggling with the enormity of the disaster and needed the financial lift that the Crown was able to offer. Instead, the Crown had taken over power and pushed the local council to a secondary role, and denied the residents to decide the future of their city. They also voiced their concerns over the governance arrangement that gives all the power to the cabinet minister. This was done with the intention of having direct control over the process and decision-making. The responsibility for the decisions made in this capacity bounced right back to the minister and his office.

CCDU would have performed better if there had been an arrangement to define their roles and responsibilities so that they would not overlap those of the CCC and other government entities. Placing them on an equal footing with the CCC and the cabinet instead of above them would have given more space for the government to intervene when the process is flawed.

5.6 Chapter Summary

This chapter set the scene for the main study findings that will be presented in the next three chapters. The chapter included a brief introduction to the case studies and presented the study participant details. It also provided a brief overview of the CCRP process, which set the foundation for all flagship projects in Christchurch. The researcher decided that it was appropriate to include the governance at the high level at the onset of the discussion of results, as all the initial planning was done within the governance arrangements put in place at the start. Those legislative changes affected all three projects at the onset in various degrees and therefore are discussed before planning and stakeholder interactions. It is understood that the governance structure that overarches the decisions made regarding flagship projects influences the outcomes on the communities, the neighbourhoods, and the economy.

Chapter 6 Case Study 1: Christchurch Justice and Emergency Services Precinct [CJESP]



Figure 20 CJESP

Source: Author's own

6.1 Background of the Case Study: CJESP

CJESP was officially opened on the 12th of September 2017. It is said to be the first major project to be completed by the government. It is also hailed as the largest combined justice and emergency services unit in Australasia. The project cost \$300 million and spread over 42000m². The Ministry of Justice led the project. It is demarcated by Lichfield, Colombo, Tuam, and Durham Streets in Central Christchurch and houses all justice and emergency-related services in a technologically-oriented, purpose-built building in Central Christchurch [Figure 20].

6.2 The design

The design was unveiled on the 18th of October 2013.

The facility constitutes three separate buildings and a central courtyard connecting the Justice building and the Emergency Services building [Figure 21].

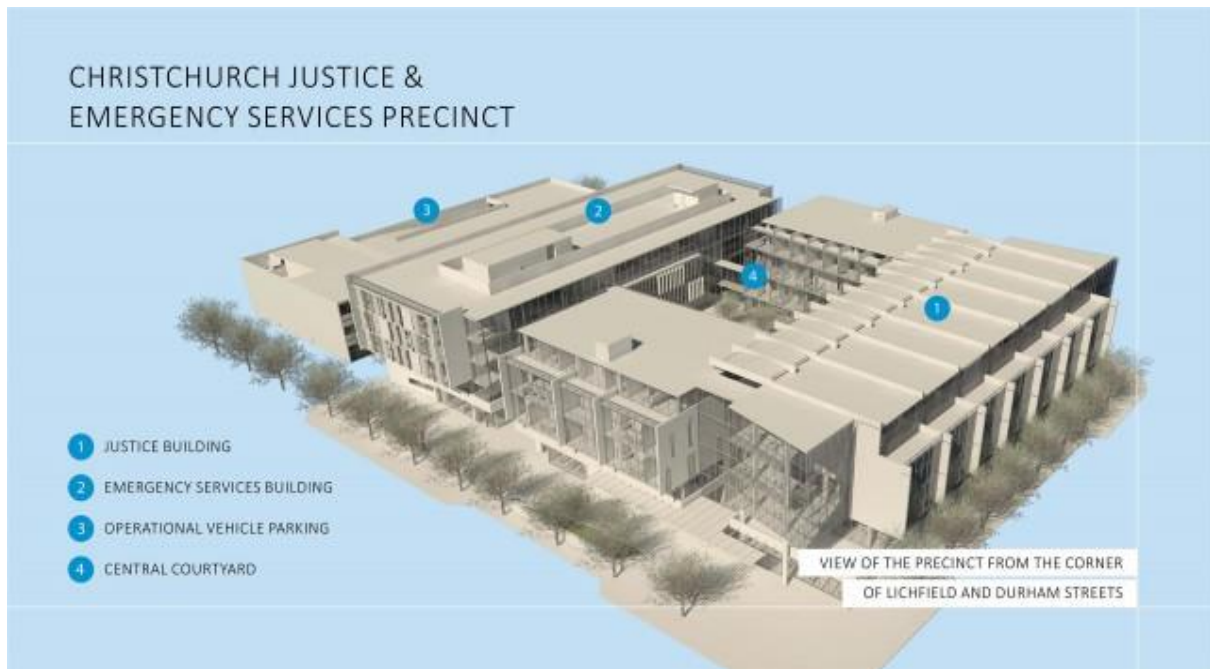


Figure 21 Buildings within the CJESP

Source: Ministry of Justice

The Justice precinct houses the Ministry of Justice, 19 courtrooms, associated courts, and legal functions such as the judiciary. Emergency Services building comprises NZ Police, the Department of Corrections, Christchurch City Council-Civil Defense and Emergency Management, Canterbury Civil Defense and Emergency Management Group, Ministry of Civil Defense and Emergency Management (CDEM), Fire and Emergency NZ, South Communications, and St. John New Zealand [See Figure 22]. There is also an Emergency Operations Centre (EOC) that links all emergency responses in the event of a local, regional or national incident.

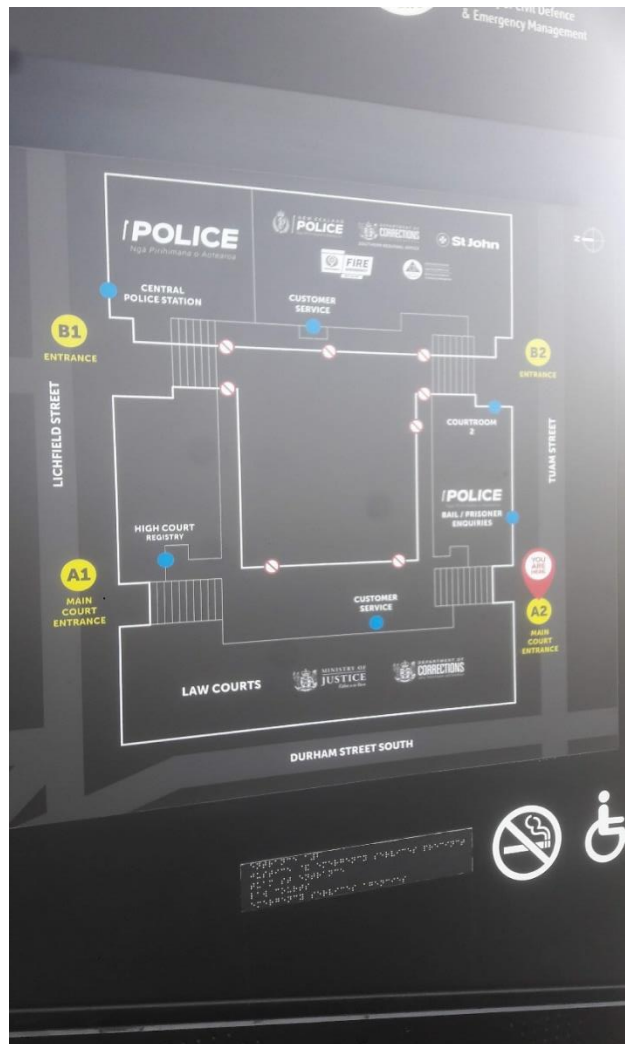


Figure 22 The layout of the Emergency Services Building of the CJESP

Source : Author's Own

The building is categorized as an Importance Level 4 (IL4) building which is designed to be functioning after a 500-year return period quake. The buildings are base-isolated using a mix of lead rubber bearings and Teflon sliders. The objectives of the project were essentially twofold. Firstly, there was a need to break the traditional view of Justice and emergency services buildings having 'defensive' or 'exclusive' architecture to become a more welcoming, open, transparent, and connected environment. The second, was to offer the general public more streamlined service delivery in justice and emergency-related areas. A consortium involving the lead architect and two other architectural firms, one local and another Australian company, designed the facility with significant input from the Matapopore Charitable Trust. Patterns and designs in the internal spaces of the building proposed and later incorporated into the design were by Ngāi Tūāhuriri. The artworks in the building carry strong links to the history and origin of the people of Christchurch [Figure 23].



Figure 23 Outer appearance of CJESP

Source: Author's own

6.3 The construction

Groundbreaking for the construction of the precinct began in January 2014, and the construction contract was signed on the 15th of July 2014. The construction was expected to finish in February 2017, but the construction company promised to deliver the completed precinct in mid-late 2016. The company then delayed completion six months beyond its anticipated completion date, yet not fully operative at the opening.

Court building

The project lead, The Ministry of Justice (MoJ), was fixated on the framework of establishing a less intimidating sense of authority in the traditional justice buildings, and the cooperative input from the architects and the Matapopore Charitable Trust then placed key operational spaces within this framework. The result was a much narrower and linear footprint within the building with a spine that could be accessed by the public on the opposite end of the restricted operational spaces. The main foyer, waiting, and internal public circulation spaces were arranged around a courtyard with plenty of natural light to achieve the design objectives. There is an atrium connecting the two main roads and offers hospitality and customer service facilities for easy navigation of the building [Figure 24].



Figure 24 Court Building, the CJESP

Source: Ministry of Justice

Emergency Services building

The purpose of the building was to allow seamless service delivery in the event of a large-scale disaster. To support this function, a base-isolated structure was used for uninterrupted standalone operation for up to 72 hours after a disaster. The interior and the material selection reflect the difference between the civic building from that of the courts or, rather the separation of police and independent judiciary [Figure 25].

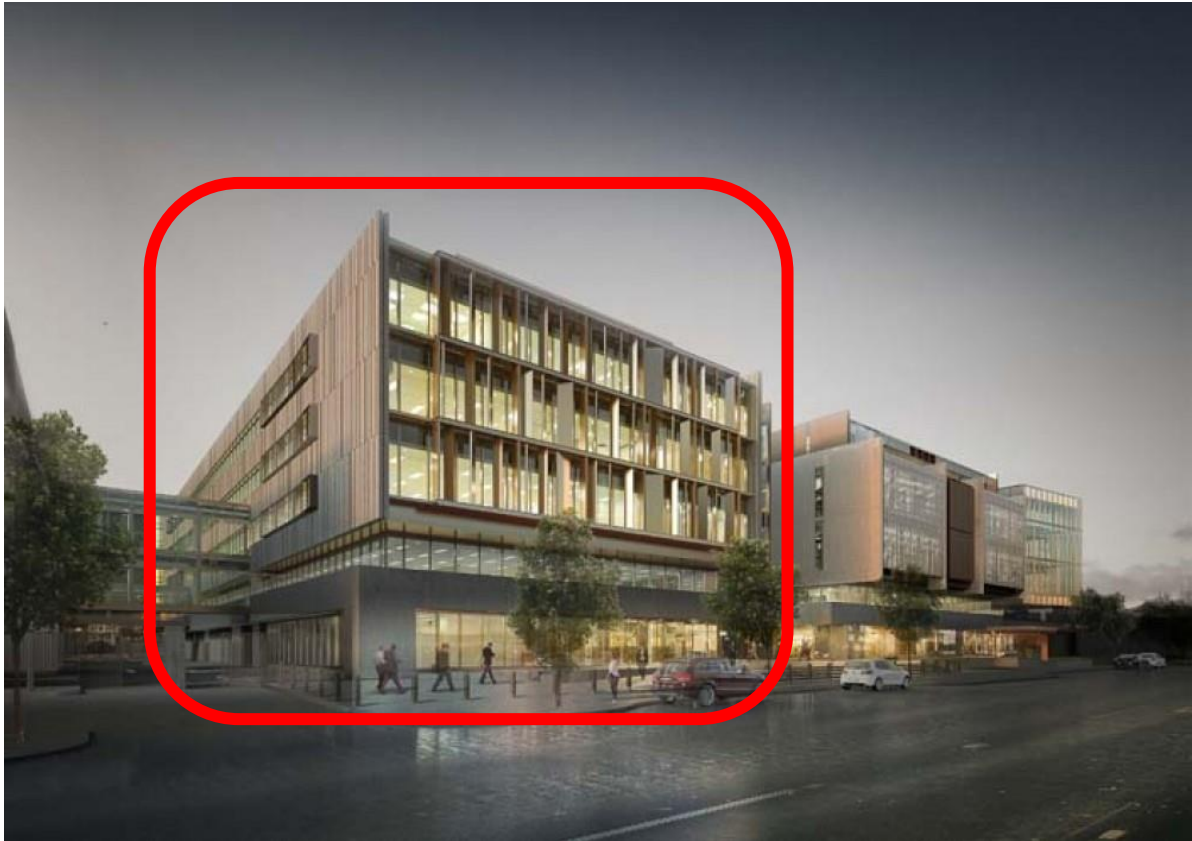


Figure 25 Emergency Services Building

Source: Ministry of Justice

6.4 FEP for CJESP

The phase of early planning leading up to the start of detailed design and having the approval to proceed with the project to construction is considered within the Front-End Planning (Sindhu et al., 2018; Williams, Vo, Samset, et al., 2019). In a more formal setting, Front-End consists of defining what the project is expected to achieve, testing the project's feasibility, and setting the expectations for strategic performance (Williams, Vo, Samset, et al., 2019).

Figure 23 is a visual presentation of the amended FEP process with pilot study data that suggested the front-end benefit from a pre-feasibility phase. The process proposed by CII was therefore amended to reflect this. The process was then used to map how the CJESP has fared in following the activities that are normally included within the FEP process [Figure 26]. Figure 27 is an attempt to further elaborate on the sequence of activities within the FEP for the CJESP. The FEP process drawn up for each project as part of case study analysis has been named as an erratic process as it deviates from the proper course.

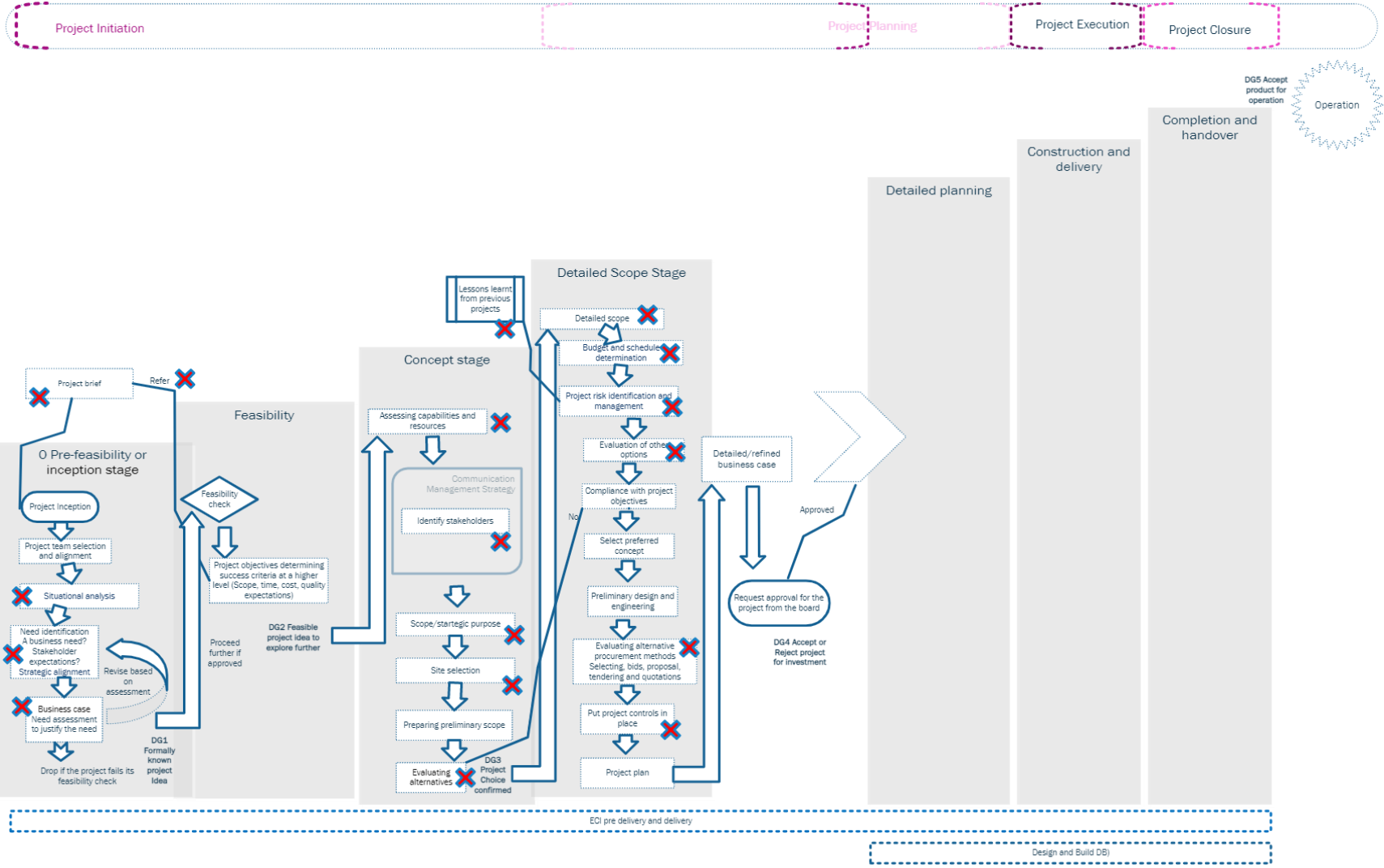


Figure 26 CJESP FEP fitted into the modified CII FEP process



Figure 27 The erratic FEP process of CJESP

Planning in the front end for the CJESP was minimal. As shown in Figure 26, all steps with a red cross in the front have not been performed in detail or had been omitted in the planning in the front end of the CJESP. As per Figure 27, the most important and detailed decisions were finalised closer to the actual construction work. The ECI contractor had been a part of the project since the latter part of 2013 under a Pre-Contract Services Agreement. The detailed design was finalised in May 2014 while construction risks remained high. The implementation business case was done in June 2014, and the main contract was awarded in July 2014. The sequence, the gaps between each of the important activities, and the responses of the 13 Stakeholders [excluding the end users] suggested that there were a lot of negotiations between the client and the builder since the developed design was unveiled up to the Implementation Business case. Those were mainly around risk management and changing the design something that can be managed by the contractor.

For the CJESP, the following phases within the planning in the front end have become the most impactful.

6.4.1 *Pre-Feasibility Stage*

Project inception, assigning project members, situational analysis, needs identification, and business case needs assessment are included in the pre-feasibility stage. Out of the mentioned steps, only the team selection and alignment had been managed well, according to P20.

Project Inception through the Project Brief

A project starts with the client expressing their needs through a project brief. The client brief for the CJESP was mainly focused on the need to bring together nine governmental departments under one roof. The client brief expressed that all stakeholders need to be in the same building, but it had not included any details on how that can be achieved through the project. P20 and P21 said that the project team was handed over the responsibility to dig deeper into the project requirements as the process unfolded.

“There's was no client brief that set out the way they do things in a justice setting. I think there's a learning from it. It would be really nice to know what the norm is or the standard used all around the country. For example, if we're building a courtroom or a cell, what does the standard build looks like so that you can pretty quickly pull those together? Whereas we were like, let's get stakeholders in a room and ask, 'what do you want?' And then, you know, we started with the thinking process all over again, and that could have been really truncated if we had a brief to start with.” [P20]

The client brief at the start contained very little detail that would help design the building the client requested.

Project team selection and alignment

The project team was formed in stages. First, the MoJ, as the client, worked with the selected designer for the project. The latter was selected due to its previous track record with public projects, but the decision was based on a bidding exercise to complete a concept design. The Project Management company came on board next, and the consultants for the project were appointed afterward. The contractor came on board as the ECI contractor along with the consultants, but due to negotiations, they got involved in the project actively once most of the designs and documentation were done at the detailed planning stage.

Situational analysis

The situation created by the disaster that affected the project was that all justice and emergency-related staff needed new premises. All involved stakeholders were consulted at the start, but those consultations were inadequate and involved only a limited number of people due to the need to advance quickly in the project. P34 said had there been an effort to understand

- the drawbacks of the previous buildings,
- how the disaster may have affected the job functions of justice and emergency-related staff,
- how the environment within the city centre may affect the functions and service offering of some government offices and most importantly
- the implications of bringing together different branches of justice-related services. how integration could work within the facility,

many of the design reworks that happened later in the lifecycle could have been avoided.

Needs identification

The consultants mentioned that due to lack of detail, they took the initiative to produce a concept design of ‘what we thought they wanted, and they agreed to it’. The MoJ did most of the liaising with the government agencies that would be tenanted in the CJESP to help feed vital design features into the architect’s design process. The stakeholder representation was limited and did not reflect the views of the majority. P34 felt that many of the lawyers felt anxious about having to work in the precinct in the future as many of their questions were not answered, and they were not made part of the process.

The 'reverse briefing exercise process' lengthened the time spent on identifying the needs of stakeholders and understanding what the day-to-day functioning of a justice system looked like.

The project had not been checked for strategic alignment to other projects within the portfolio or the urban landscape when it was locked in the blueprint. The intention was to bring a large crowd of workers to the CBD, and the planning officials focused on attracting crowds to the CBD when placing the projects in their respective locations within the blueprint. Integration between the building was not a priority, but the integration within the building between different stakeholders was of more importance.

Business case - needs assessment

The reverse briefing exercise also led to the business case being an attempt to justify the need for the project, which was simply the fact that all those nine agencies needed new premises after the quakes. It was cost-effective to put them together. There was a political need to create an integrated justice and emergency services precinct that was the first of its kind in Australasia.

The project had minimal input into the business case, which took time as the minister needed a compelling case to get the budget approved for the project. P1 expressed that the only motive of the business case was to ensure that it caters to the requirements to access the funds from the Central government. Need assessment within the business case formulation exercise often leads to revisions in the needs identification and strategic alignment, but those steps were skipped for the CJESP. The need was future-focused and centrally-driven [The government presumed that a precinct of this type would streamline the service offered to the public in the Emergency and Justice Related Services space].

P21 said that the first stage of the front-end planning was handled in a way that the project would pass its feasibility test.

6.4.2 Feasibility Stage

In simple terms, the feasibility stage means evaluating the practicality of a proposal for construction in relation to the objectives stated.

The project's main objective was to bring together all justice and emergency-related staff under one roof to streamline the service delivery to the public. It was expected that a substantial workforce would come into the central city and support retail and commercial revival to sustain recovery (Canterbury Earthquake Recovery Authority, 2012b).

The feasibility stage lacked in many areas, such as technical, scheduling, economic, financial, social, legal, and market feasibility.

Technical feasibility is to check if the project is technically possible. At the feasibility stage, there was a lot of ambiguity around the complexities of Importance Level 4 building requirements. Due to the nature of the services involved, keeping different legal branches of the justice and emergency services apart in the way the project was designed proved challenging at the feasibility stage. Safeguarding the privacy of offenders/prosecution and keeping the judiciary and the police separate in all areas of the building were concerned with the legal aspects of the service the project was expected to deliver. Technical feasibility was not convincing at this stage.

Scheduling feasibility is the probability check of the project finishing within the proposed time frames. It was difficult to arrive at an achievable date of completion for the project due to uncertainties of some of the material being available, changes to the design, internal project constraints on the part of the contractor and technological constraints, and budget constraints where earlier finish date would mean a cost saving for the builder.

The feasibility of the owner's requirement had been of concern at the feasibility stage as the project team lacked knowledge about the requirements of a building associated with the provision of justice-related services. The brief that lacked detail compelled the project designers to rely on stakeholder consultation.

The economic feasibility of the project includes looking at the costs and income of a project to see if it is worthwhile to complete it. The economic feasibility has had many negative criteria to it. The project owner had decided to have a risk-averse approach to the project and to shift the 100% of the financial risk to the contractor using a fixed price lump sum contract. Therefore economic feasibility had been misleading to the contractor, including unrealistically low costs in its contract documents.

Similarly, financial feasibility involving conducting a Cost-Benefit Analysis weighed more towards costs rather than benefits, but due to the strong political endorsement of the concept, the feasibility studies were done in a way to move the project forward despite its lack of feasibility in many areas.

The feasibility of the overall project was not achieved early on. In 2016 The Treasury's audits ranked the project as 'Amber,' meaning that there were issues that needed to be resolved, and all of those had strong links to matters not addressed at feasibility.

The project was solely led to the satisfaction of the Crown, where a pre-determined project idea was put forward to the designers to create something that matched the vision of the MoJ. P21 said that political interference was clearly evident within this phase.

6.4.3 *Concept Stage*

The concept stage involves assessing capabilities and resources, identifying stakeholders, scope/strategic purpose, site selection, preparing preliminary scope, and evaluating alternatives.

At this stage, the design team started working for the client to improve the designs vaguely described within the blueprint.

Assessing capabilities and resources

Early on in the project, the client demonstrated issues with assessing the capabilities of those involved in the project. A bespoke and complex project such as the CJESP could have benefitted from a designer's input and a more traditional procurement route such as Design-Bid-Build. The client placed a job that required great architectural know-how that a builder may not possess.

Some material selections were made early in the process to allow those to be available once the construction started. The contractors and the subcontractors undermined the demand for certain materials, and those could not be made available on time. The contractors, later on, changed some of the materials due to price escalation and unavailability that required them to make changes to the initial designs done by the architects.

Identify Stakeholders

All the stakeholders have been identified in the design concept as that formed the basis of all the activities that followed. Section 6.5 will elaborate on Stakeholder Interactions.

Scope strategic purpose

This refers to the deliverables that a project team plans to deliver over a specific period. For the CJESP, those were publicised with dates for each of the phases leading up to the completion of the projects. Work priorities were identified, and critical paths were determined. The

construction company failed to stick to the priorities as some of the areas had to be redesigned, and they had trouble sourcing the materials that were needed. The execution plans, in particular, were overly optimistic and ignored the real challenges that the project encountered.

Site selection

The site was selected at the blueprint stage and therefore was secured early on. Due to the early availability, all the ground preparation work was done on time.

Preparing preliminary scope

Sharing infrastructure for better service delivery, achieving operational efficiencies, bringing a substantial workforce into the centre, and stimulating commercial activity within the core were stated as the project's primary objectives. The scope was determined to create a facility that can accommodate up to 840 justice sector staff and 370 emergency services staff. The CCRP stated the precinct would cover 31000² of ground. It had an indicative start date of the 2nd quarter of 2012. The project was scheduled to be completed in the 4th quarter of 2016. The project got underway in 2013, with the design being unveiled in October 2013. The main contractor was awarded the contract in July 2014.

In terms of the expectations around the quality and the final output, the client wanted a modern facility that would be an iconic justice and emergency-related building in the world and demonstrated the need to make it sustainable. Some design aspects were to include particular material/design features that would make the building bespoke yet localised to reflect Christchurch's indigenous characteristics. Those were well documented early on in the project.

Evaluating alternatives

Consideration of alternative designs was limited, but the design team consistently looked into designs of similar facilities around the world. The objective was to house all those governmental agencies and departments that had their premises destroyed by the earthquakes and to bring them all together to reduce costs. By doing so, it was hoped that the service could be streamlined. As a result, options were limited but to put all of the stakeholders together

"The brief did not give us much. The architects designed what they believed the MoJ wanted, and the client was happy with the designs that were produced." –

P21

6.4.4 *Detailed-Scope Stage*

Detailed scope phase took time as there were a lot of complexities faced by the contractor in locking in certain design aspects. The scope continuously changed even upto the point of construction.

Budget and schedule determination

The main budget for the project was determined at the blueprint phase and therefore the project team was given the responsibility to design the building within the given budget. As per the fixed price contract and other terms agreed by the contractor, any differences to the price was to be borne by the latter.

The schedule up to the start of construction had been what was promised at the Feasibility stage, with groundwork finishing on time and to budget. The overpromising of timelines occurred when the contractor brought forward the completion dates to get some advantage over fixed priced contract agreement.

Project Risk Identification and Management

The technical characteristics and functionality of the final product were evaluated as 'poor' by all respondents even though some aspects showcased great skill on the part of the contractor. The project implementation in terms of cost was unsatisfactory from the contractor's perspective. The contractor's costs increased significantly due to the design complexities. Time constraints for project execution were exceeded. The client was involved in all of the FEP of the project, starting with the project brief that lacked detail and specification. The architect was involved in the FEP along with the client and other consultants. The contractor's active contribution came in at the detailed design stage even though they joined as a contractor undertaking an ECI contract. From the perspective of dealing with the risks, the following has been noted

- The risks have not been adequately documented, as addressing those would have delayed or even halted the project
- The client passed the majority of the risks to the contractor as a risk mitigation strategy.
- The builders undermined the design complexities and the reasons behind some design aspects. As per P3 and P4 the government disregarded the complexities of IL4 building and the invaluable input and continuation of services of a designer in that regard when they decided on a procurement method. As Per P5, Design-Build is not for a bespoke

building such as CJESP, which requires architectural know-how regarding complex design requirements.

- Changing the designs later in the process to cut down costs
- Promising unrealistically quicker delivery times to derive the benefits of the lump-sum contract that it signed.

Evaluation of other options

The project team did not consider any alternatives as the design requirement was a precinct to house all the affected parties. Only the differences in service delivery platforms could be altered within the given precinct type design.

Compliance with project objectives

All 13 respondents agreed that the initial documents in the feasibility stage were not revisited due to the haste to start construction and due to the time lapse between previous records in the feasibility and the actual time of the detailed scoping stage.

Preliminary design

*The contractor joined the project under the standard ECI contractor, which involves a Pre-
Services Contract*

“This process of pushing the project out to the marketplace at that level of completion is not very good. Part way through the process and then expecting the contractor to take the designer's role is a little bit naïve in some respects and it might be a matter of luck that they got a pretty good product as a consequence, but I don't think that's a very satisfactory outcome in the overall sense. No contractor should be forced to that position”.

According to P3, the Crown had anticipated the construction industry to suffer from skills and resource shortages. As per P8, the construction market in New Zealand is quite primary and has a handful of suppliers who can take on multimillion-dollar projects. The construction companies were looking for opportunities to engage in big builds in the construction boom that was expected. According to P1 and P8, the government had previous experience working with the construction company and therefore felt confident about the selection. Assessing resources specific to design was the responsibility of the contractor once the main contract for D&B was awarded. CJESP was a DB contract with Early Contractor Involvement (ECI). According to P7 client's quantity surveyors develop a price for the design to ensure that the contractor is not

'running away with it' (P7). ECI carries the benefits of the opportunity to de-risk many aspects of a construction project but due to a lack of active involvement during the detailed design stage, the benefits could not be achieved.

There were cheaper alternatives in designs of either having each agency at a separate site across the city or a precinct with a single focus on criminal justice. A couple of alternative designs were also done as options to design the placard to choose the best one to represent Maori traditions. The design that integrates nine agencies was chosen as the final due to the need to streamline service delivery.

Evaluating procurement methods and ultimate procurement selection

The project followed an MBIE-run procurement process where an Expression of Interest [EOI] was offered to the market. The requirements of the client were not explicit at the time of calling for EOIs. The selected suppliers/consultants were offered a Request For Proposal, and the suppliers were chosen on a non-price-weighted attribute tender. The shortlisted suppliers were interviewed prior to finalising the consultants. P7 and P8 believed that the process did not allow quality time for detailed designs and was quite rushed.

As mentioned previously, the Design-Build method was the choice of the client due to the possibility of delivering the project quickly, and the client did not consider other procurement routes.

Putting project controls in place

It was endorsed and agreed by the client and the project team that more control of the process was needed from early on. The day-to-day management of the project remained the same as for any large construction project. What changes somewhat is the level of reporting and the level of auditing that goes on and the level of interest from media and stakeholders and the wider community.

The Project Manager was tasked to produce a PCG [Project Control Group] report every month. In addition, they were required to produce a Board report for the Project Steering Group and a 'Ministers report' that MoJ had to compile using the PM's inputs.

Project Plan

The project plan that was put forward to be approved by the minister had an overly ambitious delivery timeframe but was promising a novel design for a precinct that could come as a cost

saving. P18 felt that the project team believed those issues could be ironed out as the project moved forward.

The final business case had to be amended several times to get ministerial approval for the investment.

6.5 Front-End Planning and Stakeholders

During the Front-End, it is expected that the project planning officials would put in place a solid plan to identify stakeholders, define their roles, decide on points that each stakeholder will be included in the process, and decide on any other details around communication and management of each stakeholder. The internal stakeholders for the CJESP were the project team, including the architects, the builder, and the consultants led by the project management company until the point of novation. After that, the contractor took the lead, with the rest of the parties working for them. The rest of the stakeholders external to the project, as presented in Figure 28, were identified early on in the project. Their interactions are shown in Figure 28 with each coloured shape showing interactions between different parties. Overlaps between shapes indicate interrelationships between stakeholders.

In terms of identification, the CJESP project planners identified all the relevant stakeholder groups at the start of the project. Each was defined and grouped from the most impactful to the least impactful to determine where their inclusion was necessary. The management of a vast number of stakeholders by the MoJ was praised as it made sure every stakeholder group was identified and included at the start. The management of relationships with the project team and the subcontractors after the point of novation has come under scrutiny. The above factors will be discussed further under each of the stakeholder groups below.

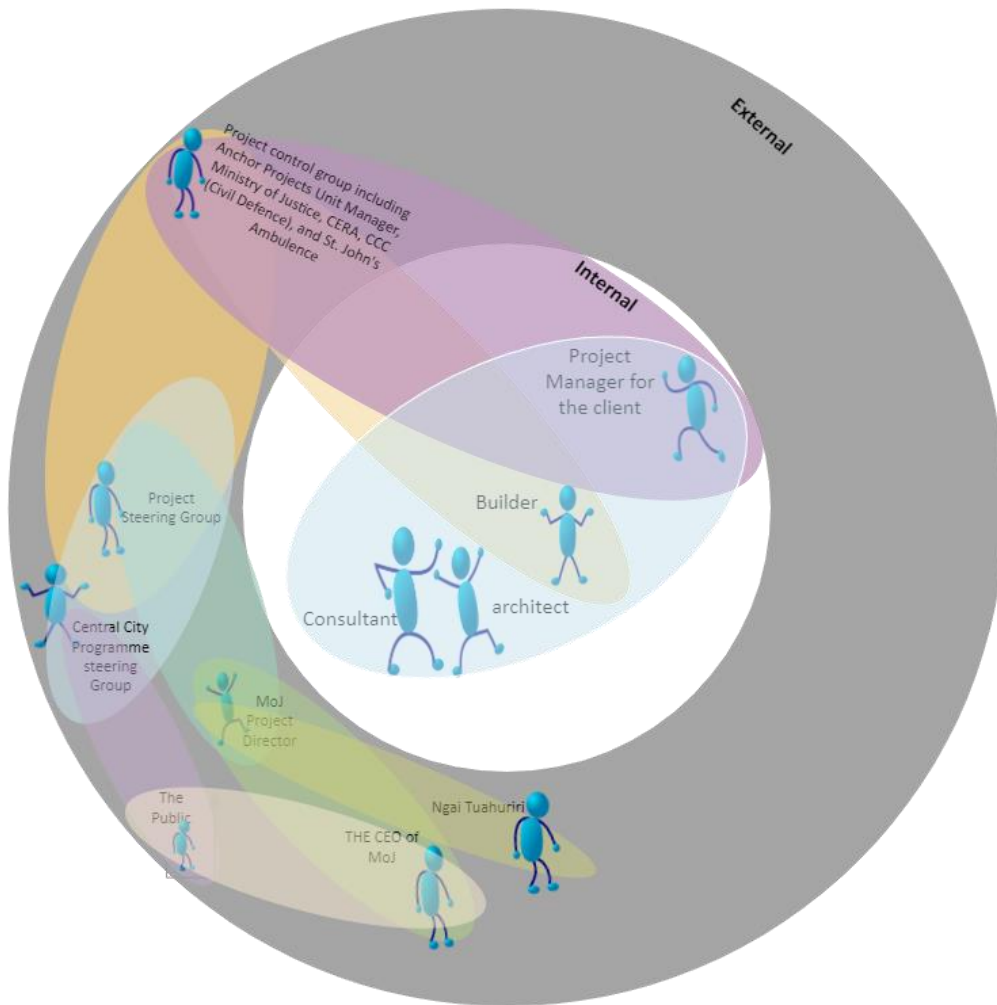


Figure 28 Stakeholder interaction - The CJESP

Source: Author's own

The Crown

The total capital came from the Crown. The project is said to be an idea that the government had for a long-time to create a building that would bring together all justice-related services under one roof, the first of its kind in Australasia. The Crown's representation came through the MoJ.

The MoJ

The client organization was the MoJ.

“They took on the role as the client for that project but reported into all of the other stakeholders such as Corrections, police and the fire service, other agencies like ECAN, Christchurch city council etcetera. They took the lead role and a better term - the landlord and the other agencies were tenants in the building.” -

All the interview participants praised the entity for its project leadership in a complex project such as CJESP up until the point of novation. The client demonstrated excellent leadership skills at the start, coordinating between a large variety of stakeholders and getting the Māori input into the design.

“Whilst it was under the Ministry of Justice, the Ministry of Justice got people that were there to deliver results and who had worked in the space before. So we weren't dealing with a.. let's call it an uneducated client. We weren't doing it with someone who had never built a building before so that we can get runs on the board a lot quicker albeit without compromising all of those things such as the health and safety, the quality of the programming etc.”[P20]

The MoJ had a client project manager within the ministry as well as an external company handling the client's side of project management. The client organization manages the precinct and coordinates with its occupants. MoJ was responsible for public communication with regard to the project, which was very limited and infrequent. The MoJ reported to all of the stakeholders.

The architects

A consortium led by three architectural firms did the initial design works, and the contract was then novated to the main construction company to proceed as a Design and Build (DB) contract. The architects interacted with the potential tenants of the company along with MoJ, to understand the needs of the occupiers of the building following a brief provided by the client. The architects worked closely with the client at the start of the project to understand their requirements.

“The architect will be typically leading the front line with the actual external stakeholders and the client and in the case of something like justice all the different parties, such as the police and the Justice and all the rest of it.” [P22]

Once the contractor joined the project as the design was being developed, the architects still led most of the interactions with the MoJ until the point of contact novation, where their direct interaction was secondary to that of the contractor.

The contractor of the project made the architect the Building Information Modelling [BIM] Manager. The consultants managed all stakeholder input [interior, building services, architecture, civil and landscape, etc.] in 2D and 3D design platforms. The detailed designs were shared with the subcontractors to use as guides for preparing fabrication models. All the stakeholders worked as a virtual project team. A BIM tracker was put in place to identify the

issues with the project, with virtual meetings happening weekly to address those. General stakeholder consultation was fast-tracked to the design work as the stakeholders were able to test the virtual version of the designed precinct.

The architect's relationship with the builder was challenging as the builder tried to change the designs made by the architect at the detailed planning stage.

The designers had time to consider why they were designing and drawing what they were designing and drawing. Whereas the contractor was thinking 'I understand it. I'll do that a different way. I can be smarter here'. What we actually found is that he didn't understand the ramifications and because he was under time pressure he didn't have the time to properly evaluate something and he made it more difficult for himself. And there are varieties of examples with the Justice project. That's what happened.

I think we're doing work is that I think I think if you if everyone understands right at the beginning there's a design build and you say that in the first place. Then there's no reason why I can't be happier marriage and a better outcome. It was very difficult to see particular those projects". –P19

The builder/the Construction Company

The builder joined the project under the ECI process. Their active involvement in the project occurred when the design had mostly reached the detailed design stage. The main contractor then appointed the principal architect of the consortium to continue as the main architect under the new contract. Contracts were consequently signed by the architect/builder, a structural engineer, and several subcontractors for different project phases (conducted between 2014-2017). Formal communication channels included site meetings once or twice a week for problem-solving across the project and monthly management meetings between the project partners. The client demanded progress reports from the project management firm, and the construction company had to provide input for those. Those requests have been primarily ad-hoc.

According to P8, P19, P20, 21, and P22, failing to properly manage the relationships was one of the key reasons the project exceeded the time and budget allocated. P20 affirmed that stakeholder interaction management was the contractor's obligation, but they did not have a system in place to manage that. The builder did not have the resources or expertise in a relatively small and not fully formed construction market to address some of the risks assigned to them, and this was reflected in the way they handled the stakeholders.

P19 contributed to that idea by mentioning that the construction company had numerous changes in roles of managers and program directors, and their internal system was fragmented and disconnected. This was reflected in the way they failed to keep to the terms of the contract.

Subcontractors

The main contractor had the liberty to choose its subcontractors. There were companies providing services with mere letters of intent without any formal contract or detailed designs for their works. The management of the supply chain has been seen as a significant factor that contributed to the project delay and budget overrun. After the project was completed, the utilities subcontractor sued the contractor over unpaid money owing for the work done on CJESP.

Consultants

The consultants worked closely with the designers and the project manager.

“Sometimes the engineers are sort of shoved off into the back room, to just design. So we typically look to the ... project manager, the consultant project manager, We don't have too much exposure to that. Typically will be around the table, but we know we don't directly engage most of the time.” [P22]

“So most of the time our stakeholders at those initial phases are really the project manager the architect and the other consultants and it'll depend a little bit on how hands on, who the reps of the other side for the client, whether we have a lot to do with them or not so much.” [P22]

Once the contractor was awarded the D&B contract following the bid phase, the consultants immediately had to start working with different parties. A structural engineer believed that this could be detrimental to the information and communication flow between the parties.

“It can be pretty regimented because our client was the contractor, and you can end up with a bit of a slightly awkward three-way process if we're not careful.” [P22]

Some consultants, such as the structural engineers, had to stay in the project much longer than they normally would due to ‘some interesting anomalies in the process’. During the design stage, they were tasked to prepare the plans and specifications that the builder could use whilst satisfying the brief. They were held accountable to put together the plans and specifications needed for the building consent phase. The main task was to produce a clear and complete set of instructions that the contractor could use.

During construction, most consultants engage in construction monitoring observation. The consultants checked completed portions of work on-site to fit the design intent. Led by the design intent, the consultants conveyed the design processes to the contractor and ensured the construction methodologies reflected the design intent.

As cultural consultants, the Ministry invited Ngāi Tūāhuriri to provide advice for the detailed design phase of the CJESP, which involved direct engagement with the design team and also the provision of written advice.

The Project Management Company

The earliest to join the project after the architect was the project management company.

P20 added that stakeholder management faced complications when the contract was novated across to the contractor, where lines of reporting blurred where the builders reported directly to the client after the point of novation. They referred to a three-way process that created complications.

The tenants of the CJESP

The eight governmental departments that were to occupy the premises were constantly kept informed and engaged in consultation by the MoJ. For example, there were unsatisfied parties, the lawyers who believed the representation was minimal and did not have a strong voice. Most of the stakeholders were required to give their sign of approval to the design at each DG.

“So there were there was an initial information gathering and requirements analyse and then there was periodic sign-offs by the stakeholders through the design process of being one in preliminary design and one at the developed design.” [P20]

Figure 29 shows the organization chart or the hierarchies for the CJESP. The arrow pointing upwards shows the flow of reporting. The x axis shows the activities in the FEP of the project for reference. The colours assigned to the boxes show the hierarchies when the relevant activity happened. The FEP process has been combined with the organisation chart to show how the hierarchies changed at each phase.

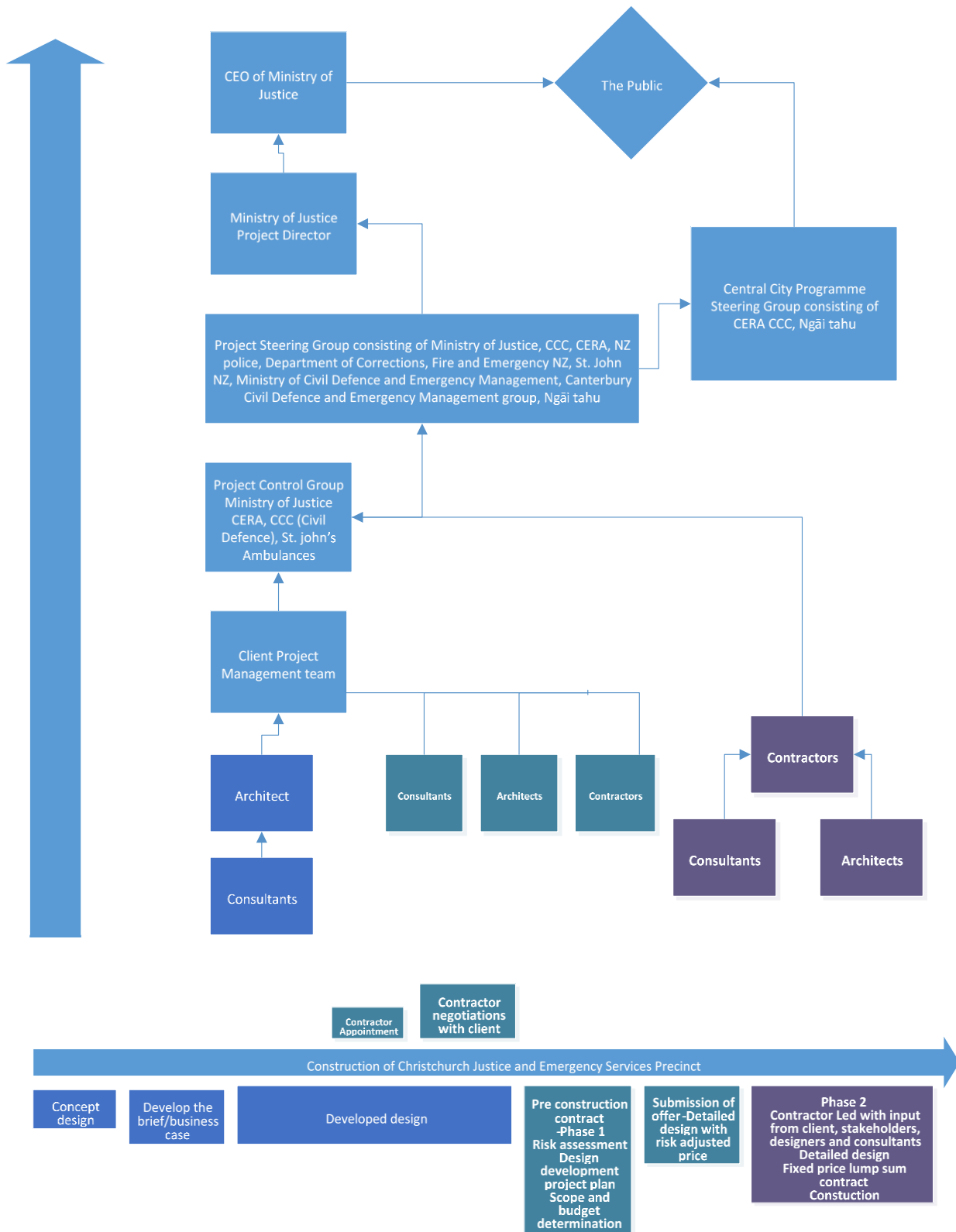


Figure 29 Stakeholder relationship flowchart-CJESP

Until the point of a pre-construction contract, the architects liaised with the project manager to deliver the services. Once the contractor joined as a part of ECI, architects, consultants, and the contractor worked in the same hierarchy to produce what the project manager wanted for the client. The active participation from the contractor came beyond the detailed design stage even though they had been part of the project on a pre-construction services agreement. Once the project was novated, the architects and the consultants reported to the contractor, who bypassed the project manager to deal with the client's project control group directly. For the CJESP, the role of the Central City Programme Steering Group has been minimal as the project was handled independently of other projects, as no interdependencies were noted.

The changes to the relationship resulted in the following

1. The relationship between the Contractor and Project Manager faced difficulties as there was information loss, the contractor delaying the provision of reports requested by the Project Manager, and a lack of clarity of some of the decisions taken by the contractor with the consultation of the MoJ.
2. The general public was excluded from supplying input to the project as P19 mentioned that the design updates could have been too complicated for an ordinary resident to comprehend. The information was restricted to 'facts to inform the progress.
3. An impressive working relationship was evidenced between the project team and the Māori leaders in incorporating their design aesthetics into drawings. This relationship was rewarding for both the project team and the leaders. The latter felt included in the process whilst the former had continuous support and approval throughout the design stages.
4. The construction company had a migrant workforce as it faced continuous changes to its senior management positions related to the project. It was challenging to maintain relationships with the rest of the Project Team as a result.
5. The CCC was not given an active voice as the project was led by the central government. The CCC, was informed about the decisions and progress but was not consulted. The respondents, P3 and P4 felt that they should have given more prominence in decision-making.

6.6 FEP and immediate social outcomes for CJESP

The factors mentioned in 6.4 and 6.5 in the preceding sections have caused project limitations that have resulted in the following social impacts. Social impacts are those effects that could

be intended or unintended as a result of a planned activity such as a construction project, policy, or plan, both positive and negative, and create social change (Vanclay, 2003; Vanclay et al., 2015).

Once the project was completed and handed over, it was criticised for numerous shortfalls [Figure 30]. Those shortcomings are elaborated on in this section with an explanation at the end of each section [each explanation has been framed for clarity] of how the planning at the front end has fuelled those impacts.

Guide :

- Short-Term – Upto one year after completion
- Medium-Term – from 1-5
- Long-Term –5 years and beyond
- Low Impact – Felt by a small number
- Moderate Impact-Felt by the majority
- High Impact- Felt by all of the affected/involved

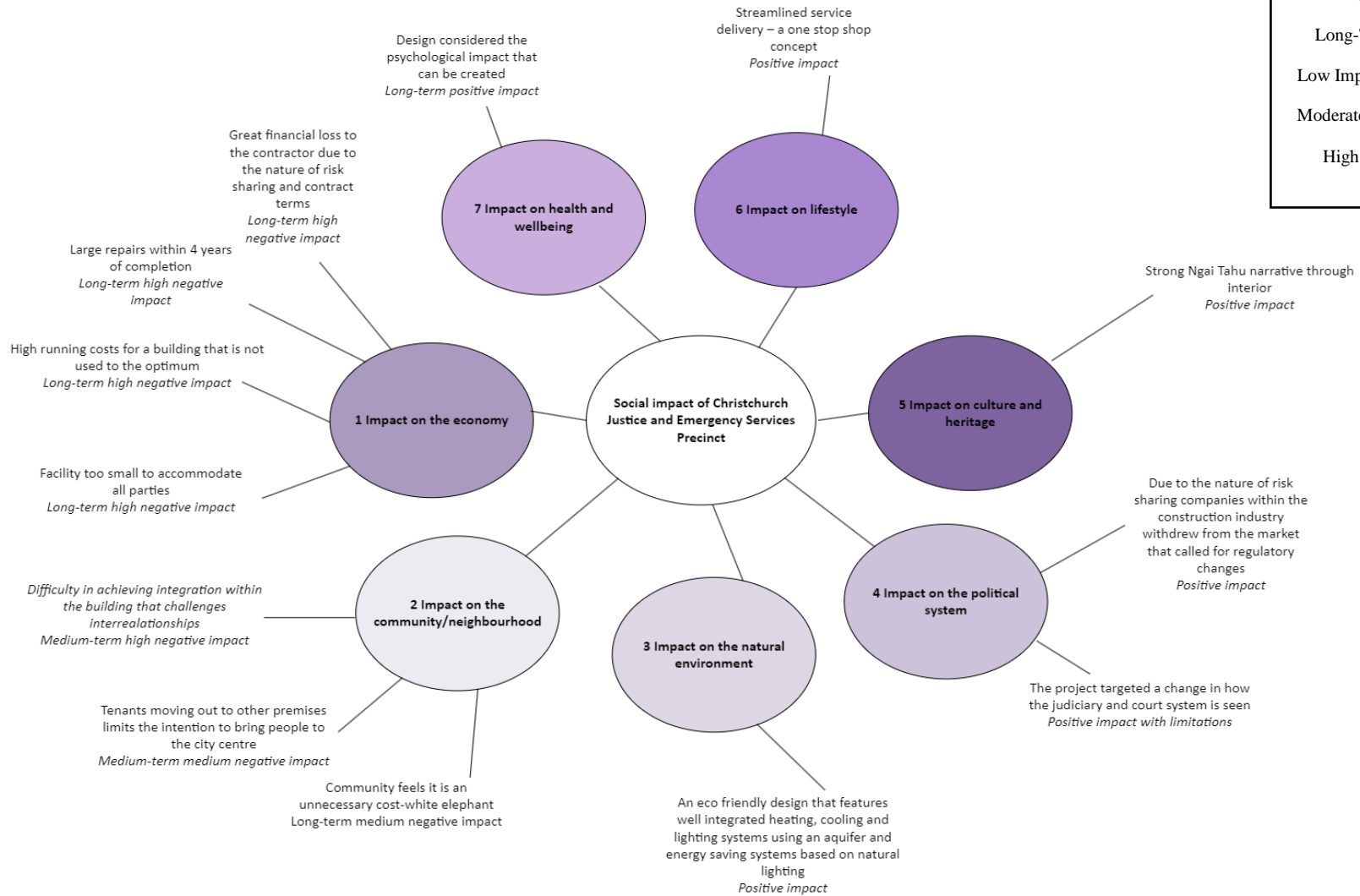


Figure 30 Immediate social impacts of CJESP(Author's own)

6.6.1 *Impact on the economy and FEP*

Impact on the economy refers to the financial impact created by the project. The facility's estimated cost was \$300 million. At the start, the Ministry of Justice, as the project lead, agreed on a guaranteed maximum price of \$240 million and had a due date of completion of December 2016, but it was only completed in February 2019. P20 mentioned that due to the contract that the parties were bound with, an extra NZ\$ 150 million had to be borne by the contractor because of design complexities leading to program delays and cost escalations. The construction company withdrew from bidding for vertical construction projects after incurring a pre-tax loss of NZ\$660 million in 2018. The company's bosses blamed the high contract risk and low margins on the Building and Interior sector in NZ.

The cost to the economy comes in three types

- Costs incurred through repeated delays to the date of completion

The practical completion date was almost 11/2 years after the opening of the facility. P7 affirmed that politics played a huge role in driving everyone to work towards unrealistic time frames where the minister "wanted to cut the ribbon before the elections." There were repetitive delays from the contractors to the project delivery date where the project was delayed due to design changes, subcontractor delays, and human resource issues.

- Costs incurred as a result of breakdowns and quality issues

The building incurred further costs to the contractor [as per the contract terms agreed at the time of novation] when the building started to face quality issues post-completion. There were over 1800 unplanned repairs within the first two years since its opening [P24]. The problems include air conditioning system failures, incorrect fitting of glass panels, building leaks, and electrical and lighting system failures. P21 added that the project reached its practical completion in early 2019, almost 1.5 years after it was opened to public service.

- Costs incurred as maintenance and running costs

The building incurs high running costs due to the complexities in operation and having to run the facility that is not used to its optimum level.

There is an inherent lack of space and practical, functional issues with the co-existence of different staff. The building is too small for 1100 staff and approximately a thousand people who visit the facility each day [P24]. Extra staff was recruited for the new Canterbury Earthquakes Insurance Tribunal and for family violence work and youth legislation changes.

Some non-court service providers have either moved out or only carry a presence in the facility whilst their operations remain out of the CBD. Around sixty justice-related staff were also moved away to buildings about a 3-minute walk from the facility.

The root cause of the economic impact lies within the FEP phase, specifically in the detailed scope stage, where more certainty over costs is achieved. The consultants explained that the cost escalation was due to the contractor entering into a fixed price contract but then trying to cost cut by changing design elements put in place by the designers. The design changes lengthened the time, which in turn affected the costs. The vague design brief and limited consultation with all the potential tenants prior to design resulted in the limitations in bringing different justice and emergency staff together.

6.6.2 *Impact on the community and the neighbourhood and FEP*

The impact on the community/neighbourhood refers to the effects on the area surrounding the project and its inhabitants.

- The difficulty of achieving integration within the building that challenges interrelationships

The idea of bringing together nine governmental organisations was considered revolutionary and cost-effective [P1, P22, P26, P27]. Once operational, the interrelationships between different parties on the same premises became difficult.

P34 elaborated on this with an example

“Judges should be independent of the government. Judges need to be separated from the prosecution. These are just fundamentals. Deciding to put the courtroom just across the police and make them share the same tea room? We are still in the same network of buildings but got some of the changes the judges demanded. Those difficulties were only realised once the building became functional”

The lack of stakeholder consultation and understanding of the context [the atmosphere and needs of the tenants occupying the premises] have resulted in the issues that arose. The justice and the emergency services, with its

- Tenants moving out to other premises limited the intention to bring people into the city

One of the objectives of the project was to bring an increased number of people – both employees and the public, to Central Christchurch. The intention has not been released fully

as some services only have a few staff in the precinct due to the difficulty of functioning. E.g., Limited facilities for the fleet of vehicles of Fire and Emergency Services and the St John Ambulances

The Public Defence Service has moved to another building elsewhere because of space constraints.

- The community felt that the precinct is an unnecessary cost- a white elephant

The facility made its way into the blueprint as a crown-proposed project. The people of Christchurch [P25, P26, P27] believed that the high-cost facility was a waste of taxpayers' money.

“It is not only the cost to build it. I have been coming here for a legal matter for some time now. It’s just a total waste of tax money. There is always some sort of renovations happening with parts of the precinct prohibited from public access. I don’t know if it is due to rework or security, but it is just another big build that is far from ideal. “

The lack of time spent understanding the changes brought about by the disaster situation has resulted in projects not being used as anticipated. *Situation Analysis* was lacking for the CJESP. The consultation and input from stakeholders into their job functions were a rushed process performed by the Project Team due to the lack of details in the client brief that could have offered better insights into the operations of a justice and emergency environment.

6.6.3 ***Impact on the natural environment and FEP***

Impact on the natural environment means the effect the project has on the biophysical environments, ecosystems, biodiversity, and natural resources.

- An eco-friendly design

The precinct used eco-friendly design features well-integrated heating, cooling, and lighting systems using an aquifer and energy-saving systems based on natural lighting. The system reduces the energy levels by 25-30% less than a building of a similar size [P24]. The design elements associated with the glazing and louvre system promote efficient energy consumption. Materials have been sourced from sustainable sources.

The project team focused on the green aspects from early on, especially in the preliminary design and engineering stages within the detailed scope phase. During the feasibility stage, there was much importance given to sustainability in the design.

6.6.4 *Impact on the political system and FEP*

Impact on the political system refers to the effects of the project on government policies and programmes.

- The project targeted a change in how the judiciary and the court system were seen

The project aimed to scrap the intimidating nature of the judiciary and the court system and used the design to achieve its objectives. The well-lighted and welcoming space with many areas open to the public tried to change the traditional intimidating outlook of the system. The result has been limited due to many areas being closed to the public due to security reasons and occupational difficulties in mixing different branches of the government.

- The government was compelled to make regulatory changes to risk-sharing within public projects

The construction company announced its withdrawal from bidding for any new vertical projects due to higher risks and low margins within the industry. As a result, the government [Specifically the Ministry of Business, Innovation and Employment [MBIE] and the New Zealand Infrastructure Commission] was compelled to review the construction procurement guidelines and rules to safeguard the players in the construction industry. In April 2019, MBIE engaged with the public to have some feedback on its Building System Legislative Reform. The proposals were around how to increase the quality of buildings and achieve fairer outcomes for the contract partners when things fail to go to plan. The construction company contributed to these reforms along with numerous construction sector stakeholders such as other builders, architects, electricians, engineers, suppliers, developers, and building and homeowners. Those have had a positive effect on the regulatory framework for procurement practices within NZ.

Unfair allocation of risks to the contractor as a means of risk-averse behaviour and not performing a proper risk assessment due to the need to advance with the project in the detailed scope phase have resulted in industry giants within construction withdrawing from large construction projects. As a result, there was a void of capable and resourceful companies that would engage in larger public project construction for a period of time.
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6.6.5 *Impact on the culture and heritage and FEP*

Impact on the culture and heritage may include any factors that affect the ways of living developed by a community that have been passed on by previous generations. They may include practices, customs, objects, places, and values.

A strong Ngāi Tahu narrative can be seen throughout the precinct as a result of the engagement with Ngāi Tūāhuriri. Ngāi Tūāhuriri narratives depicting important Ngāi Tahu and Māori historic milestones in their interactions with the judiciary system and the flag of the United Tribes had been recommended to incorporate into the design. Ngāi Tūāhuriri design elements include reference to the colours of the Flag of the United Tribes and the Rātana movement. A 36-metre-long aluminium kākahu façade (traditional feather cloak) in part of the car park inspired by the endangered Kākapo parrot, with the anodised metallic cloak representing the striking hues of the Kākapo’s feathers were noted as unique Ngāi Tūāhuriri design features. There is also a huia feather frit that had been applied to the glazing of window bays along the Precinct’s Durham Street frontage.

Ngāi Tūāhuriri also suggested obtaining the service of the Ngāi Tahu artists to engage in the designing of the functional elements within the precinct.

The Ngāi Tūāhuriri incorporated designs have been a highlight signaling the solid cultural values embedded in Christchurch from the start of the project.

6.6.6 *Impact on the lifestyle and FEP*

The project, in its entirety, was designed with a focus on a more streamlined service delivery – a one-stop shop for all justice and emergency-related services.

The positive effect has been limited as there is little sense in offering justice and emergency-related services as a bundle [P25 and P27] as the users would only need one service at a time. The root cause lies in not engaging sufficiently with the stakeholders to gather their perceptions about the project offering at the pre-feasibility stage.

6.6.7 *Impact on health and wellbeing and FEP*

Impact on health and wellbeing refers to the effects of the project on the maintenance of complete physical, mental, and emotional balance and stability. The design considered the psychological impact that can be created by the design features of the precinct. The use of natural lighting and creating a well-lit and welcoming foyer were given prominence as the features that break the traditional image of the court and judiciary system. The precinct has shed the intimidating nature inherent in justice systems by the use of many publicly accessible spaces and carefully designed youth courts.

The consideration given to the psychological aspect of the building has been a distinct characteristic of this type of building and had been strongly emphasised during the concept stage and the preliminary design and engineering stage. The main focus of the preliminary design was to place public accessibility at the heart of all other design features.

6.7 Chapter Summary

The chapter presented the case study of CJESP. An overview of the project, its objectives, the process from design to construction, the nature of the stakeholder interactions the social impacts of the project in relation to FEP were discussed. The project that was envisioned and led by the central government of NZ had faced limitations by way of the practicality of co-existing and operating within a single space due to the sensitive nature of justice and emergency functions, their need for bigger facilities to operate efficiently, and the struggle to convince the residents of the pros of inner-city work life. Poor procurement decisions such as non-engagement in the decision-making as the ECI contractor at the Front End, lack of subcontractor management, and poor understanding and identification of risks seemed to stand out from the rest of the shortcomings associated with the lack of consultation and management of all layers of stakeholders, lack of design requirements gathering at the detailed scope phase, and continuous delays to the initial completion dates based on early and inaccurate estimates.

Chapter 7 Case Study 2: Tūranga/Christchurch Central City Library



Figure 31 Christchurch Central City Library (Author's own)

7.1 Background of the Case Study: CCCL

The client of the project was CCC. The client wanted to create a modern facility that surpasses the offering of a traditional library.

Christchurch Central Library is also known as Tūranga, which signifies connections to the north and the wider Pacific area to indicate a place chosen by the early settlers (Christchurch City Council, 2021a; Rutherford, 2017). The name is also particularly relevant as the project is located in the northeast corner of Cathedral Square, Colombo Street, and Gloucester Street in the CBD of Christchurch (Christchurch City Council, 2021a; Rutherford, 2017). The name was given by Ngāi Tūāhuriri Matapopore Trust, which had been a key stakeholder that influenced the project's design by incorporating cultural values and narratives as indispensable input during project planning (Christchurch City Council, 2021a).

It boasts of being the largest public library in the South Island, spreading over 9850m² [Figure 31]. It consists of five floors which have been detailed in Table 20 below. The first estimated cost of the project was NZ\$ 89.36 million in 2013 but then was increased to NZ\$ 92.7 million, of which the local council bore NZ\$ 85 Million as per the cost-sharing agreement between the

former and the crown. The crown had provided the land. The Crown spent on the land that was used for the CCCL, which was worth approximately \$5.5 million. According to the cost-sharing agreement between the two parties, the CCC was to put in \$60 million from the facilities rebuild fund, \$ 15 million from a transformational fund, and the crown provided \$10 million in philanthropic funding. This was agreed upon earlier on in the project, which helped the progression of the project. The initial completion date was in the 3rd quarter of 2015 but was handed over to the public on the 12th of October 2018 as the 4th project to be completed out of the proposed anchor projects.

Table 21 Christchurch Central City Library spaces

Area of the library	Description	What does it constitute of?
He Hononga/Connection	Foyer and welcome area	Discovery Wall, Innovation Zone, Café, reception, new collections, holds, and returns for easy access
Hapori/Community	Located in level 1 with spaces to hang around in groups or families	Imagination Station, Family Space, Espresso bar, TSB Space (meeting space), Creative Space, and activity spaces
Tuakiri/Identity	Located on level 2 is a place to learn about self, ancestors, and the history	Research room, Māori, Pasifika, family history, archives, Southbase gallery (Cultural exhibition space), Teaching room, New Zealand reference
Tūhuratanga/Discovery	Located in level 3 is a non-fiction collection	Boardroom, non-fiction collection, quiet place, study rooms, meeting rooms, and computers
Auahatanga/Creativity	Located on level 4 is a space for creating and inventing	Two gardens with city views, Audio/video studio, production studio, world languages, Study rooms, meeting rooms, fiction, large print, audiobooks, and computers

7.2 The design – CCCL

The design was developed as a collaborative effort involving the Matapopore Trust, Ngāi Tahu, and the Ngāi Tūāhuriri Rūnanga of the Māori tribe, who coordinated with the architects to instill key cultural values and narratives of the ancient tribes of NZ into the design. The

designs showcased genealogical descent across generations, connections to the north, and the wider Pacific.

The design had profound input from Ngāi Tahu and the Ngāi Tūāhuriri rūnanga as the representatives of the indigenous population of New Zealand. The overall design was inspired by Port Hills, and the angular fronds of the native Harakeke flax in the wetlands of Christchurch and the warm colours of the building have also been influenced by the colours associated with the above-mentioned places (Christchurch City Council, 2021b). Further, the upper floors demonstrated landscape that are significant to Christchurch such as the Southern Alps, Mt. Cook, Banks Peninsula, Mt. Grey, and a place where the earliest New Zealanders settled named 'Hawaiki'.

The government planning officials wished to incorporate the input from a designer who had international library designing expertise. As a result, Danish firm, in partnership with the local architectural company, designed a new-age library that is more than just books. The project architects were in a joint venture with a Danish designer who had international experience designing similar libraries elsewhere in the world. It was recognised at the time that the design could benefit from some international design expertise. The final product has a light-filled central atrium that enables connectivity between the five levels of the library. The ground floor "urban carpet" would link to the neighboring square and the convention centre, once it opens its doors to the public. The design appreciates the connection between the other flagship projects in the city.

One of the objectives of CERA was to reduce the number of vehicles entering the CBD. With public accessibility being a key feature of the success of a public facility such as a library, its location is of significance. The new facility has limited car parking available. There are few mobility parking spaces right outside Tūranga and metered parking spaces on Gloucester Street. The CCC has put a 'Super stop' just 350 metres away from the library for those who use the bus. The bus interchange is located 600 metres away from Tūranga. In the business case, it was mentioned that Turanga's success would be dependent on having access to public parking in the nearby Art Precinct. As Tūranga marked three years of operation in 2021, the Art Facility is still in its design phase, and gaining the benefits of shared parking would not be possible for a couple of years.

There are venue requests, but these may be declined on the grounds of the Customer Code of Conduct, where it should remain a welcoming space for all at all times. The Management has

identified limitations to the use of event spaces due to the limitations imposed by the nature of service [library being a shared space for all] and due to the opening hours.

7.3 The construction

The groundwork began on-site in February 2016. The contractors joined the project in March 2016, and the first foundations were poured in October 2016. The construction was completed when it was due and the facility opened in October 2017.

7.4 FEP for Tūranga

The FEP process for Tūranga is shown in Figure 32 below, and the process is described in detail in Figure 33. The project team followed all of the steps to various extents. Each section is elaborated in 7.3.1-7.3.4

7.4.1 Pre-Feasibility stage

For pre-feasibility stage project inception, project team selection and alignment, situational analysis, need identification, and business case need assessment have been considered.

Project inception through the Project Brief

The project brief clearly set out the expectations of the client. i.e., CCC with its requirements with the new facility. The old Library building suffered non-structural damage from the earthquakes and had to be demolished as it fell within the land marked for developing Christchurch's multi-million dollar convention centre. Before the fires, there was a need for a larger library as the previous library consisted of five and a half floors with a floor area of 6000 square meters.

“The client obviously had a very strong influence in determining the brief and the requirements for the project. I guess the articulation of that brief through PixelSense (an interactive surface computing system that allows users to use and touch real-world objects, and share digital content simultaneously) was our role, and that was reviewed by the clients”. -P6

Project team selection and alignment

The project team had involvement from the CCC with a Project Director specifically for the project, the architects, and the consultants, including Ngāi Tahu representatives who would suggest Māori design elements where appropriate. The contractor had been brought on board early on under the design and build contract to ensure the buildability of the project. The

consultants and the builder had done public builds before the project and therefore found it comfortable to work on the project under a Design-Build contract.

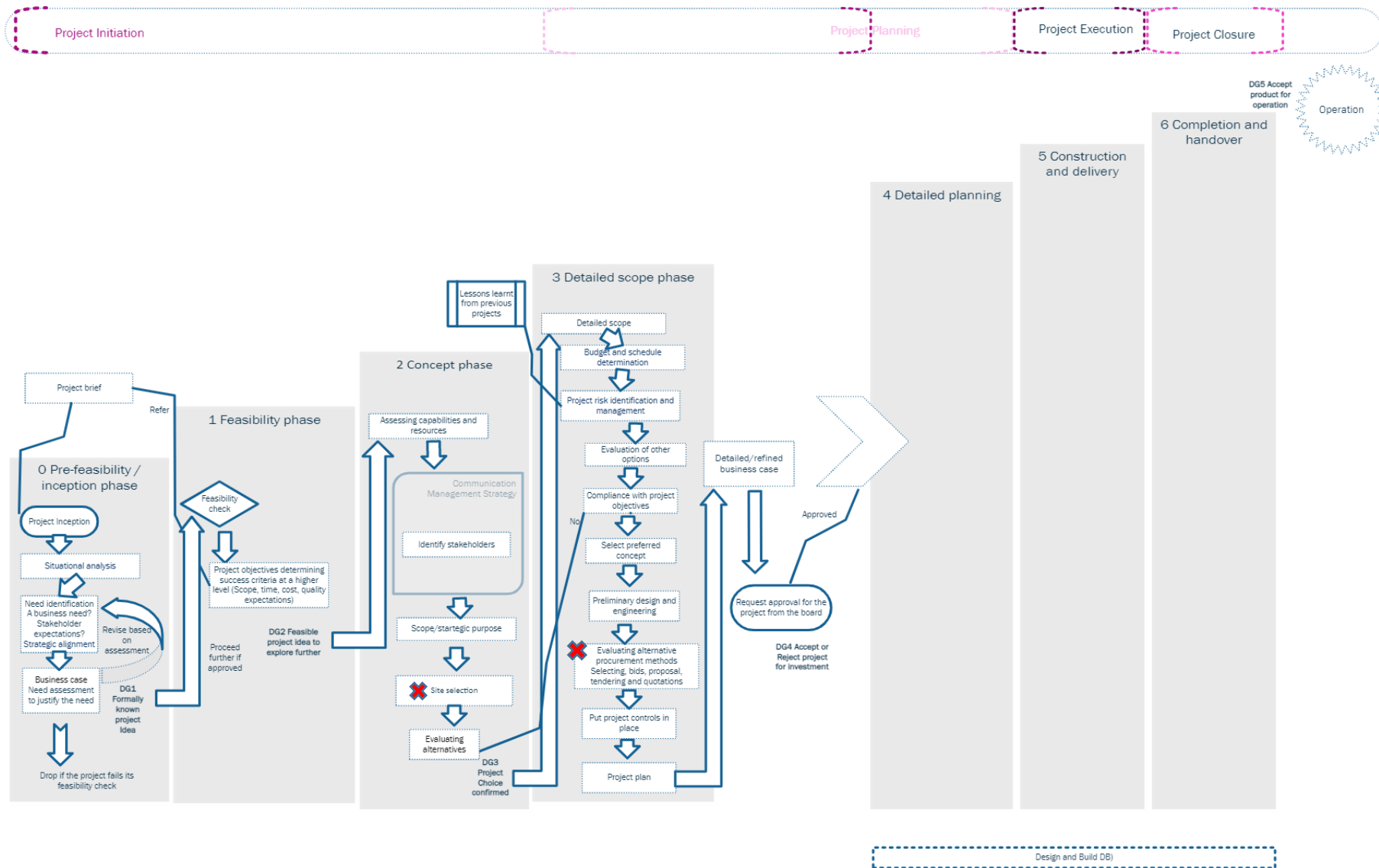


Figure 32 FEP process for CCCL

Source: Author's own

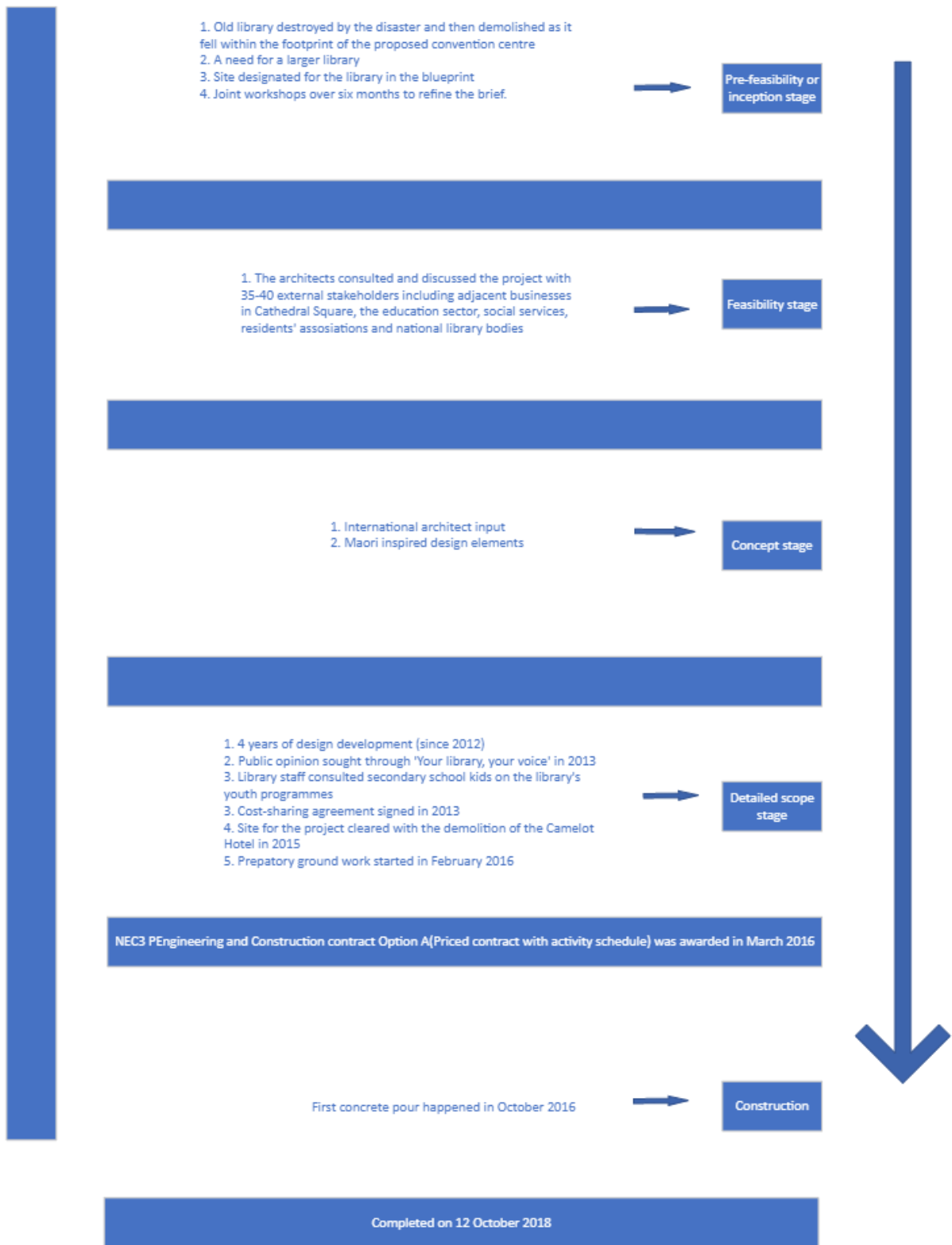


Figure 33 The erratic FEP process for the CCCL

Source: Author's own

Situational Analysis

The project team engaged extensively with its residents and interest groups to identify how a library can bring about social and emotional normalcy back into the lives of its residents. Joint workshops with design experts and user feedback helped refine the brief over a six-month period.

Needs identification

In 2014 ‘Your library, your voice’ campaign- an extensive idea generation exercise, provided input into the process of identifying the needs. Through the survey, the CCC reached out to a vast number of stakeholders who would be future library users. The schools, previous library staff, education institutes, representation from the youth, and the families residing in Christchurch were consulted. The expectations of potential users shaped the building that has been built in Cathedral Square in the CBD of Christchurch. Extensive stakeholder consultation led to the design of dedicated areas for different needs and the incorporation of the types of technological products in the building. After the final design revelation proved that people’s views had been incorporated into the drawings, the residents supported the project and trusted the CCC approach with it. P23, as somebody within the library management, added

“I sort of, you know, feel like I've had quite a lot of input into the building, as it was being developed in, and now I'm getting to see some of those things actually being incorporated into the way that we operate in the services that we offer.

P28 opined that

“People didn't sort of voiced an opinion as to whether it should be three stories or five stories or whatever. So I think that maybe is an indication that libraries are quite well regarded. And we've had a history of people supporting libraries. And that support is flowing through to the council being good supporters of them in terms of funding”

Business case-Need assessment

The business case made a compelling case for a larger library with better technology with, facilities for all members of the family, and catering to the needs of all layers of society. The project passed Decision Gate 1 to be established as a project idea.

7.4.2 Feasibility Stage

In simple terms, the feasibility stage means evaluating the practicality of a proposal for construction in relation to the objectives stated. It could include economic, financial, technical, legal, marketing, and social feasibility criteria.

The main objective was to replace the disaster-wrecked central library with a bigger and modern facility that would be Christchurch's central hub for knowledge and hold heritage materials and spaces for recreation, reading, and listening. The project planners had projected that the library would attract 2000-3000 people a day into the city during the first months of its operation. The specific objectives were as follows

- To position the library to enhance the city's structural coherence (links with the convention center and the square)
- To drive literacy and learning and to make use of digital advancements
- To celebrate cultural diversity and heritage
- To provide an engaging, inspiring, and informative space for the communities

In terms of economic and financial feasibility, the project team followed the brief to include a number of rentable spaces and venues within the library. In terms of income, those avenues provided some financial benefits. The costs and funding mechanisms lacked certainty until the start of the project. The 2013 budget projection, outlined in the Crown-council cost-sharing agreement [CSA], did not include the cost of decontaminating and backfilling the construction site. Maintenance and operational costs have been a point of concern from the start, but the project owners defended the numbers on the basis of the unique and forward-looking design and the project being a welfare-oriented public project catering to the general public. As a package, the proposed project was an attractive investment that replaced the previous facility but with a much broader offering and standard of facilities.

Feasibility in terms of the owner's requirements proved positive as the CCC has expressed its requirements very clearly in the client brief.

Legal feasibility is a check if the project operates within the legal and ethical boundaries that are in place. The project fared well in legal feasibility, where the contractor conformed with the new laws around construction related to height and earthquake resistance.

Technical feasibility, which involves looking at if the project is technically possible, was a priority for the project team as it demonstrated commitment to earthquake-resistant technologies and the adoption of a kumbaya belt. The technical feasibility was conveyed in 3D modeling early on in the project.

Social feasibility means the acceptance of people once the project is completed. This fared well as people's input was continuously sought and incorporated into the project from the inception itself.

The project's overall feasibility was tested early on in the FEP, and the project team took the required steps to address identified problem areas.

7.4.3 *Concept Stage*

The concept stage involves assessing capabilities and resources, identifying stakeholders, scope/strategic purpose, site selection, preparing preliminary scope, and evaluating alternatives.

Assessing capabilities and resources

The project team mostly worked with parties that they had done work with before, which had already formed a trustworthy network. The project team identified the resources on the critical path early on to avoid delays. The consultants were engaged early on with the design works to ensure health and safety, and structural, electrical, and acoustic engineering work would be gradually and seamlessly incorporated into the more detailed designs later on.

Communication Management Strategy/Identify Stakeholders

The stakeholders were identified early on at inception. The project owner had a clear and separate plan to manage each of its external stakeholders as they understood that 'buy-in' was necessary for a community project such as the library. They demonstrated exceptional stakeholder-catered communication and interaction, as explained in section 7.3.1.

Scope/ 'Project Purpose'

The project fared well in terms of having a clear project purpose in its business case that was approved in the first quarter of 2015.

The project purpose had strong evidence to show how the project connects with the other flagship projects in the city, especially the neighboring Convention Centre, and mentioned its role in the development within Cathedral Square.

Site selection

A site was already designated for the library when the blueprint plan was finalised in 2012. The site was secured after prolonged negotiations with private land owners over several years. The shift from the previous site to the new one was for two reasons, 1) To integrate the library,

the convention centre and the rest of the Cathedral Square to derive benefits of footfall to one another 2)The previous site had to be given up as it was selected for another development. P23 summed up the choice of location in the following manner.

“My feeling is that the choice of location was really successful, that the building, not only right in the center, right on the square, but also on the north side of the square. I can see that it's having a very significant impact on this side of the CBD, that when you think of the 1000s of people who come through our door, those people are helping to populate this part of the central city. In this part of town, the activity was largely focused on casual Street in the City Mall area. A lot of retail was happening down there, but there was very little happening north of the square. So yeah, I just feel that it's been a very successful project. It's been a good choice of location.”

Preparing preliminary scope

The preliminary scope had to be altered several times as the design scope expanded with the on-going public input-seeking exercises that fed into the process.

Evaluating alternatives

The client had few design alternatives, with some having traditional book sorting functions that they requested. The reason being the council wished to keep the job functions of a traditional library but make the facility more modern to avoid public scrutiny. The designer and the builder convinced the client to settle for a design that puts traditional functions at bay to make services more streamlined and the design more cost-effective and forward-looking.

7.4.4 Detailed Scope Stage

Detailed Scope

The scope-creep resulted from the continuous changes to the initial plans that were fuelled by constant opinion-seeking exercises carried out by the council. These opinion-seeking activities required the council to dedicate more funds to place the project on a par with examples of other well-received libraries in the world. The popular opinion was that the library has to be spacious and well-lit, technology-oriented and family-friendly.

Budget and Schedule Determination

The contractor was given the opportunity to test the budgets during pricing. The designers had included a basement in the library that would house a mechanical plant. The contractor introduced cost savings through a design change in its budget testing session. Interviewee P8 added that

“On the library, the external facade and the stakes of the building were very, very important. When we deep dive through, we were able to discover that the only reason they were having a basement on the library in the original design was to house the mechanical plant and to house the book, sorting mechanism, a kumbaya belt, where people would typically put their books through a slot in the old days, falls onto a kumbaya Vale [inaudible], um, categorizing them through their mapping system. We were able to challenge that design offering of financial savings, millions of dollars putting the plant on the roof housing by lifting the roof without damaging the escape fix of the building.” -P8

The project was Principal consultant lead. They considered it put them in control of costs.

“It puts us in a box. This is what you can have. You can have any tech you like in a building, but you've got \$50 per tech, as opposed to, I really liked the look, are they gold plated tech? I want that golf pie to tip no matter what it costs. And it's around managing expectations of the principal and the stakeholders in educating them and taking them on a journey of what that looks like.”

According to the responses to the face-to-face interviews, cost escalation was mainly driven by three factors: finalising cost-sharing agreements, scope creep, land acquisition, and remediation work.

The crown had agreed to bear the cost of the land and demolition work, and the capital costs were to be borne by the council. Additionally, the crown had promised \$10 million towards total costs in philanthropic funding from the Crown, but this was later denied. The old library site where the Convention Centre is now being built was swapped with the new one for the library, but there were issues with reimbursing the cost of decontaminating the site. These changes in cost-sharing took time to be resolved.

Another reason for cost escalation was the inclusion of external street works into the scope of the project.

Project risk identification and management and compliance with objectives

The project team and the planning officials understood the importance of catering to the needs of the public who uses a library in the modern age. The most significant risks to achieving the objectives were the risks of

- Cost estimates made in the early stages becoming obsolete with time, resulting in increasing costs

The project team did consider other libraries elsewhere in the world including Dokk1, Denmark, Halifax Central Library, Nova Scotia, the Library of Birmingham, England, and the Seattle Central Library, as well as the previous library in central Christchurch. The scope expanded as a result of those comparisons, and a larger budget was needed.

- Scope creep as a result of opinion seeking and the increase of expectations.

Additional street works have also been added to the scope of work later.

- Risk of getting resources due to excess demand created by the spike in reconstruction work
- failing to get the crowds back due to the ongoing developments
- uncertainty of people using a library in the digital age
- failing to establish a strategic connection with other projects when the convention centre was delayed and the performing arts centre was cancelled.

The construction company was bound by a priced contract with an activity schedule. As a result, the majority of the project risk was transferred to the contractor.

There was also less likelihood of escalation and supply chain risk. Risk modelling was carried out at the start, and just under NZ\$10 million was set aside to cover possible future cost escalations and another NZ\$7 million for contingencies. The contractor was tasked to secure subcontractors early on in the process to mitigate these risks. Probabilistic financial modeling was carried out that categorized all construction costs according to specialized areas such as library services, other services, structure, and project schedule. These variables were then explored in-depth to understand their interrelations to arrive at more accurate cost estimates while considering possible risk events.

Some of the risks that had the likelihood to prevent the project from advancing were handled diplomatically.

Preliminary design and engineering

The concept design was developed through a design competition. Tendering designers needed to show an appropriate blend of aesthetic and technical solutions whilst achieving the business case objectives of the city's new transport hub.

The design and development took four years.

According to the construction experts, some materials used for the building were imported, and those arrangements delayed the construction work, which went on for five years.

At this point, the early engineering involved looking into the designing of seismic force-resisting system that could make the building sway and then move back to its original position if hit by a large earthquake.

Evaluating alternative procurement methods

A design and build procurement process was adopted as it was recognized by the project planning team as the best vehicle for service delivery. CCC preferred the route as it is focused on performance and driven by innovation.

One of the architects, P6 mentioned that

“We were selected as part of an open tender process. A submission process which was based on previous experience and ability to demonstrate that we could meet a requirement to the project”.

The Council employed the contractor for the initial brief development, the concept, and preliminary design, as well as for tender documentation or what is known as principles requirement.

Subsequently, the project progressed on a two-stage Design and Build procurement model, designed to satisfy the project drivers of cost certainty, a critical Phase 1 completion date, and protection of the critical elements of the design solution.

Construction of the library was awarded to the construction company through competitive bidding of the final three shortlisted construction companies. The contractor was able to negotiate and work through the contract provisions prior to the start.

“They shortlisted, I think that went to possibly four or five contractors based on non-price attributes selected at the time. The only commercial attribute they considered at that time was PG (Preliminary and General) margin. The process continued until there were two contractors through an interactive series of meetings. From memory, there were six. The contractor had one to two hours to interview the design consultants and the principal to get a greater understanding of the project, specifically about the ground conditions. “ – P7

The project started in 2014 and was completed in September 2018, on time and within the agreed budget. According to the council employees, the collaborative working environment,

coupled with early warnings and risk mitigation meetings, helped the council gain reassurance to complete the project within the agreed timeframes and budget.

7.5 Front-End Planning and Stakeholders

P6 added that stakeholder engagement was extensive and evolved as the project continued for five years from 2013. All the stakeholders have been identified early on in the project [Figure 34]. Each coloured shape show one stakeholder's interactions with another. Overlapping of shapes indicate interrelationships between stakeholders. The project team genuinely tried to base its design on the feedback received at the initial interactive sessions with the previous library staff, the CCC, the public, and the Māori design experts that the project consulted.

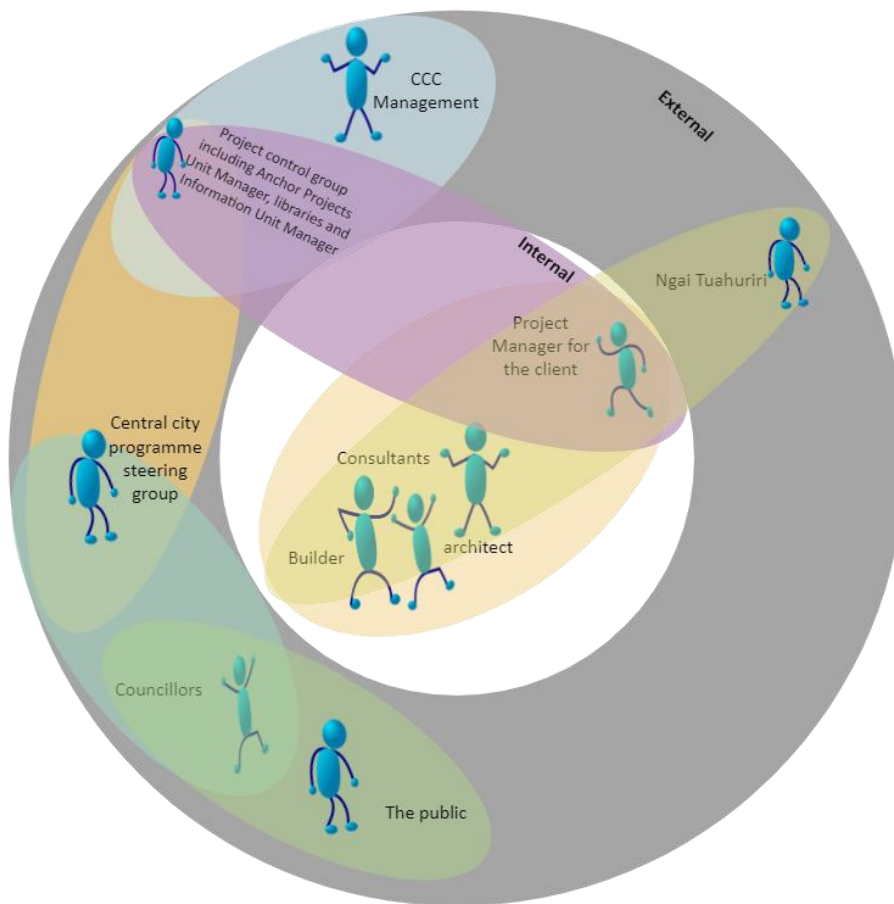


Figure 34 Stakeholder interactions

Source: Author's own

The contractor

The Contractor was chosen under a Design and Build contract and was chosen on non-price weighted attribute criteria. They coordinated well with the architects and the consultants to deliver cost-effective design solutions. The contractor opined that the relationships were easy because of the trust that they've built with the architects, having worked with them before.

The public

Public opinion seeking has been the centre of all design work in the FEP of the project, especially during the concept and detailed scope stages.

In 2014 'Your library, your voice' campaign- an extensive idea generation exercise, was launched from Friday, 21 March to Friday, 2 May, and it generated feedback from over 2600 residents. The council carried out an online website, face-to-face engagements, direct emails to the organizers, idea boards at schools, and a Public Relations exercise to make people aware of how they can contribute to their future library. The survey sought opinions on the importance of resilience to determine the project budget, views on how a 21st-century library could be used, ways to localize it, and also the transport options to get to and from the library.

There were plenty of updates and information made available to the public on project milestones and design features. Those were updated and communicated as and when the events/milestones unfolded within the FEP stage and beyond.

The CCC

The project was led by the CCC. The design brief conveyed the vision for the new library, clearly baked up by future needs and striving to include the elements absent in the previous library. It had the vision to follow the example of leading libraries in the world. The early engagement meetings with the Danish library construction specialists and the local architect allowed to strike a balance between incorporating international best practices in library construction and localising the design for Christchurch.

The councilors

The councilors were the messengers of all project-related updates to the general public. They helped market and position the project favourably since the project team got into the early planning stages. They also achieved a secondary motive to showcase that the council is taking an active role in building back the lives of the residents by delivering projects that are essential to the community life.

The Designers

The designers offered a range of solutions to the brief. CCC worked closely with the architect at predesign to pass town planning information. At the concept design, the CCC the project was scoped to fit the earlier budget and scope specifications but soon, it was evident the quality and aesthetic aspects of the building could not be designed within the proposed budget.

The designers and the contractor had a very good working relationship and trust between them about each other ability as they had worked together previously.

Matapopore Charitable Trust representing Ngāi Tūāhuriri

The organisation contributed to all stages of the project, from selecting building materials to shaping the physical outlook to reflect the culture, heritage, and traditional knowledge of its people. It worked closely with the project team.

The relationship hierarchies are shown in Figure 35. The arrow pointing upwards is indicative of the flow of reporting. The different colours assigned to the boxes show the type of hierarchy that was present when a certain activity took place. The Figure shows that there was no involvement from the Crown. In all stages, the project manager for the client liaised with the project control group to ensure that the project was progressing to plan and the client's objective could be achieved. Councilors had two parties reporting on the project. One was coming from the CCC's CEO on the project as a unit, and the other was from the Programme Steering Group reporting project progress as a part of the portfolio serving essential functions within the development of the Cathedral Square and the Convention Centre. The understanding of both aspects helped the relationship with the public, where CCC was seen as an accountable owner of the project. The blue sub diagram at the bottom depicts the hierarchies at the start of the project, where the architect worked closely with the consultants to deliver the designs. The purple sub-diagram shows how the contractor took the lead post-novation, where the designers provided architectural services to the contractor.

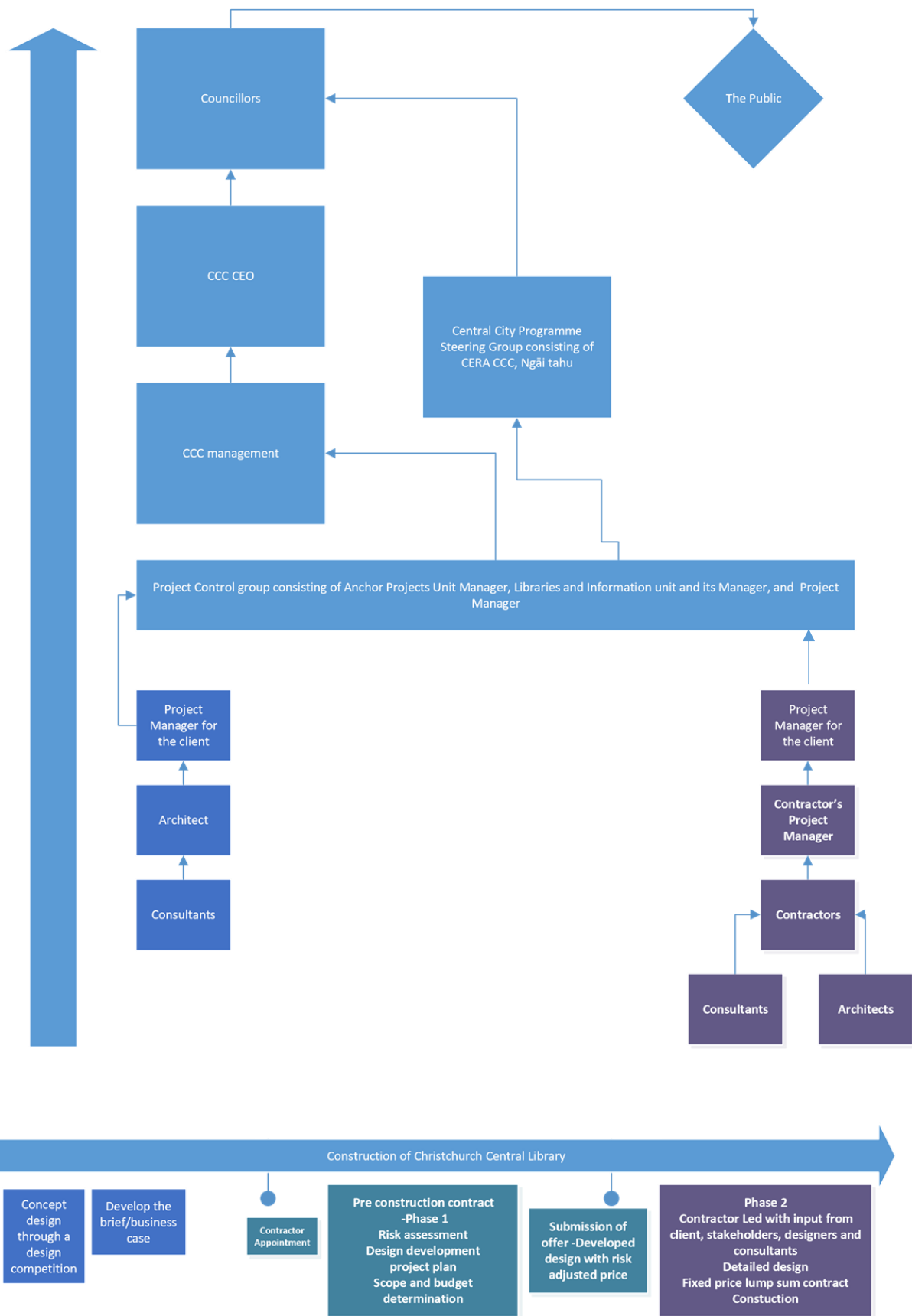


Figure 35 Stakeholder relationship flow chart – CCCL

Source : (Controller and Auditor-General, 2015)

7.6 FEP and immediate social outcomes

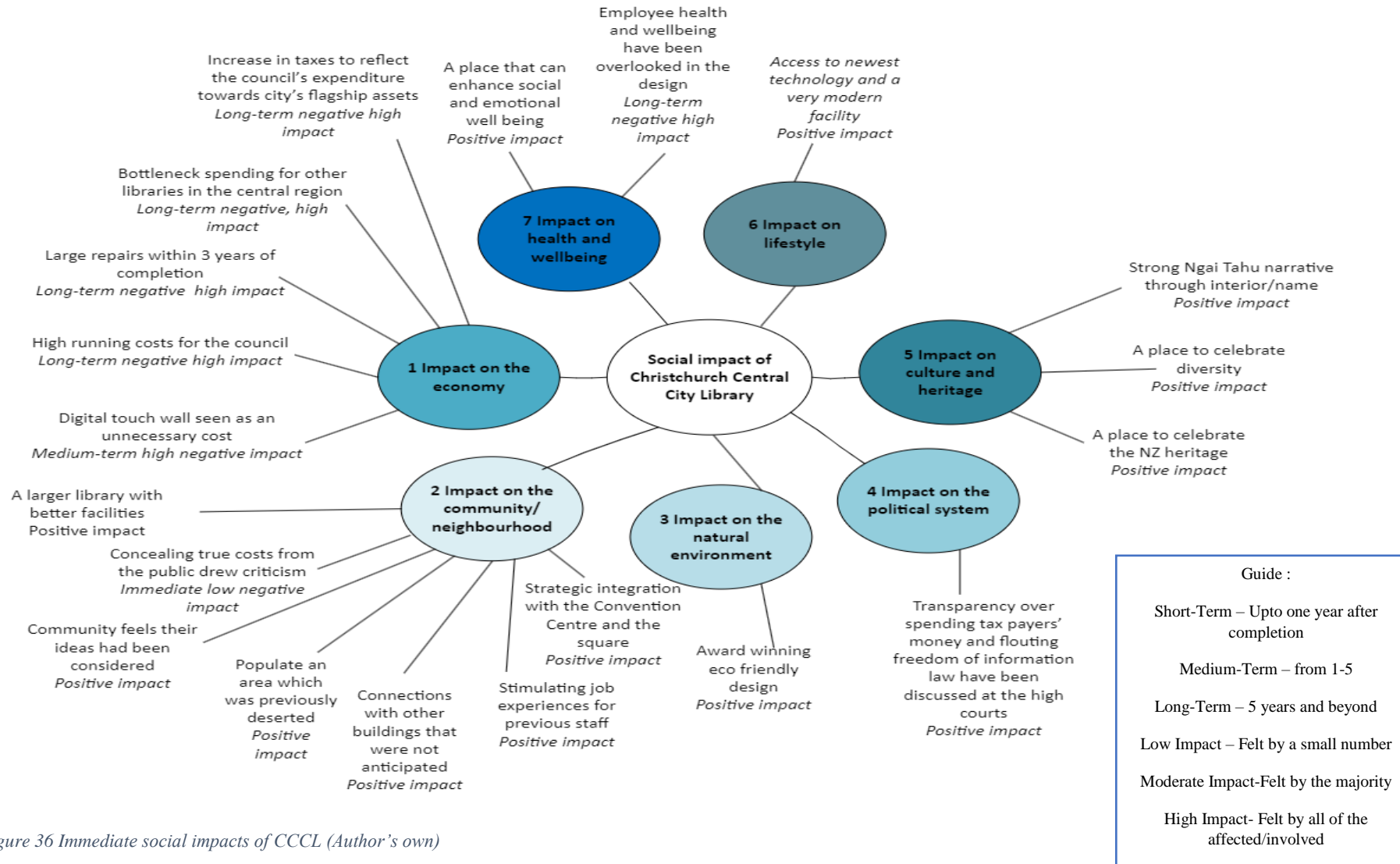


Figure 36 Immediate social impacts of CCCL (Author's own)

The social impacts of Tūranga are presented in Figure 36.

7.6.1 *Impact on the economy and FEP*

Impact on the economy refers to the financial impact created by the project. As with all of the flagship projects, Tūranga was built to enhance public welfare and create project spin-off benefits. Despite the vast number of positive impacts of bringing different walks of life to mingle under one roof, there have been some impactful negative outcomes.

All economic impacts identified were considered to be high, negative, and medium to long-term. The 7-metre touch wall, the biggest in NZ that presents the history of Christchurch with the touch of a finger has been a point of criticism [Figure 37].



Figure 37 Touch wall at the Christchurch Central City Library (Author's own)

Since the construction began and the building became operational, there has been much debate over the need to spend over a million dollars on a digital touch wall. The cost of the touch wall has not been made public. The transparency of spending taxpayers' money and flouting freedom of information law have been brought into discussion in high courts.

P4 and P18 from the CCC stressed that the library or any other flagship projects do not intend to run at a profit as those have a primary motive of enhancing public welfare. The larger assets, such as the library, create immense financial pressure on the CCC. A total of \$7 million was the estimated annual running cost for the Central Library, with around \$300000 per annum as the revenue in 2018. The high running costs have created bottleneck spending for other small libraries in the Central Christchurch region. With the coming up of the new flagship projects

that are costly to run, the tax rates were capped at 5.5 percent in 2018/2019 to reflect the increase in council expenditure.

Like most other flagship projects in central Christchurch, the building needed repairs within three years of operation to add to the already existing financial burden. P29 and P32 described that part of the library was marked as out of bounds due to a large hole that had appeared on the ground. At the time of writing the thesis, it had not been determined whether it was a construction fault or otherwise, though the former was seen as a more likely factor that caused the defect.

The concealment of costs has been to avoid public scrutiny and to keep the initial budget prior to project approval low. A Cost-Benefit-Analysis that reveals the actual feasibility of the project against its stated objectives have been avoided in the front end. A lack of effective communication and engagement with the stakeholders with regard to costs at the feasibility and detailed scope stage was evident even though stakeholder input throughout the project remained on point.

7.6.2 *Impact on the community/neighbourhood and FEP*

The impact on the community/neighbourhood refers to the effects on the area surrounding the project and its inhabitants. The blueprint revealed the intention to build a bigger library equipped with new technology as the previous one was too small. The new technology and other features came at a greater cost, where some of the costs were not revealed to the public. The public had been appreciative that they had more significant input to the project from early on. The concealing of costs was not received well.

Some of the intentions of flagship projects had been to create connections between the major venues within the centre and bring people to the centre. P23 expressed that the project populated an area that was previously deserted, and therefore the choice of location was successful. The respondent added that they experience the benefits of creating links between the flagship projects to derive advantages of increased footfall.

“We're getting a lot of school visits coming through, and the kids that may be spending some time at the Margaret Mahy playground and then coming to the library before getting on the bus and going back to school, or vice versa”.

“And I can see that when the convention center is finished, there will be even more so that people coming to Christchurch for a convention will come over here in the lunchtimes or their breakout sessions. We've got a couple of venues here in

this building. And we've already had an indication that it may be that those venues will be used as part of the convention offering".-P23

The respondent P23 added that even though the location has realised the benefits of creating a critical mass in the centre, the same location poses a challenge for a very significant category of visitors. The lack of a carpark and the bus stop being a few blocks away from the location act as drawbacks for the senior citizens who have restricted mobility. P25-P29, all five respondents, as frequent users of the facility, had problems with accessing the facility on foot or by vehicle due to the absence of a parking space reserved for the library. P25 held the view that public transport projects should have been better integrated with flagship projects. He added,

"And I guess, associated with that is maybe a higher level of integration with the public transport system, that libraries traditionally attract people who may be not so mobile and you think of the elderly or people with mobility issues, for parents with prams and buggies and that sort of thing. We don't have any buses passing our front door. And that was a feature of the other building that you could literally get off the bus and walk into the library. So the nearest bus stop is sort of maybe kind of a block away. And for some people, that's a three minute walk, or a five minute walk, but for some others that's actually quite a barrier. So that's something I guess if we were having our time over again, that would probably be the key consideration I think".-P25

A positive effect on the community has been that a library facility reaches a large number of people than most of the other multi-million public builds in the city of Christchurch. P26 mentioned that

"For the amount of money that's been spent on horizontal infrastructure or even something like the town hall restoration, only a percentage of people necessarily might go to concerts in the town hall. A much greater portion of the population of Christchurch get to walk through the door and benefit from this facility".-P26

The efforts of the project planners and the CCC in obtaining public input into designs and testing the concepts they've come up with at the start have resulted in the building becoming an epitome of modern libraries.

The management of the project portfolio to share resources and integrate planning to derive functional benefits has not happened in the case of Christchurch. The projects were mostly managed as single projects losing out on the opportunities of establishing cost savings and better integration. This should have happened in the detailed scope stage as a part of the business case for each public flagship project in Christchurch.

7.6.3 *Impact on the natural environment and FEP*

Impact on the natural environment means the effect the project has on the biophysical environments, ecosystems, biodiversity, and natural resources. The CCCL, like most other flagship projects, focused on building back better with more eco-friendly and disaster-resistant designs and structures. The architect, P6, said that it was a deliberate move to create an architecturally impressive and welcoming building that is also sustainable with a low carbon footprint. New Zealand Green Building Council awarded a five-star rating for CCCL, which had been previously awarded to a handful of buildings in NZ. The five-star rating was awarded for its efficient use of energy and water, sustainable materials, reduced emissions, indoor environmental quality, and ecological impact.

The positive outcome has been a result of the work of the project team since its feasibility stage, where ‘green and sustainable concepts’ were given emphasis. The initial concept designs also included those features and characteristics. Those aspects were also highlighted in all public and stakeholder communication to position the building as a product of a socially responsible public entity [i.e., CCC].

7.6.4 *Impact on the political system and FEP*

Impact on the political system refers to the effects of the project on government policies and programmes. P8 and P29 agreed that the expenditure related to the library, specially the touch screen on the ground floor, had been kept away from the public. Keeping the public uninformed about the costs raised questions around good governance that promotes transparency. The Ombudsman formed the opinion that the public interest to know what the central and the local government do with public money outweighed the CCC’s need to withhold commercially sensitive information about the supplier.

The FEP did not display accurate cost estimation and scope determination as the initial budget was seen as too ‘high’ for a public library. Public projects that use public money need to exemplify responsible spending and should be reflected in the figures released to the public at the detailed scope stage [P28].

7.6.5 *Impact on culture and heritage and FEP*

Impact on the culture and heritage may include any factors that affect the ways of living developed by a community that have been passed on by previous generations. They may include practices, customs, objects, places, and values.

The building showcases a strong Ngāi Tahu narrative through its name as well as the interior. Preserving and promoting culture and heritage have been achieved by incorporating Ngāi Tahu narratives across the fittings, installations, language, and protocols to promote the library as a ‘bicultural storehouse of knowledge’. Tūranga connects and extends the stories told by adjoining flagship projects, including Whitireia /Cathedral Square, Te Pae /Christchurch Convention Centre, and Te Papa Ōtākaro /Avon River Precinct. The architects worked closely with the Matapopore Charitable Trust to ensure that the values and aspirations of the locals are realised and preserved throughout the building and beyond by its links to surrounding buildings. The organization operates to ensure that local Ngāi Tūāhuriri people are recognised and hailed through city planning in Christchurch. Starting from the façade that is designed as a golden veil that represents the hills and the harakeke flax that can be seen at a distant, surrounding the CBD [Figure 38].



Figure 38 Outside façade is a golden veil that represents Port hills in Christchurch and the harakeke flax

The design of the atrium that connects the five levels has been inspired by Tāwhaki, a superhuman figure from ancestral traditions who was driven by his quest for knowledge.

Puaka a star of the local Ngāi Tahu tribe, is remembered through the design of the skylights over the atrium.

Additionally a strong drive to promote heritage had been noted in the way the building was designed with the use of the touch wall and a large collection of heritage material.

The early designs of the Tūranga highlighted the need to promote the library as a place that celebrates diversity. The architectural works were evident of the same where different spaces catering to different categories were built. Some of those were,

- TSB space – For business and community events
- Boardroom and meeting rooms – For businesses
- Innovation zone, 3D printers, and laser cutters – For the tech-oriented
- Discovery wall – Events and activities in Christchurch central and information on the history of Christchurch for travellers and Children
- Play Zone – For kids
- Southbase gallery - For the visitors to Christchurch
- Café and coffee bar - For community and relaxation

The strong Ngāi Tahu narrative has been accepted positively by the public, and the need to include those design features has been communicated in the brief by the client, the CCC. The Ngāi Tahu representatives worked closely with the design team throughout the concept and detailed scope stages in the FEP to ensure those features were incorporated into the design in a profound and effective manner.

7.6.6 Impact on lifestyle and FEP

Impact on lifestyle means the effects on the typical way of living by a person, a group, or a culture. Impact on the way people live, work and play mainly came from the building being placed as a place for community gatherings to relax and gather knowledge as a family. The public had access to the newest technology, modern facilities, and bigger spaces, all while preserving the history of Canterbury. P28 added

“ I think the floor is about 50% bigger. So it's quite, quite significant. And it also offers quite a different mix of service. What you find in the new mix, very much sort of represents international best practice or international cutting edge library

facilities, whereas the previous building, although would have been opened in the 80s that had been modified and, to a degree, kept up with the times. But it was still relatively traditional in terms of there was a lot of books, there was some study spaces. And that was about it, really, whereas we've got a lot of technology in the building”.

The lifestyle of employees has also been influenced positively. P23 mentioned the words “ ‘quite stimulating impact on my role’, ‘refreshed my career’ and ‘gives me the opportunity to work more closely with community organisations’ when referring to working in the new facility.

The facility has changed the way a public facility is viewed as high-quality community spaces can be hired at a relatively low cost.

The positive impact on the lifestyles has been a result of extensive yet effective opinion-seeking carried out by the CCC throughout its FEP. The testing of the designs also offered the opportunity to align them closely to the needs of its potential customers, which resulted in a product that is accepted by the users.

7.6.7 Impact on health and well-being and FEP

Impact on health and wellbeing refers to the effects of the project on the maintenance of complete physical, mental, and emotional balance and stability.

Public libraries have now been identified as civic institutions that go ‘beyond books’ that aid population health through community-level resources (Philbin, Parker, Flaherty, & Hirsch, 2019). The designers have made an effort to ensure that the image of a ‘civic institution is maintained throughout the building. The building offers something for everybody in the family and different social layers of society. The different venues on offer was explained by P23 with a potential downside that prevents the benefits it could have delivered.

“I was talking about the venues that we've got here, if we wanted to make those venues available outside of library hours, we sort of need to manage the security aspects of that, because people exiting one of those rooms effectively have to work through the middle of library space. So that's something that we're still probably working on is that how can we maintain the security of our building and collections and all of that sort of thing, that give people a good experience, if they want to host an event that goes to 10 o'clock at night but the library closes at 6pm...that sort of thing”.-P23

One of the drawbacks of the library design has been that the design allowed a considerable space for the public at the expense of the space available for staff. P12 has been quoted saying

“And then each floor has got a very small area, which we call a lift lobby. And that's where the staff who are working on that floor are able just to protect themselves from the public, and leave a water bottle or just go somewhere and have a bit of time to recharge the batteries or whatever it might be. And I guess that's been challenging. In a more traditional model, you've got quite a lot of back-of-house type areas. It continues to be a challenge of 'how do you actually look after your staff?' when a purposeful decision was made to try and minimise the space for those functions. So that's something that we're sort of continuing to work through.”.

The library has positively influenced the social well-being of the residents as it has offered what the majority had sought in a modern library. A comprehensive stakeholder management and inclusion strategy was put in place at the concept stage for Tūranga. The extensive input-seeking exercises by the council has mainly been skewed towards the potential users whilst staff well-being has been affected due to the prime focus on users. A clear plan for each stakeholder is recommended. [P12]

7.7 Chapter Summary

The project started in 2014 and was completed in September 2018, on time and within the agreed budget. According to the council employees, the collaborative working environment, coupled with early warnings and risk mitigation meetings, helped the council gain reassurance to complete the project within the agreed timeframes and budget. All of the FEP processes have been followed to varying degrees. The early designs have been assessed against alternatives and had strong Māori representation. The budgets have been tested prior to investment for feasibility. International best practice has been followed with input from international library design experts. The aspects lacking from the previous library were examined and rectified within the new design. Stakeholder identification, definition, management, and communication have been followed to a greater extent, leading to cost savings in design. Inclusion became an issue once the project started its operations, where the staff experienced practical workday issues as a result of the features of the building. The business case presented a compelling case for a replacement library that exceeded the previous offering. Among the negative aspects

- the concealment of costs from the general public,
- the disintegration of project portfolio level planning [that could enhance functional aspects of the project]

- the quality issues that have surfaced a few years after completion are most noteworthy.

The project has demonstrated commitment to FEP process and has been received well by the general public.

Chapter 8 Case Study 3: Christchurch Bus Interchange [CBI]



Figure 39 Christchurch Bus Interchange (Author's own)

8.1 Background of the Case Study: CBI

The client of the project was CERA. The client wished to construct a modern facility that uses space well in a compact city yet strong in the area of functionality with the possibility of future growth [Figure 39]. Christchurch Bus Interchange was the first to be delivered as a completely new construction project within the CCRP (B. Bennett, 2016; P. Da Silva, 2017). The Canterbury earthquake left the previous bus interchange severely damaged (Koorey, 2018). However, it was not in an irreparable state, but CERA wished to move it elsewhere within its wider city regeneration plan in its bid to ensure strategic placement of projects within the CBD. ECan, as the party that services and manages the routes within Christchurch, had a hubs and spokes model for public transport, and the Bus Interchange was the anchor point of the model. The new facility's design appreciated the other modes of transportation by providing separate pick-up and drop-off points, taxi ranks, secure bicycle and luggage storage facilities, and regional bus bays. Dropping speed limits to 30kmph, ensuring key CBD locations are easily accessible by foot from the interchange, making pedestrian-friendly routes, and cycling lanes within the CBD were designed and implemented alongside to ensure user acceptance of buses as a mode of transport.

The Bus Interchange spreading over a 14000m² site is situated on the corner of Colombo and Lichfield streets. It can also be accessed from Tuam Street (Office of the Auditor-General, 2015 #7, Mead, 2015 #9). The location was strategically chosen to benefit from convenient walking connections to the southern half of the Core and the South with pedestrian links on Lichfield and Colombo Streets to East Frames and the Stadium. It has been appreciated for finishing on time and within budget (Bennett, 2016 #8). The project value was \$52 million (Mead, 2021; Office of the Auditor-General, 2015; Southbase Construction, 2021). The completed project was handed over to the public in August 2015 (Office of the Auditor-General, 2015 #7). A temporary bus Interchange was located on the site that was designated for the Christchurch Justice and Emergency Services Precinct (CJESP). This acted as a significant constraint that pushed the project to finish on time as there were financial penalties for not vacating on time (Office of the Auditor-General, 2015 #7)

Project partners were Environment Canterbury (ECan), Christchurch City council (CCC), Canterbury Earthquake Recovery Authority (CERA), New Zealand Transport Agency (NZTA), and the private sector (the bus operators). Initially, there was an expectation of an estimated footfall of 18000 passengers a day and a growth to 70000 passengers a day in 2041 (Office of the Auditor-General, 2015 #7)

The project constituted 16 bus bays, indoor waiting areas, taxi ranks, a bicycle lock-up facility, and public lockers (Mead, 2021; Southbase Construction, 2021). The project was accelerated and finished within 18 months (Architectus, 2021).

8.2 Objectives of the project

One main objective of the project was to create a central hub to link bus movements within the central city (Canterbury Earthquake Recovery Authority, 2012a; P. Da Silva, 2017). Another was to support other anchor projects by its strategic location and accessibility (Canterbury Earthquake Recovery Authority, 2012a). The Bus Interchange project made an important contribution to the overall accessible plan, which included road layouts for the future Christchurch to provide for pedestrians, public transport, cyclists and private vehicles, speed limits and streetscapes, parking availability and service vehicle requirements (Office of the Auditor-General, 2015). There was a need to build an interchange that could withstand a design-level seismic event (P. Da Silva, 2017).

8.3 The design

The evaluation of concept designs started in December 2013. The final design was a product of a new Zealand architectural firm in a joint venture with an Australian Consulting Engineering firm. The building consists of two separate single-storey buildings constructed seismically independent of one another (P. A. Da Silva, 2017). The building's foundations were laid in a way that allows for potential future expansion (P. A. Da Silva, 2017). The facility uses an Importance Level 3 (IL3) structure which means the building structure may “contain crowds, have contents of high value to the community or pose a risk to large numbers of people in close proximity” (BRANZ's Seismic Design, 2020). The building has a large open area that allows for free passenger movement

The aesthetic aspect of the project is recognized for its unique inclusion of Ngāi Tahu stories and history. The artworks are inspired by the Matapopore Trust on behalf of Ngāi Tūāhuriri Rūnanga and centred around Ngāi Tahu migrations from the North Island and within Canterbury (Bennett, 2016).

P7 further added that a design competition was held to arrive at a concept design to choose a designer who could manage the functionality and exceptional design of a compact inner-city transport interchange having around 1000 bus movements a day. The designer was selected through an open GETS (Government Electronic Tender Service) tender mainly based on non-price attributes.

The submission process was based on previous experience and the ability to demonstrate that the consortium could meet the requirements of the project. The firm had previously designed public projects [over half of the completed projects at the time of the interview were public]. The previous experience included councils and public education facilities such as universities, primary, secondary, and tertiary education sectors. P9 added that there was an indication of Preliminary and General (P&G) costs and margins to maintain some competitive tension.

The design output was an ‘L’ shaped saw tooth 16 bay building that adopted a reversing maneuver to minimize the travel of buses within the premises [Figure 40]. The design had security measures to prevent pedestrians from encountering moving buses. It was field-tested with the bus operators at various design stages. The drivers were also given extensive training using a Virtual Reality training simulator prior to opening.

The design gave prominence to the natural lighting and used a hydronic ground-water heat pump system to provide heating for the building. The artwork within the building depicted a cultural narrative based on early Maori navigation.

8.4 The construction

The project was delivered as a design-build project which is known as the NZS3916 contract in NZ. P7 said the project used it first in Canterbury after it was introduced in late 2013. The CBI project was completed in two stages. The first phase included eight bus bays that were completed by May 2015. The facility became fully operational with 16 bays when the second phase was completed in August 2015. The bus interchange spreads over 3500².



Figure 40 Christchurch Bus Interchange bus bays Source: Author's own

8.5 Front End Planning of CBI and the impacts

The FEP process for the CBI is presented in Figures 41 and 42. Figure 41 shows the process, which has been expanded with additional areas for clarity to show the interconnectivity between each step and to increase its 'flow-chart' appearance. The project followed all of the areas illustrated in the diagram to varying extents. Figure 42 displays what activities have been performed under each of the FEP process, which is indicative of some of the activities happening earlier than the suggested phase.

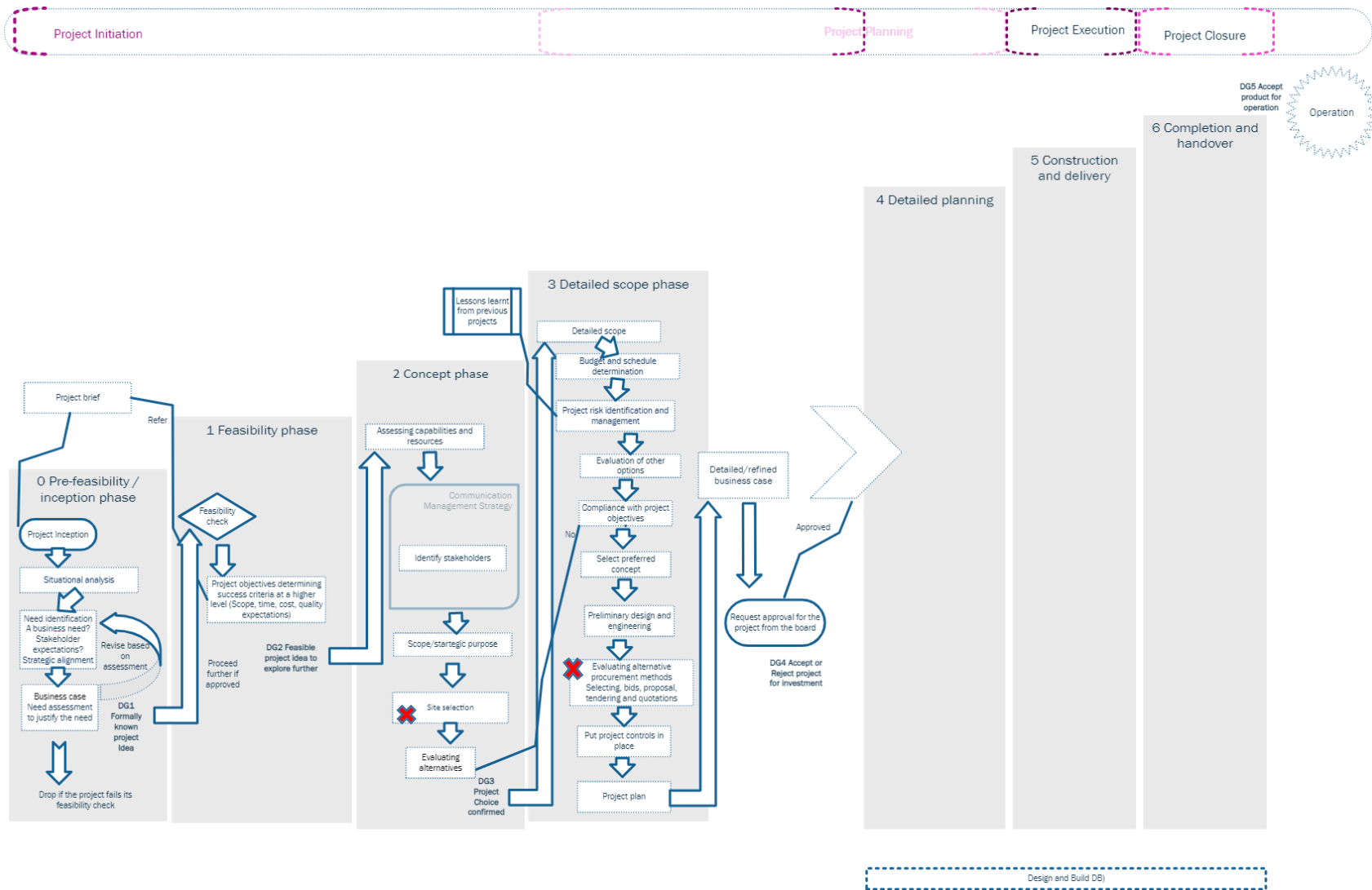


Figure 41 FEP for CBI

Source: Author's own

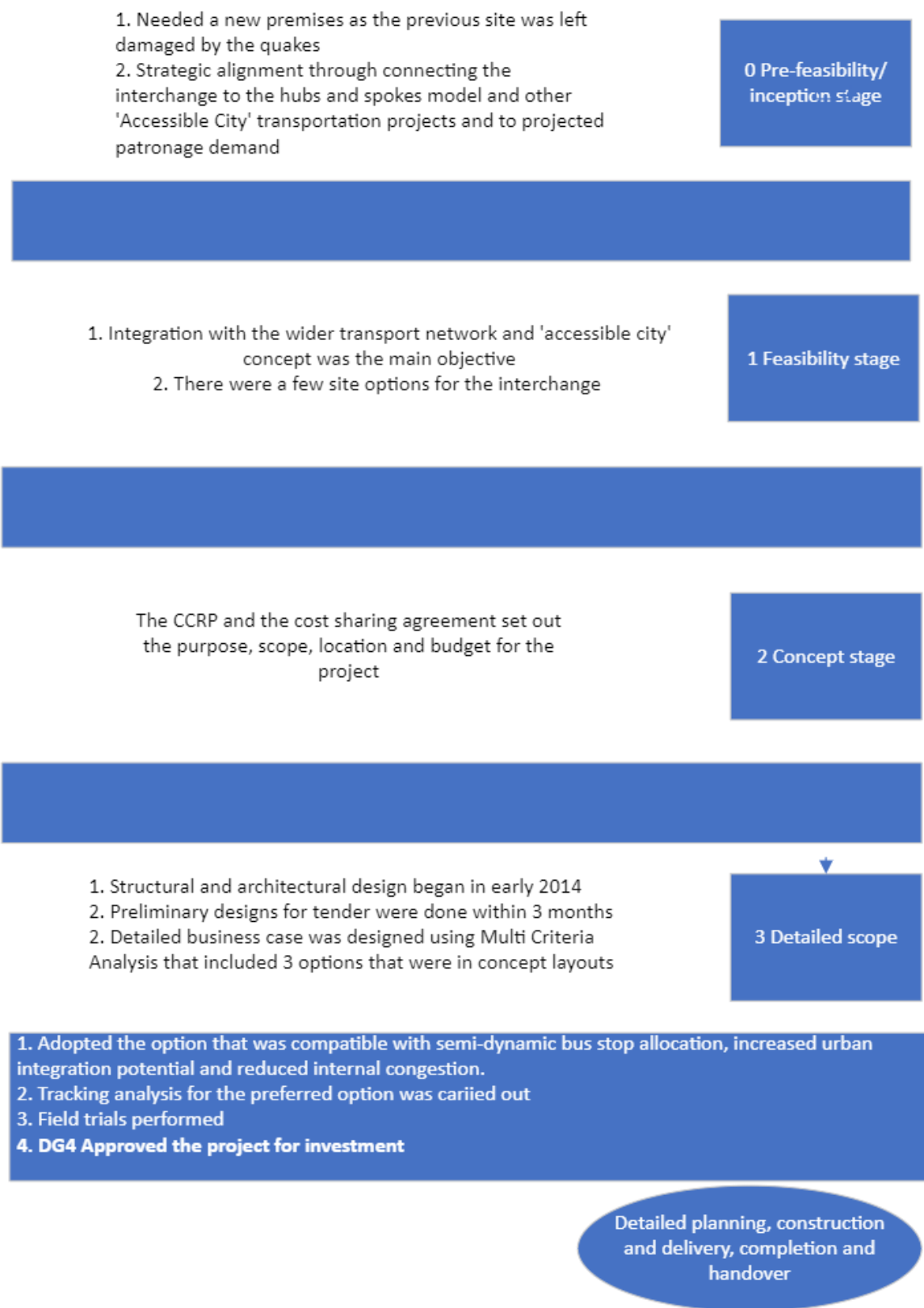


Figure 42 The erratic FEP process for the CBI

8.5.1 *Pre-feasibility/inception stage*

The vacuum created by the destruction of the old bus exchange was the prime reason for including a bus interchange within the blueprint. As document analysis revealed and P5 confirmed, there was also a need to move the facility to a more socially desirable location, change its existing image and create a bigger facility that sits well within the transportation plan for Central Christchurch.

Situation Analysis

There was already an understanding that the city of Christchurch constituted a population that relies on private vehicle ownership. Ecan and CCC aimed to change this through a well-connected bus interchange that would facilitate its ‘hubs and spokes’ design initiative. With their strategies in place at the time working to plan, there would be an estimated 70,000 people passing through the facility in 2041. The project started with an exercise to fit the CBI within the overall ‘hubs and spokes model’ and other ‘accessible city’ transport projects. The project team was mindful of the projected patronage demand, but not much attention was paid to how the post-disaster situation would alter the projections. There was an obvious need and the requirement to understand the perceptions towards public transport, the needs of the public with regard to a public bus interchange, and the state of the city [on going construction, fewer activities in the short run] that could affect the operations/number of users were overlooked.

The project purpose aimed to

1-facilitate the configuration of the rest of the Christchurch public transport network- a customer-centric facility

2-to create efficient, safe, and convenient access to public transport – an urban-centric facility

3-act as a catalyst that facilitates the rebuilding of central Christchurch to connect people to key locations and to promote public transportation in its function as an important public building – a public transport-centric facility

4-add value to adjacent flagship precincts to be efficient, effective, and sustainable – a value-centric facility

These requirements were categorised into four specific focus areas named customer focus, urban focus, public transport focus, and value focus [See table 21]

Table 22 Project purpose - stated versus the achievements

Expectations stated during the blueprint stage	Corresponds to project purpose...above	Achievement of the stated purpose
Functions expected from the facility	1	Achieved
movement and circulation of buses	1	Not achieved- diversions due to ongoing inner-city developments
significance of comfort, attractiveness, safety, security, accessibility, and inclusivity of the design	1	Achieved
Integration into surroundings	2	Not achieved- Some key locations are more than 1km away from the bus interchange
Design quality	2	Achieved
Sense of place	2	Achieved
Modal strategies	3	Limited as some locations are out of walkable or cyclable distance
Bus operations	3	Not achieved – delays to service, the poor state of buses limit the operations
Managing and running the facility	3	Achieved
Ability to adapt and increase capacity according to demand	3	Achieved- The foundations are expandable to facilitate possible future growth
Human, social, economic and environmental sustainability as the four pillars of sustainability	4	Achieved – The design carries many sustainability features and the use of green technology is evident
Design for change	4	Limited as some locations are out of walkable or cyclable distance

The need for the project came as a result of the previous bus interchange getting damaged as a result of the earthquakes. The need was justified on the grounds that Christchurch needs a transport interchange in its core to connect the network. The project was strategically relevant to the overall city plans creating connectivity in the core, encouraging the use of public transport, and getting more people to walk or use bicycles within the CBD.

8.5.2 *Feasibility phase*

The Feasibility phase checks the practicality of the project in terms of technical, financial, economic, legal, and social feasibility. Technical feasibility is the ability of the project to be delivered by incorporating the technologies specified in the early business case. Technical feasibility was tested for alternative designs and involved the bus drivers for input. The project faced some scrutiny over the reverse maneuvering system that it proposed. The designers convinced the client that the design has been successfully used elsewhere in the world and that it saves space important to a CBD location.

Economic feasibility, which covers most of the financial feasibility criteria, is concerned with the whole of life economic benefits the project could create. The feasibility was based on data

on projected public transport user numbers to show the worthwhile nature of the project. Additionally, there was a plan to address the failing patronage to create more demand for bus use. The Cost-Benefit Analysis revealed that the project would be an asset focused on creating welfare rather than one that made an income. The user surveys suggested that the residents felt they were paying a high price for bus fares. A suggestion to increase patronage was to bring down the fares, which in turn would further reduce the financial benefits to the client. The other benefits included income from the vendors residing on the premises, a better image driving more patronage, and better connectivity in supporting an 'accessible city' concept which were difficult to measure in financial terms.

Social feasibility yielded a positive outcome where the bus interchange was a sustainable option for a city with high ownership of private vehicles. The client understood the need to drive an image repositioning exercise once the project was formally established, as the previous bus interchange was seen as an unsafe place.

8.5.3 *Concept phase*

The concept stage included assessing capabilities and resources, identifying stakeholders, determining scope/strategic purpose, and evaluating alternatives. The bus interchange project team had analysed its resource needs and determined the resources that may affect the critical path to get them delivered on time. The stakeholders for the project had already been identified at the inception, but the true inclusion in the project was only seen with the bus drivers. In terms of strategic purpose, the focus was on the bus interchange's role within the overall 'accessible city' plan, which made a strong and convincing case. The scope had to be altered several times as a result of the increase in user expectations.

The Concept phase generated three probable products with their strengths and weakness analysis. The document, at this point, did not include any conclusive financial information but a strong written case for each of the alternatives. Once the concept designs were ongoing, ECan released an updated bus network and service level information, which limited the efficiency of a couple of designs. The selected design was then fine-tuned with transport modeling exercises and field testing.

The designers' recommended option was highlighted with reasons. It was also backed up by transport modelling and field trial data.

In Figure 41 the component 'site investigation' has a cross sign in front of it because the site had already been selected at the portfolio level.

8.5.4 *Detailed scope*

This phase involves determining a detailed scope, budget, and schedule, identifying and managing risks, engaging in preliminary design and engineering, putting project controls in place, considering alternatives, and formulating a project plan. At the end of this stage, the refined business case will get approved if the project fulfills all the requirements of viability.

Scope determination

The L-shaped design option was chosen on the basis of being the design that best suited 'Detailed Design Brief.' More spacious bus stands, an exit onto Tuam Street, widened internal circular roadway, and a larger island were the changes made to the earlier preferred option to avoid some of the weaknesses of the design.

Budget and schedule determination

The contractor was given the opportunity to test the budgets during pricing. The pricing was a fixed price lump sum. The contractor had carefully identified all risk areas that would deter the achievement of the budget in order to address those early in the process where possible. More certainty over the budget allowed contractors more control over the project. The schedule was determined with more confidence once the design was finalised.

One drawback around budgeting was that the cost-sharing agreement did not specify a designated owner, and this created issues when signing contracts for the retail spaces within the facility and the bus operations later in the process. Ōtākaro is the public entity that is responsible for the flagship projects in Christchurch after CERA was disbanded. They owned the facility (for nearly four years) until 2019.

Risk Management

The risks for the preferred option were detailed. The contractor carried out risk modelling associated with the choice of design and ran field trials to convince the stakeholders of the design feasibility. NZTA, CCC, Ecan, Red Bus, and Go Bus attended the field trials. It was a well-rounded effort to instill trust in the process and to take risks under control early on.

Preliminary design and engineering

The preliminary design contained sufficient information around the adoption of IL3 technology and other sustainable features to lock in a budget and determine an achievable timeline. The contractor worked closely with its consultants and the architect to produce preliminary designs that would provide input to a viable business case.

Procurement decisions

The diagram, shows a cross against procurement selection. Before the inception of the project, CERA had decided that the project would be procured as a Design and Build project as a more cost-effective and fast route to construct facilities post-disaster. A design competition for the bus interchange resulted in two consortia being selected to develop the concept design further. CERA chose not to pay the consortium whose design got rejected at the final stage. Both firms had designed up to preliminary designs with indicative costs.

P7 has remained in the construction industry before the earthquakes, and his opinion was that post-earthquakes, the players within the construction industry were desperate for work. He said there was much opportunism, and client behaviour patterns such as the one displayed by CERA only discouraged more potential suppliers from bidding for public projects.

“The client, the CERA, decided to push it as far as they could, which probably pushed it a little bit beyond where I would have done. CERA elected not to pay the consortium for their designs and relied on the fact that they were hungry for the work.”-P7

Business Case

P6 added that the project adopted a Better Business Case model. Once the business case was approved, the design team commenced the design. After the preliminary design, which contained the initial concept ideas, the tender novation occurred. The design team then completed the detailed design before the construction began.

8.6 Front End Planning and Stakeholders

The Bus Interchange project had a complex stakeholder composition given the fragmented product/service delivery of transport infrastructure in Christchurch. The most prominent problem with stakeholder management in CBI is the diverse stakeholders that help manage and run the facility. CERA as the project owner for the first phase of the project identified a large number of stakeholders at the start of the project. The priority was given to the parties involved in the service delivery package.

Figure 43 is a representation of the stakeholders involved in the project. Each coloured oval shape shows the parties that each stakeholder interact with. Overlaps between the shapes suggest that interrelationships were present. The following list comprises the primary stakeholders in its brief development stage.

CERA, CCC, Ecan, NZTA, and Te Rūnanga o Ngāi Tahu

Additionally, the following groups were considered important in providing input to the design of the facility.

Christchurch Metro Bus Operators, Taxi Association, Christchurch youth community, Intercity Coach Operators Association, Passenger Transport Advisory Group, and private sector developers/neighbors

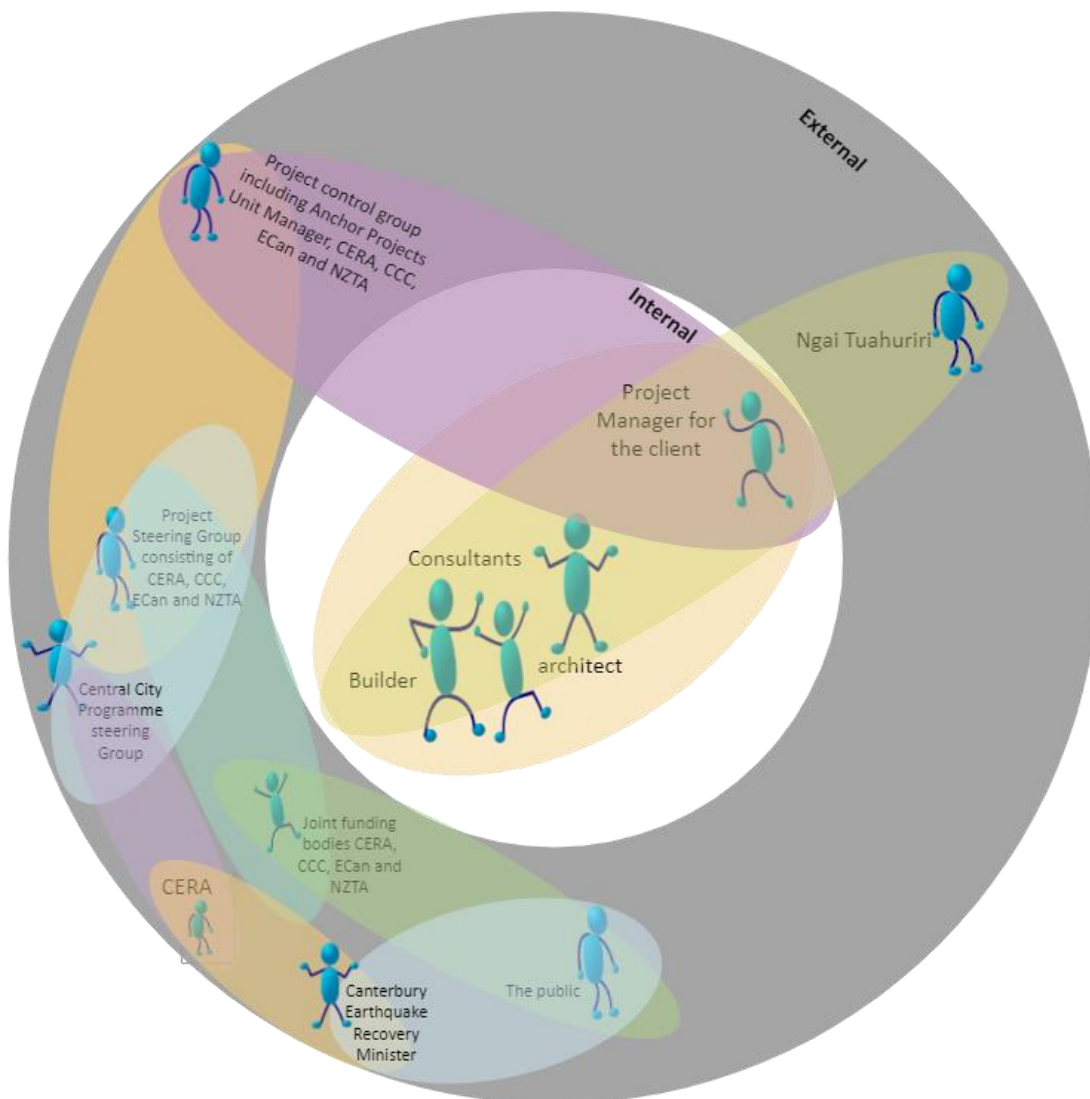


Figure 43 Stakeholder interactions for CBI

CERA

The sponsor of the project. CERA followed the ministerial advice on directing the project to achieve objectives. Through its website, CERA provided project information and updates to the public. It also used publications that were posted to all Christchurch households.

ECan

Ecan is the Regional Council. It prepares Canterbury transport plans after researching the current status of the region's transportation network. It identifies priority areas for investment and decides on a 10-year plan. After the earthquakes in 2011, ECan was keen on building a facility that connects all of the other projects within its 'Accessible City' plan. It operates the bus network and prepares the bus timetables. Due to the functional role ECan plays, it was an important stakeholder in the project in deciding the location of the bus interchange, the design, and the timing of services once completed.

NZTA

NZTA's role is to promote reasonably priced, well-connected, safe, customer responsive, and sustainable land transport arrangements. Its influence within the project happened as NZTA funds and manages the state highways used by the public transport systems.

The entities have different objectives, and finding common ground to achieve the individual project objectives has been difficult. This has resulted in inconsistencies in managing the final service delivery to the public.

CCC

Once built, the facility will be owned by the CCC. CCC also builds and manages local roads. The role in the project was minimal as the project was led by CERA. They had representation within the Project Steering Group, but P3, P4, and P18 said CCC was a non-influential member of the committee and was there to 'receive information of the decisions made' about the future asset. P3 pointed that

"I think it's more likely that as the city council, we were informed about how it was based, I guess it was a form or a type of consultation. So we were just told how it would be, where it would be and how it would work".

It already had a vast amount of market data that gave insights into the Christchurch residents' perceptions of public transport within Christchurch, user patterns, and aspirations about public transport in the future city. They were mainly informed of the decisions. Whilst the decisions

about the facility were being made, CCC moved forward with its own plan for the city's recovery. They made ample parking available in the core, which has been a welcome sign for commuters using private vehicles. The move created further barriers to increasing the use of public transportation and transport facilities such as the Bus Interchange.

Te Rūnanga o Ngāi Tahu

The representation of Te Rūnanga o Ngāi Tahu was evident in the final designs of the facility but had active participation in design from early on.

Joint Funding Committee

The committee consisted of CERA, CCC, NZTA, and ECan. Funding decisions involved all parties, as the facility will be run as a combined service effort by all parties.

Project Steering Committee

On the one hand, the project steering committee acted as the primary governance group where all decisions concerning the project were taken. On the other hand, the Program Steering Committee ensured the fit of the bus interchange project within the other remaining flagship projects to derive portfolio benefits and synergy.

At the onset, the project steering committee had the responsibility to

- Approve project scope, objectives, and the project plan
- Agree on key project milestones and determine the funding arrangements for the project
- Sign off project deliverables.

After the detailed business cases were done, the project steering committee approved any changes to milestones, deliverables, and the project plan and identified any risks or issues.

Central City Programme Steering Committee

The bus interchange had identified links to other parts of the 'Accessible city concept' project strategically. The timeliness of its work progression was important to related programmes of work, especially the CJESP. The Programme Steering Committee managed the interdependencies well that the site was vacant when the CJESp was ready to start construction. This also ensured that the Bus Interchange project was delivered within the promised timeframe.

Christchurch Metro Bus Operators, Taxi Association, Christchurch youth community, Intercity Coach Operators Association, Passenger Transport Advisory Group, and private sector developers/neighbors

Significant contributions were made by the above parties in the early design stages. The bus operators continued beyond the early stages to test the design's practicality upto the point of the handover of the facility.

Figure 44 shows the hierarchical relationships of the above stakeholders where the Earthquake Recovery Minister at the top of the hierarchy and CCC, CERA, Ecan, and NZTA provided updates and the status of the project to the general public. Their ways of reporting highlighted the role and contribution of each entity as a means of showing its role in rebuilding Canterbury. The latter part of the diagram indicates that the project manager remained the person that conveyt the project status updates to the project control group at all stages of the project. The blue sub-diagram shows the early design stages with the architects. The purple subdiagram depicts the hierarchies after the consultants came on board as the Design and Build contractor, where the architects were chosen as the contractor's consultants.

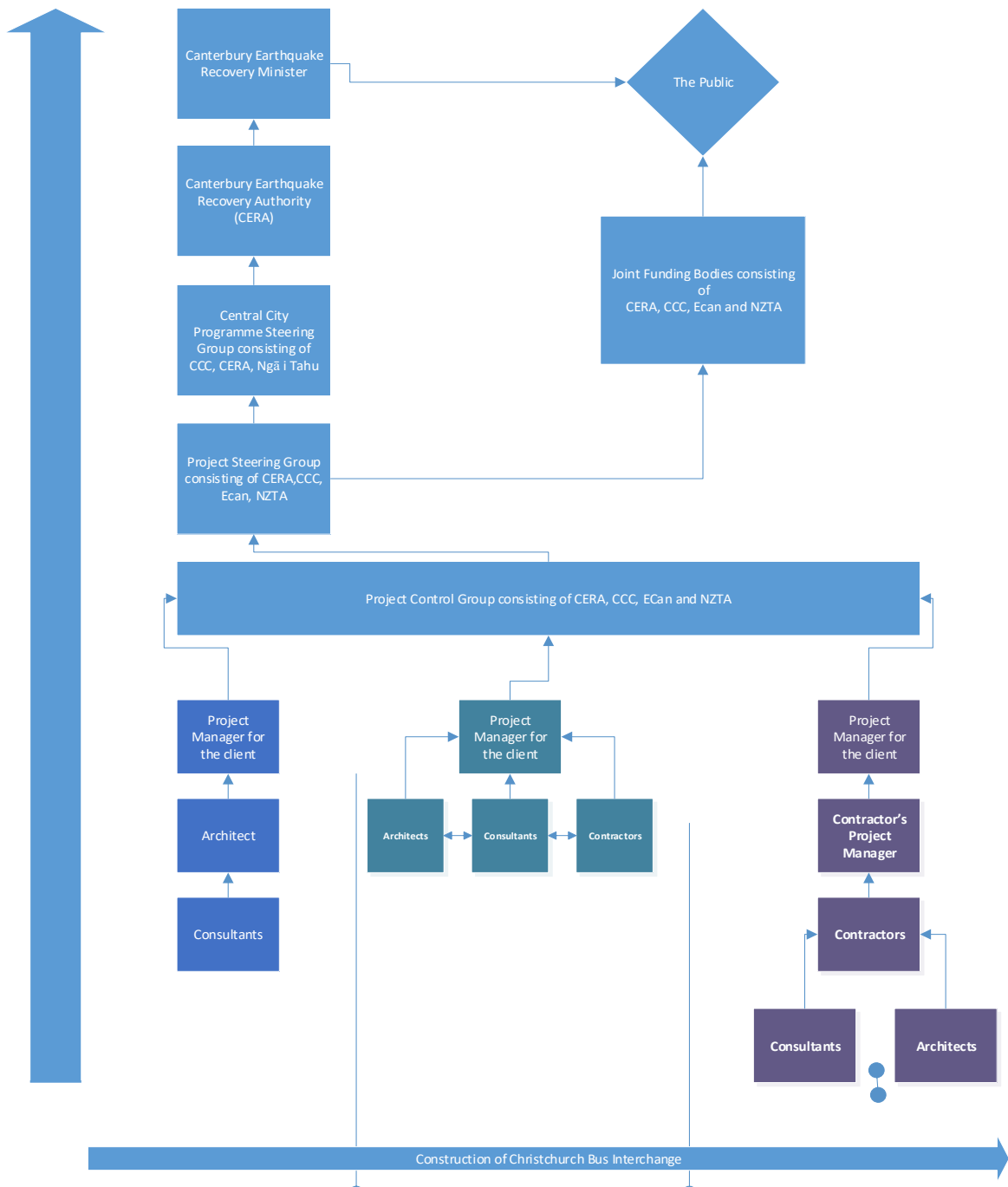


Figure 44 Stakeholder relationship flowchart for CBI

Source : (Controller and Auditor-General, 2015)

8.7 Immediate social impacts of CBI

The social impacts of the project are illustrated in Figure 45 below. Those will be discussed in detail in Figure 45.

Guide :

Short-Term – Upto one year after completion

Medium-Term – from 1-5

Long-Term –5 years and beyond

Low Impact – Felt by a small number

Moderate Impact-Felt by the majority

High Impact- Felt by all of the affected/involved

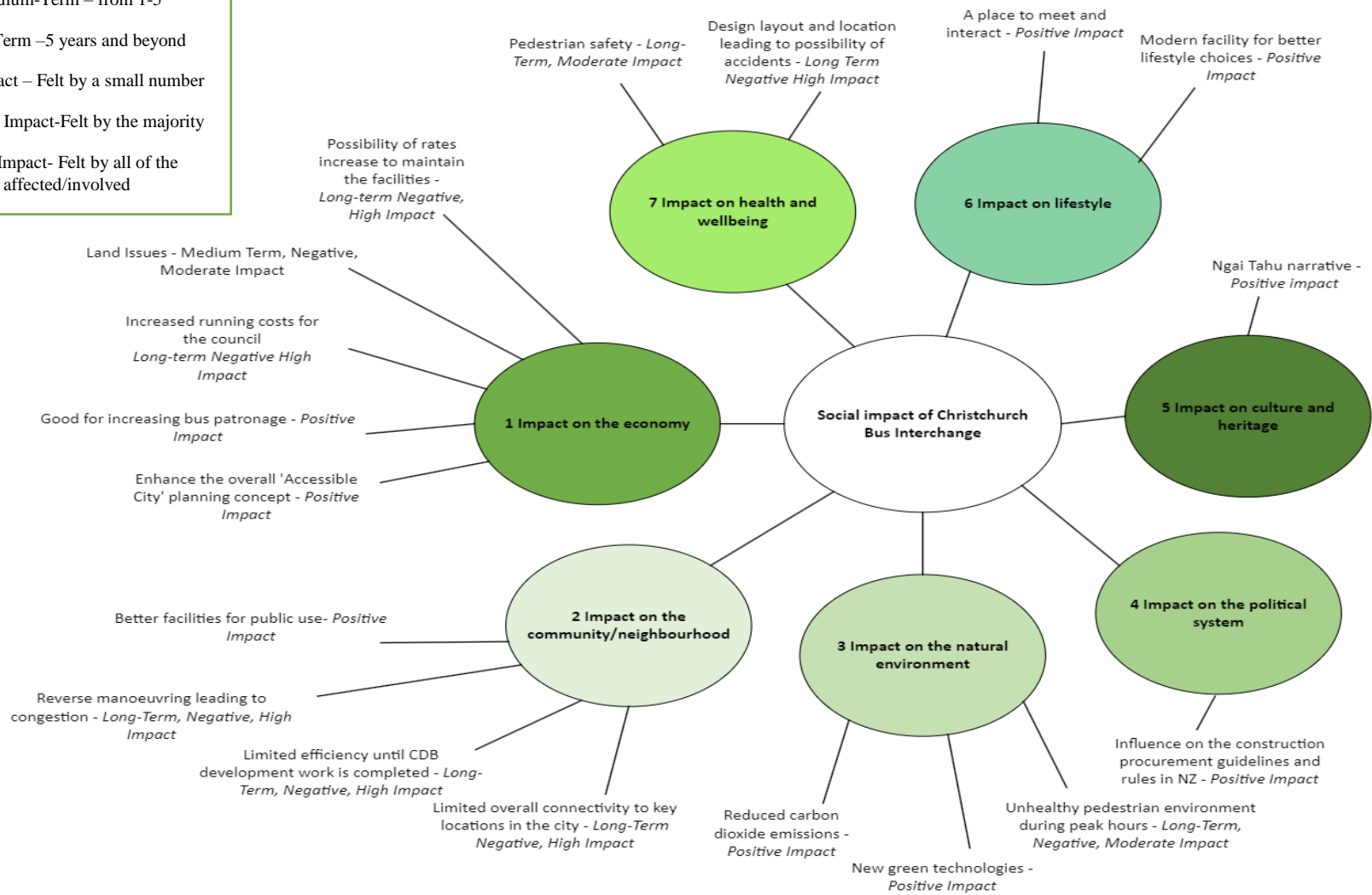


Figure 45 Social impacts of the CBI

8.7.1 *Impact on the economy*

Impact on the economy refers to the financial impact created by the project. The Bus Interchange, as a public project was expected to deliver side benefits and public welfare. The project had resulted in adverse impacts of a possible increase in bus fares, high running costs, land issues, and positive effects of playing a key role in the accessible city plan through a sophisticated bus interchange.

For the construction of the interchange, CERA acquired 37 plots of land. According to P1 and P2, people had lost faith in government plans due to the speed of rebuilding. The initial designs left some of the acquired land unused, and the council had plans to resell it [Figure 46].



Figure 46 A strip of land that belongs to the bus interchange on sale

Source: Autor's own

The new developments coming in had increased the value of surrounding lands. Owners felt that the offers for their lands were disproportionate to the perceived land value. It was disheartening to experience that not all of the land has been used productively. P15 mentioned,

“Some of the land CERA had acquired carry a historical value, yet those are not put to proper use. ... sit idle while the council is sorting things out.”

The Crown funded the final cost of the facility at NZ\$52 Million. According to P16, there was undue expenditure as the bays have been designed to accommodate double-decker buses not currently available in Christchurch. P2 mentioned that Ōtākaro Limited had transferred the facility's ownership to the CCC in October 2019 at the cost of NZ\$23 Million. P9, P10, and

P33 described that the community had been burdened by the operational costs of around NZ\$1.5 million per annum in 2020 amidst falling patronage.

The problems are partially caused by the services provided by the network. The users [P13, P15, and P16] viewed fare price increases as a reason for falling patronage. The fares had increased by over 5% to NZ\$4.20 in 2021 after the project came into operation. P12 remained positive that, unlike a tax increase that affects the non-users, an increase in fares was acceptable as it taxes the user.

P11, as part of the management and the contractor [P7] added that mostly blue-collar workers working on the city centre building projects use the facility. P16 said, “It's not the ideal image you want to paint when looking at improving the dwindling patronage.”

The project's economic feasibility with the projected patronage numbers and a strategy to bring people back have not been assessed correctly at the feasibility stage. The patronage number projections have not considered the slow pace of rebuilding within the CBD whilst the outskirts were thriving. Failure to understand the situation created by the disaster has resulted in the unfavourable economic impact. There was a void for a bus exchange, and therefore not passing the economic feasibility test would not have halted the project.

8.7.2 *Impact on the community and neighborhood*

The impact on the community/ neighbourhood refers to the effects on the area surrounding the project and its inhabitants. P5 mentioned that

“The council was considering changing the location of the bus interchange from where it was previously. The previous exchange was attracting people who are intoxicated. They use it as a place to congregate, making the facility potentially unsafe for bus users.”

CCC aspired for a deliberate image change to build the facility as a place for company and time-spending. The design catered to the client's need to provide better facilities for intermingling with rotating merchandise to excite frequent users. Ongoing construction work, traffic congestion, and poor connectivity to key places in the core aggravated the negative bearing on community life.

The blueprint mentioned the location of the bus interchange would lure non-users to bring in people to visit the cinema complex and the retail precinct within proximity thereby generating positive spin-offs. One of the objectives of the project was to connect all key locations within

the city centre by foot or by cycle from the interchange. Many decisions around route selection have made some key locations inaccessible by foot.

Referring to the design, P33 declared that two factors result in congestion around the area. First was having a single access/entry to reach the bays, and second, the saw-tooth design required first unloading and then loading passengers at the bays. They detailed that the ongoing flagship and other construction work would oblige route changes and limit the efficacy of the bus interchange and its operations.

In order to understand the potential customer, a market analysis must be conducted to test ‘How the project will be used?’, ‘Who will be using it?’, ‘To go where?’, and ‘What time would people use it?’ Those statistics are readily available to Ecan, but how would the ongoing construction affect the demand was not explored.

8.7.3 *Impact on the natural environment*

Impact on the natural environment means the effect the project has on the biophysical environments, ecosystems, biodiversity, and natural resources. The building strongly associates with the Greener city concept. In 2014, the bus interchange received a 4-star Green custom design rating. According to P6, the sustainability features of the building were paramount to the architects and the consultants, and they used green star tools for a sustainable building. A green star rating is a tool that assesses a structure based on the construction materials used, quality of the indoor environment, water, energy, and land use, ecology, transport, emissions, management, and innovation. As per P6, the design triumphed across numerous sustainable design aspects. It had natural ventilation, localized spot radiant heating, wind catchers to draw air indoors, air curtains to keep toxic air out, and a centralized ground source heat pump. Another intention of the planners [P3, P4, and P18] was the reduction in private vehicle use to lower carbon dioxide emissions. Contrarily, P13 and P17 said that the interchange contributed to a harmful pedestrian environment during peak hours.

In addition, P8 emphasised that the foundation was built with flexibility for future vertical development, making it a sustainable design in terms of future growth expansion. The blueprint underlined transforming Christchurch into a green city, and the designers were committed to including green features in their work.

The Green aspects have been well thought out early in the process. The green technologies were tested in the early stages of design and engineering to de risk the project. The possibility to expand vertically is an example of a forward-looking design phasing out the project to match future demand.

8.7.4 *Impact on the political system*

Impact on the political system refers to the effects of the project on government policies and programmes. Exploring the Christchurch bus Interchange project also sheds light on the fragmentation of political and administrative oversight. The project provided valuable lessons on the topic of ‘Resource Management’ to those interested in flagship project governance. The projects have to be considered as a part of a portfolio of projects at the design stage to derive cost savings and for optimum resource management practices. A cycleway within the accessible city plan had been designed to cut across the bus interchange entry/exit. A collaborative solution was achieved as a result of the discussion, but the difference in separate governance of the two projects has proven collaboration to be challenging

Post-project completion, the disconnection between the service and the asset (the building) became apparent. The poor and less than optimum service offering made the CCC request service management to be transferred to the council with consent from the ECan. According to P1, the council expected that a single entity handling the service and the facility at the same time would lessen the negative community perception of public transportation in Christchurch. The request to take over service management was rejected due to the restrictions imposed by the Local Government Act (LGA). The act currently prevents the transfer of public transport responsibilities from ECan to the CCC. Instead, a joint public transport committee was proposed and set up. The committee included representatives from CCC, ECan, Canterbury District Health Board, The New Zealand Transport Agency (NZTA), and the Selwyn and Waimakariri District Councils. In its transport plan 2012–2042, CCC mentioned that Land Use and Transport Planning would be integrated wherever possible to allow for improved outcomes.

The Local Government Act is a barrier in enhancing the service provided to the public. The laws in place at the time in the project environment has created limited outcomes for the project. In the feasibility stage were mostly concerned with the design feasibility whilst not paying due attention to the Product feasibility.

8.7.5 *Impact on culture and heritage*

Impact on the culture and heritage may include any factors that affect the ways of living developed by a community that have been passed on by previous generations. They may include practices, customs, objects, places, and values. Ngāi Tahu representing the Māori iwi tribe of the Southern region of New Zealand (indigenous people of NZ), as a leading stakeholder, desired to incorporate a narrative centered around Ngāi Tahu migrations from the North Island and within Canterbury. P4, as an employee of the architectural company, stressed that the client was interested in interweaving cultural characteristics into the design to localise the building to suit Christchurch. P15–P17 regarded the inclusion of Ngāi Tahu narrative as a welcoming signal that the government wanted to preserve the history and the heritage of the pre-earthquake Christchurch. Ngāi Tahu elders voiced that the rebuilding of Christchurch should reflect their cultural identity preserved through the buildings for future generations. Their opinion was that what is significant to them, as the indigenous people of NZ, should form the basis of any design and construction work that was to take place. P5 mentioned that at the start of the blueprint design process, Ngāi Tahu arranged a two-day workshop with all stakeholders involved in the design process to present the Maori vision for the Christchurch rebuild. It was attended by architects, builders, government and council staff, and project managers. This collaborative approach gave Ngāi Tahu an equal footing in the rebuild and an opportunity to represent their community views for flagship projects in the CCRP. The Ngāi Tahu professionals worked alongside the designers to feed important cultural narratives to project designs.

Ngāi Tahu-influenced designs mean that project owners were keen and tried to involve Maori-inspired artwork in their designs from the concept designs onwards.
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8.7.6 *Impact on lifestyle*

Impact on lifestyle means the effects on the typical way of living by a person, a group, or a culture. According to P16, the bus interchange “... have ignored how people travel to work, what routes they mostly take, what stops give easy access to key locations.” And as a result has not created much of a beneficial change to the lifestyle of residents. P14 and P16 opined that the bus station has a bad reputation of attracting the ‘wrong type of crowd’ and therefore they would not want to be seen at the interchange often. The travellers held one common opinion that they do not use the bus interchange to socialise but only to connect from one bus to another.

P12 said a complete image change of the bus interchange is needed to make people consider the building as a ‘cool place to hang around’.

The opinion seeking from the public was limited at the concept stage even though the project team consulted the operation staff.

8.7.7 *Impact on health and well being*

Impact on health and wellbeing refers to the effects of the project on the maintenance of complete physical, mental, and emotional balance and stability. The health impact of the project was mainly related to physical and social health. The location and design of the project have become a concern for pedestrians who are concerned about their safety.

P9 and P11 shared the view that an in-depth health impact or an overall social impact assessment was restricted due to time constraints, but the project team had revised some of the areas that were flagged as concerning for the health and safety of users, following a three-option concept layout and a review.

The project once handed over, had many indirect positive health benefits. For example, the interchange in a prime location with enhanced service was expected to lower car use and, thereby, carbon dioxide emissions to help create healthy and sustainable communities.

Frequent users (P16 and P17) identified negative health impacts mainly associated with the saw-tooth design, which is commonly used in Europe as well as in other parts of New Zealand (See Fig. 47).

The designs had been tested frequently with the drivers using simulation and other technology, but the practical issues surfaced only when the building was put to use. The saw tooth design was field tested along with another few alternative designs.



Figure 47 Saw-tooth design of the CBI

8.8 Chapter Summary

The CBI interchange project is presented in this chapter. The chapter provides background information and the social impacts of the project. The researcher discusses the FEP process with a process diagram. The CBI project followed all the planning activities in the FEP process to various degrees, except the selection of procurement and site selection which had already been decided for the project. The researcher also discusses how the stakeholders were managed. There was extensive engagement with the bus drivers and other operational staff to finetune the design, but user feedback or input had not been sought. The case study reveals that the project has a fair share of limitations that are related to operations. It is understood that the service delivery in the facility is handled by multiple government agencies who come together to deliver the service.

Chapter 9 Cross-Case Analysis and General Discussion

9.1 Introduction

In Chapters 5, 6, 7, and 8, the researcher introduced the governance arrangements for projects and the three individual cases in this collective case study, respectively. The intention was to describe the context in which the limitations of the three projects occur. The researcher also wanted to find out what contributed to those outcomes. Further, the FEP for each of the projects was explored separately.

A cross-case analysis compares idiosyncrasies unique to cases to arrive at generalisable observations and connect those with extant theory, and to discuss the findings (P. Hartmann, 2014; Tsang, 2014). This comparison is based on the theoretical framework, which was presented in Chapter 4. The emergent concepts, factors, and themes are highlighted and discussed.

The aim of this discussion chapter is to discuss and delineate the variances and similarities among the cases regarding the FEP process in the light of social outcomes created by flagship projects; new areas of the FEP proposed by the exemplary flagship cases, the control assumptions of the FEP process as perceived by participants in each case; the changes to outcomes when the FEP was handled differently. The aim of reviewing multiple case studies is to compare results across cases in order to arrive at more powerful clarifications through understanding how contextual conditions shape outcomes.

The path of analysis that the researcher followed involved a gradual shift from within to across cases. A series of analytic comparisons were made:

- within the same stakeholder category interviews
- within the same stakeholder category across the three projects.

To identify general themes related to social outcomes created by the projects, the FEP process, and how those affect project outcomes, the researcher used data management and analysis techniques that emphasised commonalities across individual interviews through data coding and sorting. The sequence of data analysis strategies is presented in Table 22.

Table 23 With-in and Cross-case analytic strategies to understand the FEP of flagship project case studies

Comparison	Purpose	Strategy	Product
Within individual stakeholders of the same category	Identify the process followed for the FEP of the project/s in which the stakeholder was involved and identify how it affects project outcomes	Revisit individual interviews, researcher notes, and paper article interviews given by the interviewer	Coding categories and thematic analysis to create recurring themes
	Investigate social outcomes of flagship projects	Revisit individual interviews, researcher notes, paper article interviews given by the interviewer, and site visits by the researcher	Same as above
Across individual stakeholders within the same stakeholder category and within the same project	Identify any variations of themes	Data coding and, where necessary, contact individual interviewees for clarification and confirmation	Sub-themes
Within different stakeholder categories of the same project	Identify emerging themes within stakeholder categories	Revisit individual interviews, researcher notes, and paper article interviews given by the interviewer	Additional themes due to varied content based on within stakeholder categories
Across the three projects	Compare the FEP process across the three projects and the effects on the flagship project outcomes	Relational summaries	Refined FEP focus areas, exemplar case studies
	Compare the social impacts across the three projects and the causes for the same.	Relational summaries	Add to the knowledge base -social impacts of flagship projects and the causes Exemplar case studies

Here onwards, this chapter is divided into two main sections addressing Objectives 2,3, and 4 out of the five objectives mentioned in Chapter 1. The sections are as follows.

Objective 2: Identify how governance of projects affects the FEP process

Objective 3 : Impacts of the Front End Planning on the flagship project outcomes

- Early planning in the FEP process
- Stakeholder Management in the FEP process

Objective 4: Social outcomes of flagship projects in a post-disaster context.

Objective 5, to formulate a set of best-practice planning guidelines for future planning of flagship projects, will be presented separately in Chapter 10. Where possible and suitable, they are triangulated with findings from comparable studies to boost validity (R. Yin, 2003).

Throughout this chapter, the most illustrative participant quotes are used to reinforce the points being raised.

9.2 Cross-case analysis: Governance of projects at the portfolio level

The early interviews revealed that governance of projects at a higher level had the initial impact on the FEP of projects; hence was included in Chapter 5 before the discussion of the findings of the individual case studies. Governance of projects at the portfolio level affected all of the projects as each was bound by the laws and acts passed in the parliament to help reconstruction decisions taken at the agency or ministerial level. The reason for restricting it to one chapter without including a section under each case study was that portfolio-level governance overarches early project planning. This is in line with the findings of the pilot study where governance was mentioned before planning and said to be impacting planning decisions.

In summary, governance of projects lengthened the FEP process of flagship projects because of a loose approach to projects. Unjustified project selections, lack of detail in the projects at the blueprint level, lack of commercial know-how for urban planning, political pressure, and hasty timeframes in completing the blueprint plan had harmful effects on the FEP of projects.

For CJESP, it meant that the project team had to engage in extensive stakeholder input-seeking sessions to refine the brief given by the client as it lacked detail to help the design process.

Similarly, the Christchurch Bus Interchange experienced negative effects due to the governance of projects. The blueprint design done in 2012 had become obsolete in certain aspects and needed changes. The changes were adding pressure to the estimated cost and timeframes.

For Tūranga, uncertainty over the project sponsor and the level of cost-sharing meant that the project experienced delays until the client secured funding [Chapter 7.1].

The blueprint plan being too ambitious and too optimistic filtered down to individual projects that, from inception onwards, the project teams were always pressured to keep the timeframes tight.

Laws were changed in favour of land acquisition for flagship projects but proved to be a lengthy process for some flagship projects. The land was immediately available for the CJESP when the project team was ready to start construction. For the Bus Interchange and the library, land acquisitions had proved challenging.

The decision to delay private investment till the flagship projects had taken root in the CBD had a detrimental effect on the numbers that visited or used the flagships once built. This was particularly relevant to Tūranga, which had strategic ties to the Convention Centre that opened in 2022 and was hopeful of getting a share of footfall from the crowds that visit the convention centre. As the convention centre had been delayed for years, spillover benefits could not be achieved.

The projects designed as concept designs at the portfolio level were assigned to chosen designers once project planning started. The designers of the three projects opined that the initial blueprint team should have continued longer and that there should have been a more gradual transition of design work to the respective designers for each project. They voiced that such an approach would have removed the design ambiguity at the project level.

The projects that were Crown-led had quicker starts, e.g., CJESP and the Christchurch Bus Interchange. The Crown has financial means to support big builds, whereas the projects that had to secure alternative sources of funding were delayed, e.g., Tūranga.

The projects that were Council-led were better oriented to the needs of their residents than the projects that had taken a strict top-down approach.

The laws allowed demolitions of buildings to pave the way for flagships, land acquisition to secure the land needed for construction, power to override most laws concerned with construction, and faster resource consents for quick decision-making and planning. The benefits of acts and law changes could not be fully realised due to the shortcomings in the portfolio-level governance of projects.

9.3 Cross-case analysis: Early Planning in the FEP of flagships

The three projects followed different levels of FEP. The study confirmed that no two FEPs could be exactly alike because the construction industry is dominated by one-off projects and disasters create unique circumstances. The projects that followed most of the proposed steps had the most favourable project outcomes. The researcher initially had an objective to compare and contrast the findings across Australia and NZ, but the factors that cause poor project outcomes in the two countries show that different disaster events produce different disaster scenarios that need to be addressed differently. The section will cover the most prominent areas worthy of a comparative study across the four areas of the FEP process.

9.3.1 *Pre-feasibility stage*

The pre-feasibility stage, as a new introduction to the CII FEP process, involves conducting a situational analysis, identifying a need, and putting together an initial business case. The analysis of individual cases showcased that those project teams that selected and aligned the project teams at inception had more productive project outcomes. It is recommended that stakeholder identification starts in the pre-feasibility stage of the FEP.

The main study revealed that the pre-feasibility stage was very much relevant to the Christchurch case study. However, the components or the tasks within the model needed changes according to the Christchurch context. The research revealed yet again that a model or a process followed by one country/location or place in post-disaster reconstruction could not be applied to another without modifications. Those modifications would primarily be driven by the disaster context, urbanness/ruralness of a place, its population dynamics, and the extent of damage [More losses to lives and personal property mean longer time to recover emotionally], as proven by the pilot study and the main research study. The main study revealed that due to the sheer size of the building stock in the urban city, a stocktake of what was left/destroyed and what was needed had to be incorporated into the other factors that were found through the pilot study.

Situation Analysis

According to the Cambridge Dictionary, situation analysis examines political, economic, and social data that can affect a project's audience (Cambridge Business English Dictionary, 2022). It is vital to understand those factors to shape the project into something that fulfills a societal need. The Christchurch case studies were subjected to time pressure, fewer resources [human and material], plenty of chaos [land acquisitions, cost-sharing agreements], and changes

[alteration of 2012 plans to suit the time]. These contexts have a powerful influence on how the flagship projects are shaped at the front-end phase specially at a time that called for quick decision-making. Specific characteristics of post-disaster environments are particularly influential in front-end decisions and include the overall complexity and dynamics of the post-disaster setting; the extent of infrastructure damage, and the political urge to show tangible rebuilding artefacts. The three case studies revealed external and internal factors related to the planning at the front-end that called for unrealistic completion dates and surface-level planning. Those factors continually put pressure on the project teams, stimulated constant change, and modified the plans in place.

As discussed in Chapter 5, each flagship project was designed and placed in the blueprint with a so-called strategic vision. The vision was to create a compact city centre that would eliminate the shortcomings of the previous city centre. The planners were in unison to agree that time pressure was overwhelming and did not leave room for understanding the post-disaster environment.

For all three flagships, assessing the post-disaster environment did not happen. P1 and P21 mentioned that understanding the environments affecting construction projects was missed at two points for most blueprint projects. The first was at the onset of locking in major projects for the blueprint, and the second was before the project reached the stage-gate approval to proceed to construction.

The following participant quote captures what many participants described happened in the front-end planning of the projects:

“A lot of expertise and advice are given but because it's a compressed period of time, you don't have a thorough chance of analysing and reviewing. To develop the blueprint a little bit further in your thinking, and then engaging with a wider group of stakeholders would have made a big difference. We did not have time to absorb the implications and had to do it and move on as it transpired. That's the one area of the blueprint that has been compromised, and it won't actually be as we envisaged. I think that the design team had been allowed to carry on working could have found a better Urban Design outcome that might have taken into account the current landowners and what their needs and wishes were and still got fundamentally what we were trying to achieve, which was a sort of green frame that helps compress the city.”

The different environment constraints faced by the planning officials of flagship projects is illustrated below in Figure 48 and explored in depth in Table 23. While subtle case variations

existed, the four broad areas of influence were evident for all three flagship projects: political, economic, organisational, and external environmental factors.

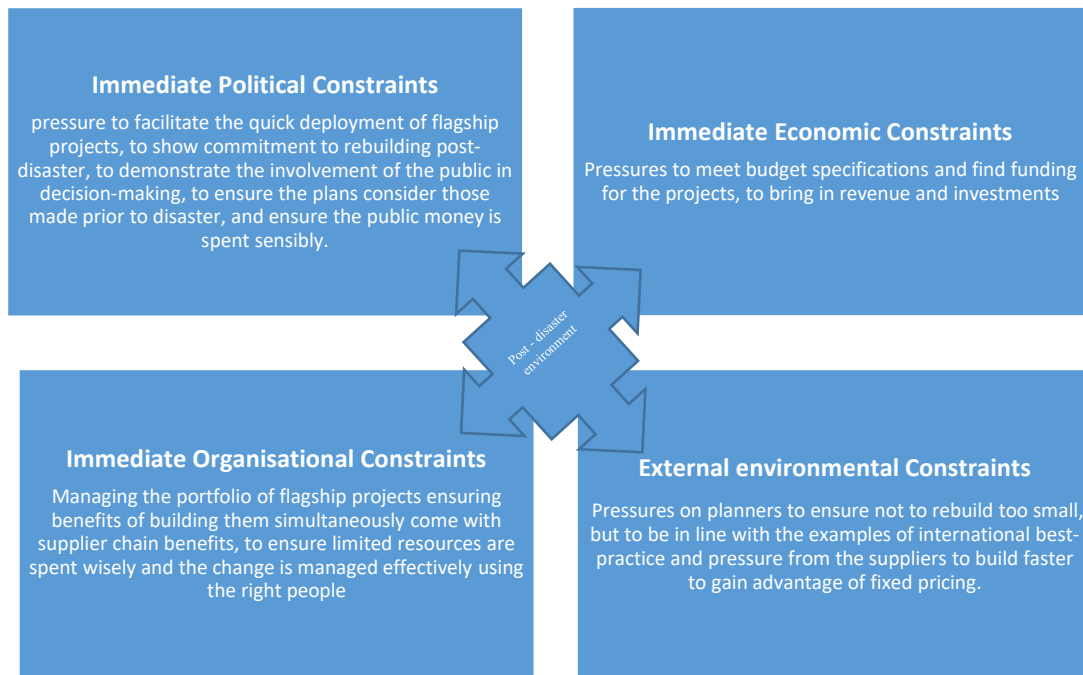


Figure 48 Internal and external constraints influencing CJESP, CBI, and CCCL projects

Table 24 Post-disaster environment and the effect on FEP and social impacts

Post-Disaster Environment Constraints	Characteristics	Tools used in the FEP	How do the tools affect FEP?	How do those factors create social impacts?
Immediate Political Constraints	Pressure to facilitate quick deployment of flagships	CER Act -giving power to CERA to demolish buildings and acquire land for the projects	Early site selection, land remediation, and preparation	Smooth transition from investment approval to the start of construction work creating positive economic impacts Repair work that creates negative economic impacts due to hasty rebuilding
	To show commitment to rebuilding through quick builds-flagships	CCDU - to take the sole responsibility for the 17 flagships included in the CCRP	<p>Concept design</p> <p>Determining the cost-sharing responsibilities of the Crown and the Council</p> <p>Identifying links between the projects for operational benefits and resource share</p> <p>Stakeholder management by being the facilitator between the council and the crown</p>	<p>Vague designs meant an increase in time spent in gathering stakeholder input resulting in scope creep and budget increase leading to negative economic impacts</p> <p>Where the cost was the responsibility of the crown, of the projects, the start-up was quicker once the plan was in place e.g: CJESP and the CBI, but where the two parties had to negotiate, or the council bore the sole financial responsibility, the projects were slow to be initiated e.g: Tūranga as the council had trouble funding the large scale project concept designed by the CCDU initially</p> <p>The slow pace of some of the projects delayed the benefits that were to be derived from nearby key projects. E.g: the library and the Convention Centre</p> <p>For most of the projects except the library, the input of the council has been limited, creating a negative impact on the community to end up with unwanted, grand-scale flagships Preventing private investments until flagship projects are up and running delayed the growth that could have resulted through</p>

Post-Disaster Environment Constraints	Characteristics	Tools used in the FEP	How do the tools affect FEP?	How do those factors create social impacts?
			Promotion of flagship projects was limited due to lack of commercial know how and due to the plan to flagship projects leading with the others following the course	private investments, creating a negative community impact
	To demonstrate the centrality of public input into rebuilding through flagships	“Share an Idea” campaign	Resulted in designing a vague set of concept/draft designs without vital details	Unwanted projects that are costly to run and too grand for Christchurch that created a negative impact on the community
	To ensure the plans made prior to the disaster were incorporated	The blueprint plan - echoed the project ideas that were in the CCC draft plan		Resulted in a crown-led rebuild initiative using flagships that have a negative impact on the economy and the neighbourhood
	Public money needs to be spent effectively	‘Share an Idea’ and community advisory groups - to promote a people-centric rebuilding initiative	Only lasted the initial six months, public input was obtained by the library alone	Unwanted flagships that are costly to run and too grand for Christchurch
Immediate Economic Constraints	Pressure to meet budget specifications and find funding sources	Detailed business cases needed before funding can be secured	<p>Viable business cases for projects were needed to get the final approval for investment, find the builder etc. The lack of detail in the concept designs meant more time spent on adding the details to the final business case</p> <p>Cost sharing negotiations took time, and the council had to look for alternative funding sources before the project could start</p>	<p>Scope creep and increase in the budget were resulted</p> <p>Delays meant interruptions to the timeframe that was in place creating negative impact on the economy and the neighbourhood</p>
Immediate Organisational Constraints	Managing the portfolio of flagship projects ensuring benefits of building them simultaneously come with supplier chain benefits, to ensure limited resources are spent wisely	The blueprint plan - stressed the significance of simultaneous construction of flagships, but due to the complexities of	<p>Supplier chain benefits were missed and projects advanced as individual projects rather than a part of a portfolio.</p> <p>Initially there were concerns about the absence of adequate programme management around the CCRP projects.</p>	Negative impact on the economy of having to run costly buildings that are not used to the optimum capacities

Post-Disaster Environment Constraints	Characteristics	Tools used in the FEP	How do the tools affect FEP?	How do those factors create social impacts?
	the change is managed effectively using the right people	<p>individual business cases for each project and cost-sharing arrangements, this could not be achieved</p> <p>People with local knowledge and possibly with experience of the disaster</p>	<p>A programme business case was still pending in late 2015. The programme business case lacked clarity around the arrangements in place for programme governance and the feasibility of delivering the programme within the specified timelines. In the early days leading up to 2014, the projects were individually managed rather than being managed as a portfolio of projects with interdependencies. As a result, the programme failed to manage the resource shortages that were inherent following a large-scale disaster.</p> <p>Lacked commercial expertise in investment management.</p> <p>Duplication of work meant confusion among stakeholders with blurred reporting lines that created information loss</p> <p>A top-down management style that made rebuilding a government-owned initiative</p>	Stakeholder mistrust and confusion create unacceptance of those projects post-completion
External Environmental Constraints	Pressure on planners to ensure not to rebuild too small, but to be in line with the examples of international best-practice and pressure from the suppliers to build faster to gain the advantage of fixed pricing.	Large scale, innovative flagships - that cater to more than the actual need that exists	Not revealing the magnitude of risk factors, being fixated on one concept and not considering the alternatives design approaches, not localising the design to suit the local context	Projects that are too costly to run and unwanted by the public

Immediate political constraints

Before the construction of the flagships began, the governance and legislative arrangements were altered to facilitate the quick turnaround times for those projects. The researcher's journal publication [Appendix 3] provides an overview of the legislative and governance arrangements that were put in place after the earthquakes in 2011. Flagships were expected to be the cornerstones of city rebuilding that would bring more private investors. The leading legislative change that affected the three projects was the Canterbury Earthquake Recovery Act (CER Act) to facilitate rebuilding following the 2011 earthquake. The CER Act gave CERA the power to change or revoke statutory plans, demolish buildings to make space for the blueprint plan, and acquire land to make way for flagship developments. The legislation ensured that all three projects had their locations selected, cleared, and ready for construction work when the business cases were approved. None of the projects experienced waiting times to start construction as the legislation facilitated quick resource consent processes and land acquisition work. Demolishing buildings has been somewhat haphazard as some of the buildings could have been saved if not had they fallen within the blueprint planning zone. P5 added that legislative loopholes meant that Christchurch had to undergo a prolonged recovery phase. The reconstruction could not begin because there was uncertainty as to who should bear the costs and the ownership of the projects. Both CBI and Tūranga had smooth and continuous construction work up to completion, but both projects had delayed starts despite having designated land. There had been much debate on the cost-sharing agreement between the CCC and the Crown. In general, legislative changes facilitated quick rebuilding for all three projects. The delays with the actual construction were due to the delays in detailed business cases to determine funding.

The atmosphere brought in by the legislative changes has been favorable to the quick deployment of the three flagships. Disintegration with other linked components has limited the achievement of the Crown's objective of flagships leading the way for private investments in the CBD. In a bid to give prominence to flagships, the NZ government restricted private investments within the city core; therefore, the positive spillover benefits for the three projects have been constrained. As per Figure 49 below, both CCCL and Tūranga have many empty blocks of land surrounding them. Most visitors to Tūranga have to make a deliberate trip to the library, which is contradictory to the vision of the planners – to get people to spend their money in surrounding establishments and retail.

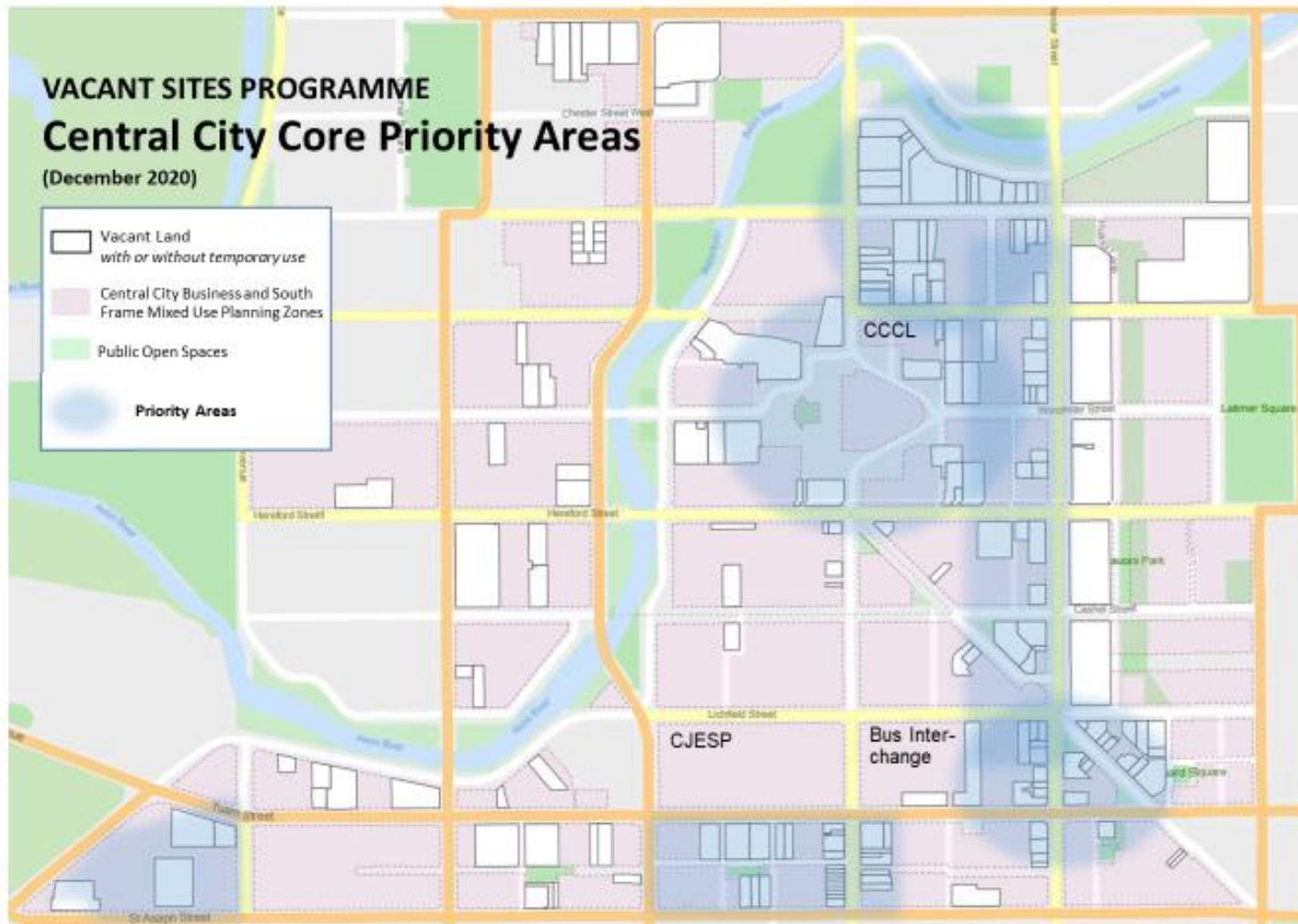


Figure 49 Vacant land in the Central Christchurch Area (Dec 2020)

Source: CCC (2022)

As a remedy to the ongoing lack of investments in the city core, the council has imposed a high rate of tax on the vacant lands in 2022.

Immediate economic constraints

For the projects not fully funded by the government, it took time to arrange the required budget. The CJESP, which was funded by the Crown got into a quick start due to the readily available funding.

The project owners did not select the lowest cost bidder for any of the projects, but there had been lengthy negotiations for the large government projects to keep the costs under control. For all three projects, the overall project budget was set at the time of the blueprint finalisation [in 2012]. The FEP for all three projects started at least a year later. With the price escalation of materials driven by the increased demand post-disaster, the fixed price lump-sum project budgets were detrimental to the contractors. All three projects exceeded the budgets set for each one in the blueprint. The CBI was the only project out of the three that was able to keep to the budget specified at the end of the detailed scope phase.

The main reason for economic constraints was the large overall spending of tax-payer money on the blueprint projects. The cost of projects at the blueprint stage was not based on detailed business cases and was indicative. Once the project team produces a detailed business case expanding the concept idea, the result would be an escalated budget. Those factors led to earlier cost-sharing agreements becoming obsolete and the project teams having to look for alternative funding for non-Crown funded projects.

Immediate organisational constraints

The blueprint team understood the importance of starting and completing projects closer in time to gain the full benefits of managing a portfolio of flagships with interrelationships. Supplier chain benefits, increased footfall, and end-user spending benefits were recognised as advantages of managing all projects at the same time. Due to the complexities of individual business cases for each project and cost-sharing arrangements, this could not be achieved.

The lack of a commercial or business-driven approach by the planning officials has been pinpointed to cause organisation-related constraints that affected flagships. Early recruitment for flagship project planning units mainly depended upon having had a career in a government agency for a lengthy period. Those people solely focused on the building of flagships and not the operations that would follow upon completion. Expanding headcount at the planning unit

meant duplication of work creating confusion among stakeholders with blurred reporting lines that created information loss. A top-down management style followed by the planners made rebuilding a government-owned initiative rather than the made-to-believe public-led process. Those factors collectively negatively impacted the economy by having to run costly buildings that do not have sufficient user numbers.

The respondents suggested careful selection of people with urban investment expertise and periodic assessment of the management of interdependencies could have limited the negative impacts at the blueprint stage.

During individual projects, a strong systematic and agreed-upon manner of reporting and communication were seen as the most important factor in limiting the organisational constraints that could affect projects. The troubles with the CJESP were mainly highlighted by the way the contractor managed the relationships within the project. The strengths of the other two projects lie in the way the relationships were managed from the start of its front end.

External environmental constraints

All three projects and commonly all flagship projects in Christchurch post-disaster were designed as ‘large-scale’ projects. The planning officials mentioned there was continuous pressure on planners to ensure not to rebuild too small but to be in line with the examples of international best-practice. Large-scale and innovative flagships catered to more than the actual need that existed. The three projects had elements within them that were driven by international competitive pressures.

- Incorporating *international library design expertise* and erecting *NZ’s biggest touch wall*, for the Tūranga project,
- forward-looking one-stop precinct for all Justice-related services, *the first of its kind in Australasia* in the CJESP project
- a saw-tooth design that can accommodate *double-decker buses* which are yet unavailable in Christchurch for the CBI project

Apart from the pressures stemming from the client’s side, there was also pressure from the suppliers to build faster to gain the advantage of fixed pricing. CJESP suffered the most out of the three projects, as complex design elements were changed to derive cost advantages after contract novation. Such action changed material specifications, time schedules, and the scope of work that were decided in the detailed scope phase. For the CBI and the library projects,

the designs were tested before the price was locked in. The approach ensured the project was deliverable at the price agreed at design finalisation.

Need identification

Need identification describes how the need for a project is identified. It can either be a solution to an existing need or encourage a need that the public never knew existed, to provide a solution. Findings from this study indicated that the type of projects that were chosen for rebuilding belonged to three categories

- 1) To replace what was lost due to the disaster event- applies to apples
- 2) To build what had been planned for Christchurch through the council's urban planning initiatives/crown proposed facilities [CCC draft plan 2010/2011]
- 3) A handful of projects to link the above two

The findings of this study also revealed that pre-determined projects eliminate the need for the public as the plans are more solid and the project characteristics are determined. P1 and P21 spoke of the 'reverse planning process'. P1 added

It should have been, "let's go and work out what's going to create the most economic value and work back from there? But we've done the overall design already and tried justifying afterward. It is always SCM and SEF – It's someone else's money. It's someone else's fault

P22 held the opinion that the whole blueprint exercise should have kicked off with a stocktake of public assets to understand what was remaining, followed by what was required. Both P21 and P22 believed that public opinion did not matter on project ideas that were already on the agenda. For example, no public input was sought in designing the CJESP as the design complexities were believed to be beyond what a layperson could grasp. The public was secondary compared to the tenants of the building, who required assurance of the realities of coexistence.

Tūranga had the most extensive and the lengthiest process to identify the needs of all different public library users. P23 added that in the execution of extensive opinion-seeking exercises, the staff needs were overlooked.

A decision was made to maximize public space and minimize staff space. Each floor has got a very small area, which we call a lift lobby. And that's where the staff who are working on that floor are able to protect themselves from the public, and leave a water bottle or just go somewhere and have a bit of a

breather. It is continuing to be a challenge how do you actually look after your staff to help them recharge the batteries when that sort of purposeful decision was made to try and minimize the space for those functions?

For the CBI, the efforts to cover all stakeholder groups have been noted.

A holistic need identification has been missed in both the CBI and the CJESP projects. The lawyers based in the CJESP expressed that most of them felt excluded from the process. When their opinion was sought, it was restricted to a minimal number and did not reflect the views of the majority. One of the lawyers, P34 added,

“It is a beautiful working environment but not very functional. The judges felt anxious about the move, especially audio-visual technology. Most of all, they were worried about the government’s decision to put the police right alongside the courts. They had issues with the police staff and the justice staff communicating in the same lunchroom. Judges felt that they, as the decision-makers, need to be separate from the prosecution”.

9.3.2 **Feasibility Stage**

The findings of this study revealed that a comprehensive feasibility stage could significantly influence a more solid project plan in the detailed stage. For example, the CJESP project that had not engaged in an effective feasibility test faced many problems, such as scope creep, budget expansion, and design complexities due to changes to architect drawings. Tūranga benefitted the most from a complete feasibility study that gave the project advantages of on-time and within-budget completion, cost-saving resulting from design, and functional efficiencies.

Technical feasibility check seem to be the most crucial given the complex nature of the flagship projects. All three projects spent the most time attuning designs with the requirements of the earthquake-resistant features and the newest technology for functional efficiencies.

The three public projects that are built seem to have shown weaker financial feasibility but have been justified on the grounds of equity and welfare. The downside is that once the projects once are completed, the asset owner experiences high running costs to maintain projects.

CBI and Tūranga were completed on schedule within the timeframes mentioned at the end of the detailed scope phase owing to an effective feasibility check. P7 said, in addition, they addressed the issues prior to moving forward to the next phase, such as sourcing materials from overseas early on to avoid delays.

The three projects supply evidence that site analysis should ideally be performed at the feasibility stage to allow for issues to be identified early on and allow better risk and schedule management. Checking the technical feasibility of incorporating earthquake-resistant features was dependent on an investigation of the site and was proven beneficial to have done earlier in the process.

9.3.3 *Concept stage*

The case studies highlighted the two projects with definitive concept phases, had given the opportunity to the client to choose the best design to achieve the project goal. For example, both the bus Interchange and Tūranga considered alternative design concepts and their feasibilities before locking in the desired design. The client traveled on a journey of getting to know their options within the specified budgets and brief requirements. For Justice Precinct, the client took the designs proposed by the design team as the brief did not set clear expectations, and therefore the scope could not be contained. For Tūranga, the preliminary scope that was decided at this stage was later expanded by the public input-seeking sessions. At this stage, all three projects had identified their stakeholders, and the early engagement was followed as recommended by the Recovery Agency to ensure project buy-in.

9.3.4 *Detailed Scope Stage*

The majority of time in the FEP was spent in the Detailed Scope phase for all three projects, as the phase concludes with a detailed business case that needs to be approved before actual construction can begin. In the cross-case analysis, the detailed scope, budget and schedule determination, identification and management of risks, and procurement methods will be covered.

Detailed scope

The three case studies provided evidence that the projects that have thorough feasibility analysis produce a more detailed scope that is reliable, as evidenced by Tūranga. The deliverables, deadlines, and milestones could not be documented with certainty for CJESP as the project failed in many aspects of the feasibility study.

Budget and schedule determination

Tūranga and the CBI decided on the price after many considerations of alternative designs, testing the budgets, and working closely with international design experts who were able to provide international best-practice to decide on the approach to pricing. The price included a lump-sum for contingencies and price escalation. For CJESP, the contractor put down an

unrealistic price to win over the client. The designs were later changed to gain an advantage over the fixed price contract, only to result in design complexities.

The project teams arrived at the schedule by looking at the scope of work. For Tūranga and the CBI, it made sense to consult the scope as it has been developed with detail at the detailed scope stage, but for the CJESP, the schedule was constantly getting pushed back as a result of widening scope.

Preliminary design and engineering

Both CBI and Tūranga took years to arrive at designs with detail. Both project teams were testing the budgets, doing field tests, and checking alternative designs to propose cost savings for the client and to help produce the best design that suits the client's need. For CJESP, the design team had already added the details when the contractor joined them under an ECI contract. However, when they joined, the bidding documents were prepared based on concept designs that contained little detail. P21 mentioned that lack of detail in the design at the bidding stage could be one of the reasons for price escalation in later stages.

Procurement method

The similarities and differences in determining a procurement method in the FEP process of flagships are noted using the within-case analysis, interviews, and documentation data.

Determining procurement method describes the process and the criteria used to determine the most suitable procurement method for public flagship projects post-disaster. Findings demonstrate that the government planners wanted to try new procurement methods for three reasons as the projects moved to early planning. The supply-side limitations starting mid-late 2015 following the disaster, shortage of trades-related skills, and the need to rebuild faster compelled to look for new procurement to replace the traditional Design-Bid-Construct method adopted by the NZ government. P3 mentioned that

What was happening with Christchurch rebuild is that the crown were trying all sorts of new and innovative ways of trying to procure buildings both with consultants and with contractors and they were concerned... we believe they were concerned about the market capacity and how long it would take to actually procure projects and get them built. So they were trying to speed things up and do things in a new and different way.

Findings also reveal that the procurement methods were influenced by the trust and past working experience between the builder, the designers, and the client. The selection of the procurement method at the front end has a significant impact on the immediate outcomes of the project. Paying attention to the nature of the projects is central to the success in procurement selection and final positive project outcomes. These findings are discussed in two subcategories- Considering alternatives and determining the builder's point of entry into the project.

CCDU encouraged project-by-project evaluation of alternative procurement methods based on design adequacy, speed-to-market requirements in terms of the programme, budget constraints, government requirements regarding the spending of public money, and other stakeholders' perception of risk. In practice, some of those factors were overlooked.

All three projects had been D&B projects, where the designs were novated from the architects to the builders at various stages of design. The designers who originally designed the projects were contracted by the builders of the projects post-novation. On all three occasions, the D&B firm was chosen based on the track record, experience and skills, and capabilities of the team. The contracts were bound by a Guaranteed Maximum Price (GMP), where any savings made would be split between the builder and the owner. As a result, the CJESP contractor wanted to make the project as cost-effective as possible. They lacked the skill sets and an understanding of the pre-construction planning and value engineering at the FEP phase.

Long-lead times were identified early for steel and were ordered early. One of the benefits of not having change orders under D&B was absent for CJESP, as the builder made some design changes to cut costs.

P19 described the ECI contractor involvement for the CJESP in the following manner.

"If the process is managed properly, there are advantages to working closely with the contractor. But what was happening is that it was very easy for that not to happen. If you're going to be asked to work with a contractor before, you want the contractors' input into what you're designing and documenting. Justice project, for instance, while they were negotiating with a contractor, we were still being asked to carry on documenting, so we weren't getting the inputs from the contractor". -P19

Risk Management

The respondents, specifically the consultants of all three projects, voiced that, in general, all flagship projects are subjected to severe under-management of risks throughout the project life

cycle. Poor risk assessment and risk allocation concerning the builders in the front end led to higher materialised risks. P8 said that they have experienced that the risks are not often allocated to the best ‘risk owners’ in NZ

All three projects provided sufficient insights to arrive at the conclusion that it is unlikely for large public projects to document all the risks. P10 mentioned that they discussed risks informally but they were certainly cautious in documenting the risks as it could lead to the business case being rejected or the project getting cancelled. Both project teams for Tūranga and the CBI had discussed designer-related risks at feasibility phases but were careful to present the risks as weaknesses. They provide a risk management plan where some of the ‘weaknesses’ were addressed and alternative solutions adopted. For CJESP, the risk management within the FEP proved to be a failure where they failed to manage the ECI contract, fixed term lump sum contract, unanticipated staff turnover, completion times agreed with the client, on-time delivery of resources by subcontractors, and the cost of the project. Closely linked to risk management is putting project controls in place. For Tūranga and the CBI, the project team decided on the control measures, their nature, and the frequency at the detailed scope stage, but for the CJESP, the contractor, after the novation of the project, faced many designs and organisational challenges that there was no room to adopt control measures.

Business case

An in-depth detailed business case early on is essential for cost certainty. Having a few designs that address the brief and the objectives of the owners with the strengths and weaknesses of each one of them have enabled more stable and informed investment decisions.

CCDU did not have a business case approved for the CCRP up until the Programme Support Office was established at the start of 2015. Until then, the business case did not set out details on the governance structure, resource planning, or project responsibilities of CCDU and CERA regarding flagship projects. The programme business case lacked clarity around the arrangements in place for programme governance and the feasibility of delivering the programme within the specified timelines. In the early days leading up to 2014, the projects were individually managed rather than being managed as a portfolio of projects with interdependencies. As a result, the programme failed to manage the resource shortages that were inherent following a large-scale disaster.

All three case studies exemplified that projects started off with weak business cases at the front end of the projects, but CBI and the library quickly managed to add depth and detail.

For Tūranga, a five-case, single-stage Better Business Case was prepared by a private firm.

The business case aimed to

- Express the strategic context of the CCC and how the proposed investment made sense within that strategic context
- Make a case for the need to invest and the need for change
- List the range of potential options
- List the selected options
- Convey the preferred option which suits the CCC’s investment objectives
- Make the procurement proposal
- Make arrangements for the funding and management for the successful delivery of the library
- Educate the government planners that CCC plans to put forward an RFP for the implementation and the construction of the facility

The proposal laid out the strategic case, the case for change, the economic case, the commercial case, the financial case, and the management case.

The Business Case listed four objectives as follows [Table 24]

Table 25 Business case objective overview for Christchurch Central City Library

Objectives	Achieved through
Establish a strong sense of community and place	Caters to all layers of society and the members of a family.
Promote the knowledge economy	A modern facility offering more than just books having areas to socialise and interact e.g.cafes, lounges, meeting spaces
Enhance Culture and heritage	Ngāi Tahu Narrative
Act as a catalyst for the regeneration of Christchurch	Promotion of the facility as a community space fit for all layers of society from early on in the FEP

Source: CCRP (20212) and Author’s own analysis

For the CJESP and the CBI too, the project teams followed the model of the Better Business Cases™ (BBC), the project being a high-risk, high investment project that requires state

funding exceeding 15 Million, criteria for adopting BBC. P1 said there was no basis for the CJESP business case.

“For justice in emergencies... Well, actually the business case is the fact that all these people need accommodation again, we're just going to get this thing built,”-P2

To get the project moving forward, a participant in the government planning sector mentioned that they always had to work to tight political deadlines that restricted looking at alternative cost-efficient designs.

“We first came up with the plan. Then we tried justifying the plan with the business case. The whole reason why we do a business case is to make the minister happy. We have to try and find a way of making it work and the other things will happen too, you know... So that's the thing you see because everybody is running by these political deadlines. They just build it not really thinking about the operating cost “ -P4

Arguments established from analysing the data on activities included in FEP processes exposed several issues

1. For all three projects used as case studies for this study, demonstrated that project teams undertook FEP to varying degrees.
2. The type of activities and the depth within the FEP differed across projects depending on the client of the project.
3. Client agencies did not perform/publicise detailed risk assessments during FEP stage.
4. There was no funds allocated exclusively to undertake regular FEP planning activities within agencies.
5. There was not a special team or task force appointed to take care of the planning process.
6. The expertise of the planning personnel was not well thought-out, partly because a government entity was supposed to make use of the available resources at hand.

9.4 Cross -case analysis: Stakeholder Management at the FEP of Flagships

The factors show that spending time to carefully select the most suitable people for each job/task, and deciding on the nature of communication with them at the onset would create more favourable project outcomes in immediate post-completion. For the research study, the stakeholders include the internal and the primary meaning

- Internal-Employees and owners and those who participate in the management of the FEP of the project
- Primary external-Suppliers, consultants, local communities, and customers

Generally, stakeholders include all parties that have an interest in the project and could be affected by how the project turns out to be.

Under Stakeholder Management, the data suggested an approach that covers the whole of the project life cycle, which involves, Stakeholder identification, role definition, interaction, and communication management.

Project team selection as the starting point of Stakeholder Management process describes the factors that collectively enable government planners to put together the most suitable people for the planning teams so that the front-end of a project supports favourable project outcomes. The cases provided evidence that this happened at project inception.

Project team selection applied from the moment team members were selected for the 'Blueprint 100' and then for each individual project. Findings indicate that project team selection at the portfolio level and also at the project level can significantly influence the effects of the front-end phase on the final project outcome.

The individual project team selection was done more systematically but at times was shown to have favoured to get the suppliers that the client had worked with before. The process involved merit-based selection through a bidding process using a weighted attributes approach for all three projects. All project members for all three projects agreed that they had the correct selection of suppliers, designers, and consultants on board when asked if they would change the composition of the project team.

All three projects identified stakeholders early in the project. The rebuilding program for Christchurch highlighted the importance of taking a journey with the public. CERA

communicated that the public was the centre point of all project related decisions. Success in identifying all related stakeholders was affected when Stakeholder Inclusion became a concern.

9.4.1 Stakeholder inclusion and interaction

Data used in the study revealed that the three projects had varying degrees of inclusion. In this section the inclusion of the builder, the architects, the public, the users, and the CCC will be discussed for all three projects.

The architects had control over the project in all three designs at the start. After the point of novation for a Design-Build contract for CBI and Tūranga the architect locked its designs where the builder had to construct according to the architects' specifications. For CJESP, under ECI terms, the builder tried to change designs after the point of novation where the architects' input and opinion were restricted. The latter created design complexities. A journey that includes the primary architect was recommended by P5, P6, P7, and P8 to avoid problems in the detailed planning and construction stages.

The contractors for all three projects were given the liberty to work closely with the architects in the feasibility, concept, and detailed scope phases. However, for the CJESP, the builders' input was quite limited as per the pre-services agreement they were bound by. For the CBI and Tūranga, the contractor input at the FEP gave the advantage of cost saving, ensured buildability, and better risk management.

The inclusion of the public at the concept stage was evident for all three projects. The projects that continued including the public in the decision-making have fared well with project acceptance. E.g., Tūranga. P19 pointed out that some design complexities in a project like the CJESP make public opinion quite insignificant as the public lacks the skills to provide input. For the CBI, the discontentment with the bus interchange project could have been avoided if the project team had included the public in its decisions about bus stops and timing of the buses.

The users have had continuous input into the designs of all three projects but had varying levels of representation for each of the projects. For CBI, the involvement of bus drivers in field testing helped finetune the design, which continued until project handover. The facility management commented that they are favourable of the design because it has been tested many times and they could see how the design features suit a mid-city transport hub. The representation of users in the CJESP has been criticised by P24 and P34 as being 'limited to a privileged few' where most of the judges were afraid of the changes that were to come with the new building. P19 added that for the CJESP, MoJ did most of the liaising with the seven

government departments that would occupy the building but brought the architects into conversations and discussions to facilitate the design process.

Tūranga engaged with the users from its idea-seeking campaign to revealing the designs, which showed how much of a contribution the users had made to the designs. The three cases highlight that user acceptance is generally higher where they have been in the journey of a construction project from its FEP to the construction.

The CCC had a secondary role in the projects that were Crown-led and Crown-funded. It was not included in decision-making but was at the receiving end of all the decisions. The running costs and management issues have been caused due to the passive role the CCC was compelled to play. P19 added that an Australian Planner advised him that the best way to go about public projects post-disaster is to set up an entity where both the Crown and the CCC would have an equal voice, accountability, responsibility, and expenditure authorities. The process proved to be a top-down approach in all Crown-led projects where at times, it became a bureaucratic process that required the Crown's sign-off even though CERA was established closer to the disaster point for the ease of operations -P19.

9.4.2 Stakeholder communication

Stakeholder communication has been exceptional in the management of Tūranga where each stakeholder was identified and assessed for the influence they would have. They were targeted with a different approach, and the client covered all stakeholders in its communication strategy. They constantly kept the general public updated on the project's progress through the official website for the Christchurch libraries and other CCC communication and showed how the input had been used. The CJESP, on the other hand, the project team shifted its entire focus to internal communication and communication with the client as they experienced disorder in the contractor-led project, which hampered communication. The contractor did not follow a specific communication strategy that tarnished their relationship with the consultants and the designers. At times the project management company struggled to get status update reports for the steering committee meetings. For CJESP, the number of stakeholders was extremely large, and the time pressure and complexity, and internal turbulence within the contractor company proved involvement to be challenging. Communication with the public has proved minimal, with the public having no information on the projects except for the occasional press article criticising the slow progress.

The Bus interchange's approach to communication again has been minimal with the general public, but the project team had constantly been engaging in two-way communication with the bus operators to cheque design practicality and potential design issues.

Instances where communication was two-way and influential-meaning that the communication resulted in favourable changes/outcomes; provide examples that users are more accepting of the projects once their voices are heard and steer positive changes.

9.5 Cross case analysis: Social outcomes of flagship projects in a post-disaster context

Social impacts of flagship projects have been case specific but, when collectively analysed, offer the following observations.

All three projects were welfare-focused public projects where income generation was not given priority. Due to the limited income flows and high running costs, the projects have mainly caused negative impacts on the economy. The negative impacts on the economy are mostly long-term, extending beyond five years after the completion. The reasons for the economic impacts are the concealment of true costs to the economy at the feasibility stage, not analysing the risks, and not applying control measures at the planning stage in the front end.

In terms of community/neighbourhood the impacts have mostly been mixed. For Tūranga the effects on the community have been positive, except for the backlash it received for the digital touch wall. For the CBI and the CJESP, they've mostly had negative impacts lasting a year to five years or even longer. The effects on the community/neighbourhood is linked to Stakeholder Management, where Stakeholder inclusion in the project beyond the concept stage would have made the public more accepting of the projects. The projects could have also been positioned better through an analysis of social feasibility and putting a plan in place for 'perception change.

Impacts on the natural environment have been positive except for the unhealthy air and sound pollution for pedestrians. This applies to the CBI at times when it operates near its optimum capacity. The positive impacts are associated with the designs that focused on sustainability and eco-friendly design efforts at the concept and detailed scope stages for all the projects.

Impacts on the political system have been positive, where the projects encouraged a shift towards better policies and conduct in terms of transparency and service delivery. The problems experienced in construction during turbulent post-disaster times have resulted in changes that ensure better outcomes and equity.

Impacts on culture and heritage have been positive where all three projects placed importance on Ngāi Tahu input into the design from inception. The buildings in their outer appearance are ‘Christchurch-like’.

Impacts on lifestyle have been positive as the projects started off with a collective intention of presenting Christchurch with better modern facilities. The design work at the concept stage has helped in creating positive lifestyle improvements.

Lastly, the impacts on health and wellbeing have been positive except for the CBI, where pedestrian safety would continue to be a problem given the novel design esthetics adopted by the project unless the management decides on an alternative pedestrian access path to the facility. Lifestyle impacts are mostly shaped in the concept stage, where alternative design evaluation yields the most suitable option.

This section, as a whole, reveals that the areas the project team focused on since inception and throughout the project’s FEP have had a positive social impact. E.g., Sustainability, green and eco-friendly features of the buildings. It also strengthens the general belief that had been supported by previous literature that those projects mostly burden the economies due to their scale and income generation.

9.6 General Discussion: Exploring flagship project outcomes

Literature specified a large number of factors that cause project limitations. The findings of this study confirm and extend evidence from other studies that have sought to explore those factors as evident by large public projects. That such projects have high cost and time overruns and result in facilities that are too big or ill-fitting for the purpose.

There is consensus that large public projects and those built explicitly following disasters incur cost overruns exceeding the budgets that were set initially (Choudhary & Mehmood, 2012; Flyvbjerg, 2010; Flyvbjerg & Molloy, 2011), which is partly influenced by inaccurate cost and schedule estimation that overlooks future price escalation (Alshawi et al., 2012; Cantarelli et al., 2013; Flyvbjerg, 2013b; Garemo et al., 2015; Thamhain, 2013). Cost estimation of the project without due consideration of future price escalations has proven detrimental to the

CJESP contractor. The other projects did not suffer the same fate due to extensive testing of the budget.

In Christchurch, at the decision point where conceptual ideas are evaluated, the decisions have already been made to carry on with the projects. All three projects studied for this research were subjected to lock-in. With lock-in, the decision-makers take the real decision to build before the formal decision to build, early on, when the estimated costs are typically much lower (Chantal C. Cantarelli, Oglethorpe, & van Wee, 2022). As a result, none of the case study projects were able to be completed within the indicative budgets. Those decisions in turn, link to a weaker strategic direction. Difficulties in obtaining required skillsets and lack of stakeholder coordination Garemo et al. (2015), Rezvani et al. (2016), Thamhain (2013), Patanakul et al. (2016), Janssen et al. (2015) adversely affect the completion times and building of tactically and strategically relevant projects.

The pilot study was conducted with the aim of identifying the factors that lead to limitations in post-disaster flagship projects in comparison to routine construction projects. The pilot study results revealed that most of the factors that cause limitations in flagship projects, in general, are also common to flagships post-disaster. The findings of the pilot study are in line with many other authors (Table 4) who have explored factors that cause construction project limitations. The main study confirmed this yet again. Poor cost and schedule estimation (Cantarelli, Flybjerg, Molin, and Van Wee, 2013; Garemo et al., 2015), poor/incomplete design (Cantarelli et al., 2013), lack of planning (Hall, Kutsch, and Partington, 2012; Alshawi et al., 2012; Patanakul, Kwak, Zwikael, and Liu, 2016; Garemo, Matzinger, and Palter, 2015), lack of stakeholder commitment and community participation (Garemo et al., 2015; T. Williams, 2016; Rezvani, Chang, and Wiewiora, 2016; Thamhain, 2013; Patanakul et al., 2016; Janssen, Van Der Voort, and van Veenstra, 2015), and poor risk assessment (Garemo et al., 2015) were evident from the empirical study findings.

There were two factors that had been mentioned that were not commonly found in literature among the factors that cause limitations. Those were ‘not engaging in situation analysis and ‘managing all aspects of recovery including emotional, individual, and business recovery throughout the project’ specific to post-disaster scenarios. In the main study, situation analysis still remained valid but managing all aspects of recovery had not been mentioned. The pilot and the main study, therefore, reveal that context-specific factors would have to be included in the FEP, and a tailor-made FEP guidelines cannot be applied to different scenarios.

Confirming the findings of the pilot study, current research presented by this thesis shows that the stakeholders, especially the builders, consultants, and architects, do not consider flagship projects to be any different from those ordinary builds. That had been one of the most criticised elements of the reconstruction through flagships following disasters. The pilot study results move a step forward to the existing research findings, enabling the link between project limitations and the FEP, as most of the factors that were mentioned by the respondents were rooted in the front end of the projects.

The data revealed three areas that influence flagship outcomes. The following section will be dedicated to the discussion of those.

9.7 General Discussion: Early Planning, Stakeholder Management, and Governance in the front end of flagship projects

The three projects have yielded different results post-completion. Tūranga is successful in operational, tactical, and strategic terms and scores high on relevance and sustainability but low on cost-benefit efficiency. The bus interchange's success in terms of operational, tactical, and strategic fronts would largely be determined by how well the strategic planning of Ecan aligns with those of the CCC and NZTA in the future. The project has performed well in terms of sustainability and relevance. The CJESP project has failed in operational, tactical, and strategic terms and as well as relevance. It is worth mentioning that sustainability is somewhat challenged by the needs for repairs and renovations that those flagship buildings have experienced in less than five years of completion for all three projects. Yet the sustainability and environmentally friendly features within those designs cannot be overshadowed by the ongoing repair work to other basic structures of the building.

Both the pilot and the main study confirmed that the outcomes of flagship projects are shaped by three influential factors.

- 1) Governance of projects – at portfolio level project
- 2) Early planning in the FEP phase
- 3) Stakeholder Management throughout the FEP phase

Numbers 2 and 3 will be combined in the discussion section as, essentially Stakeholder Management is as a part of the FEP process. The discussion section will cover the governance of projects and the FEP process for a flagship project to decide where the current study stands when compared with relevant extant literature.

1) Governance of projects – at portfolio level project

Researchers have previously highlighted the significance of governance of projects to project success (Shiferaw et al., 2012; Volden & Andersen, 2018b). Governance of projects is defined as managing central government projects across different public entities through the use of institutional arrangements and a system that use risk management, ethical practices, compliance, and administration to hold people accountable (Governance Institute of Australia, 2022; O Klakegg et al., 2016; Volden & Samset, 2017; Williams et al., 2010). A proper system for the governance of projects ensures the correct projects are selected for investment some previous work concluded that the most crucial governance function at the front-end of projects are putting in place a clear decision-making process and checking the quality of the documents that form the basis for all project decisions (O. Klakegg & Haavaldsen, 2011) but it is also the phase to which less resources are dedicated (Samset & Volden, 2016).

The decision-making process has clearly failed the rebuilding programme in Christchurch, where the process was rushed with the ‘Blueprint 100’ plan being completed in 100 days with less than ¼ of the 100 days allocated to actual design work. The timeframes proposed were based on concept designs, and the background work done by consultants to support the blueprint proposals were never revisited or used.

Governance of projects in the front end has delivered limited results irrespective of the acts, laws, and governance arrangements (Appendix 7) that have changed/come into effect to facilitate faster rebuilding in Christchurch. The limitations have been mainly due to over ambitious and over-optimistic project timeframes (Flyvbjerg, 2013b; Garemo et al., 2015; , Hinterleitner, 2019), ineffectual design concepts ((Cantarelli et al., 2013; Rachid et al., 2019), unwanted demolition work leading to the loss of significant buildings (K. Xu, Shen, Liu, & Martek, 2019) and the lack of an order for execution (Garemo et al., 2015, Fazekas and Tóth, 2018).

The current research accepts and extends the same idea in the sense that the governance of projects at the portfolio level is the phase preceding project inception, where each project is given a concept to build a project from scratch. A more systematic approach where a clear indication of expectations for each of the FEP phases would make the process more controlled. This is similar to where Shiferaw and Klakegg (2012) research work mentioned ‘mandatory screening sieves’ where a process of identifying problems, consulting stakeholders, considering alternatives, and selecting the best option are put together into a process

Researchers have confirmed political factors remain one of the four reasons why projects fail, along with technical, psychological, and economic (Cantarelli et al., 2013). Their research proved that psychological factors (how a project is perceived) and political factors together could put a project in a favourable position over others to get selected and invested. Earlier works indicated that political culture, political corruption, and poor planning could influence public projects, leading to failure at the implementation stage or abandonment of the project altogether (Akwei, Damoah, & Amankwah-Amoah, 2020). The majority of the projects neither directly replaced what was lost nor did they cater to a need that existed or was expressed by the public. The choice of what gets built is often the choice of the most powerful in society. (O Klakegg & Volden, 2016). The data revealed the same for Christchurch, as the city's elites and the leading business people played an influential role in manipulating decisions taken by the CERA. Politically influenced choice of projects at the blueprint stage had to be scrapped later on as they failed to produce a viable business case.

2) Early planning in the FEP phase

The FEP process for large public projects following disasters inherent the same, the most prominent features that are common to complex projects. All three projects had limitations of

1) Time (Williams & Samset 2012; Collins et al. 2017); as information can be hard to obtain/uncertain, but there are major decisions that need to be taken regarding strategic and technical directions of a project. The project designers agreed that extensive opinion seeking had to be limited because of the need to advance with the actual drawings.

2) Information; a lot of information is available, but the difficulty is to sift the necessary information from the abundance of information made available to the decision-makers (Dinsmore & Cabanis-Brewin, 2014; Samset & Volden, 2016). Researchers also diverted attention to information asymmetry (Williams & Samset, 2012) and the quality of information (Samset & Volden, 2016) which are paramount for effective decision making. The use of stakeholder information sessions of the CJESP versus the Library provides examples of using the information to benefit early designs.

3) resources, as FEP includes a long list of tasks that needs completing before investment can happen (Edkins et al. 2013).

Evidence suggests that resources for the pre-feasibility, feasibility, and concept stages, resources are limited, but the focus mainly lies on the detailed project phase.

4) heightened uncertainty (Samset & Volden 2016)

5) difficulties in engaging with an extensive array of stakeholders. The latter includes negotiations that take place between the client and the suppliers as they come into a common ground in terms of the requirements (Turkulainen et al. 2013) and differing views (Edkins et al.2013)

The content of the FEP for each project was mainly decided by the entity that led the project. In that sense, the research findings contradict the works that mentioned site fabrication, resource availability, and laws enforced at the time of the project contribute to what is included in the FEP (Safa et al., 2013). The factors mentioned by safa et al. did not seem to directly affect the activities within the FEP process, but the time pressure to complete the project, the procurement method, and front-end governance seem to have affected the FEP process in this study.

Samset (2013) in his work had mentioned that large investment projects are often designed without considering the needs of the stakeholders. Yet stakeholder Management is seen as a determinant of project success (Dağlı, 2018; Saad, Zahid, & Muhammad, 2022). Hollebeek, Kumar, Srivastava, and Clark (2022) suggested extending the ‘customer journey’ to cover the process a stakeholder goes through, across all stages/touchpoints, that shapes the customer experience– the ‘Stakeholder journey’. Their argument provides a supportive basis for the assumption that stakeholder management starts from the beginning of the FEP. The data supported this idea where the participants mentioned identification, inclusion, interaction and communication to be scattered throughout the FEP phases.

The major finding of the research is that the FEP of complex flagship projects post-disaster does not follow the traditional FEP phases proposed by the CII. Flagship projects enter the FEP process with some major decisions such as project location, indicative budget, and timelines already decided. In routine construction projects, site selection happens at the concept stage on most occasions, where a site is chosen based on the feasibility of the project idea (Sucipta, Pratama, & Iskandar, 2022). For Christchurch as a town plan for the CBD had been produced through the blueprint exercise, but those projects were almost entirely locked in as pieces of a puzzle. In a traditional setting, an economic need drives a project, but the Christchurch rebuilding through Flagships was labelled as a ‘reverse briefing exercise’ where the project teams tried to justify a project that had taken root in the CBD conceptually.

The author's work could be stated as a work that combined the two separate stages of inception [coming up with the idea of the project] and Diagnosis [analysing the situation in the construction industry and assessing the need for the project] of Hansen et al. (2018). In his proposed model the two stages were separated by the DGs 1) whether to realise the idea or not 2) whether the project is needed or not. The author decided that the first stage of Hansen et al. (2018)'s proposed FEP phases does not contain any tasks within it but just a decision on whether to advance with the idea that emerged.

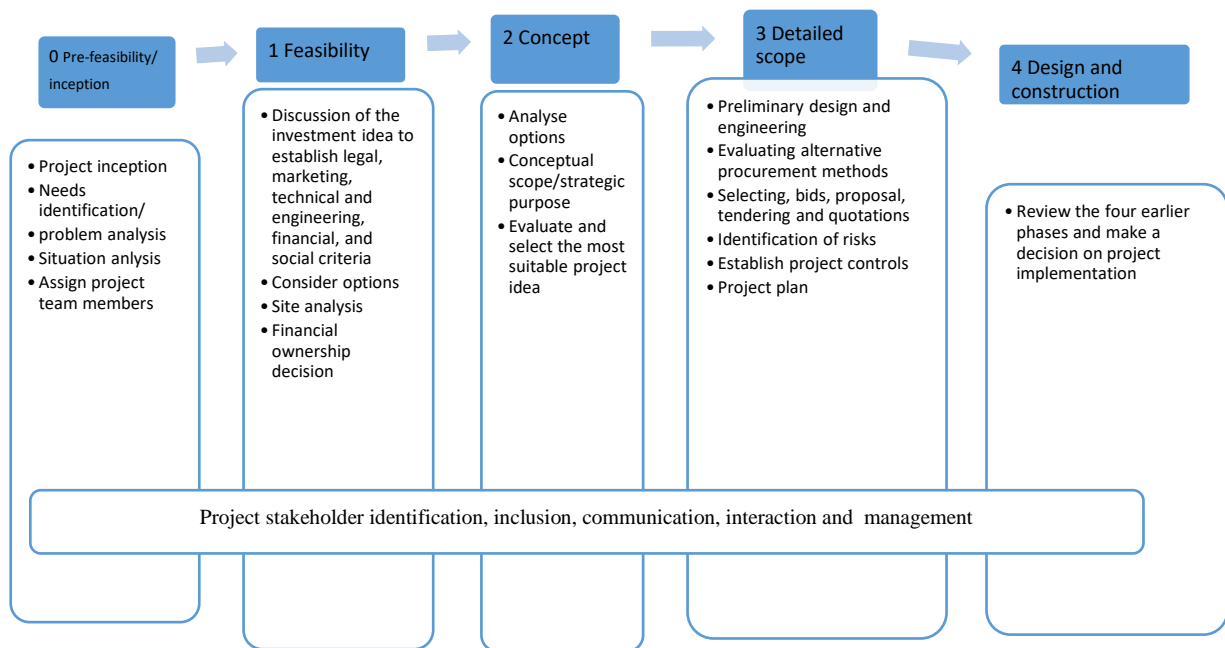


Figure 50 FEP Process generated by the main study phase

Source: Author's own derived using data and literature

The model that was created post-pilot study has only been strengthened by the data of another three case studies in a different location. The data in Christchurch did not introduce any new components to the FEP model but gave an indication that rural/urbanness, extent of damage (personal or public property destruction) may add more importance to certain areas within the model. For example, Marysville that experienced more destruction to personal property needed planning that addressed personal healing and support alongside the encouragement to participate in public-led rebuilding. In the model that emerged from the data [Figure 50], situation analysis is not concentrated on just the construction sector but on a range of environments as described in Section 9.3.1. In both, the models by CII and the one proposed by Hansen et al. (2018) organising the project team and aligning the project team are mentioned in the Feasibility stage. Other stakeholders are not mentioned. The data suggested that there

are other stakeholders such as the end users and the general public, whose involvement in the process is vital for project acceptance later. Driven by that idea, a whole-of-life approach to Stakeholder management within the front-end is proposed and adopted in the model. The rest of the phases followed the FEP process proposed by CII [Figure 50].

According to the respondents, the rebuilding process of Christchurch has been stationed due to the delays with the building of flagships. The anchor projects held Christchurch from moving forward just as an anchor would do.

Christchurch case studies enhance the overall appearance and appeal to present the city with positive externalities of increased land prices, increased spending in the nearby businesses, and usage of services in proximity to the flagship project, thereby increasing incomes and employment within the area (Zenker & Beckmann, 2013).

9.8 Chapter Summary

The cross-case analysis and the discussion chapter have enabled the researcher to draw all the analytical chapters together to identify similarities and differences across cases and to come to some general ideas around the FEP of flagship projects. The section also explained how the data had modified the FEP model proposed by the CII. The FEP of a flagship includes a pre-feasibility stage that is not found in routine projects that specifically looks at the environment that the disaster has created. The data placed much significance on the governance of projects as the element that overarches early planning. Stakeholder Management is a process that is relevant to the entire 4 phases of the FEP. The discussion brings to light that flagships following disasters cannot be treated as ordinary construction projects but have to be closely monitored and assessed throughout its front end.

Chapter 10 **Best practice for the FEP process as a Guideline for flagship projects**

10.1 **Introduction**

Having completed three case studies examining FEP and compared them in Chapters 6-11, this chapter brings the research together to provide practical guidelines for FEP of flagship projects. This chapter focuses on one of the key objectives in this thesis, “Formulate a set of best-practice decision-making guidelines for future flagship projects?” and uses the best practices derived from the case studies in New Zealand and Australia to provide answers. Although these countries are different in geography and the arrangement of recovery and reconstruction, the planning of flagships in the cases show complementary processes. The best practices highlighted help establish a guideline for FEP of future flagship projects. Only limited guidelines exist to indicate the optimal approach to planning flagship projects' front end. This research helps close this gap by proposing recommendations suited for each phase of the FEP for key stakeholders to improve the FEP for better project outcomes.

10.2 **Best Practice Guidelines for the FEP process as a guideline for flagship projects**

This research has established a wide-ranging set of practical guidelines under the previously identified themes for each phase of the FEP process. The guidelines developed from this research can be used as complementary guidance material for project owners of flagship projects who make planning decisions. The guidelines draw heavily on the three flagship case studies in Christchurch following the Canterbury Earthquake of 2011. Also, they have been shaped by the data gained from the pilot study in Australia [Marysville flagship projects following Australia Black Saturday Bushfires 2009]. These guidelines are an intensive study of data from field visits, interviews with stakeholders of flagship projects, documents, and references linked to the case studies. Each guideline has used 2 or more of the above as per example below in table 26.

Table 26 An example of forming best practise guidelines for the FEP

Guideline	Interviewee insights	Case examples	Site visit observations	Document evidence
Ensure a strategic sequencing process for flagships and other critical projects on the road to reconstruction and revival.	“ There was a sequence on paper but whoever secured a contractor and got the business case approved went first”	Bus Interchange and the CJESP Convention centre and the library	The boom in the hospitality sector had not happened as convention centre was delayed	CCRP highlights the importance of sequence and interdependencies

These guidelines have been prepared to guide planning officials through the process of what needs to be given attention whilst deciding to invest in a flagship. Guidelines are case-based, yet every effort has been taken to make these applicable to the ‘Oceania’ context. It is advisable to use them with judgment, along with country/place-specific governance arrangements within the specific disaster context.

The data provide the following general recommendations with regard to the modified FEP process. Those have been repeated in the data and will be used in the next section as a basis for guidelines.

- 1) Stakeholder management is a component that should continue from inception to the decision to invest and beyond. It includes identifying stakeholders, deciding when and where their input is needed, communicating the plan and establishing two-way communication, and managing interactions with all the stakeholders. A plan that stretches beyond the concept phase is recommended
- 2) The stages of the FEP process proposed for a flagship post-disaster can be applied to similar situations, but the areas/components within each phase will differ according to the governance arrangements at the start of the project, the approach to reconstruction [top down/bottom-up], and the method of financing the projects [State-owned, donor-driven, or Public and Private Partnership, etc.].

This guideline is divided into five parts;

Section 1: Best practice for creating support through governance and legal provisions

This is a three-step process to ensure healthy and accommodating legal and governance arrangements for initiating flagship projects. The three steps include screening the current legislative provisions that affect the construction of large public projects following a disaster, making necessary changes to the existing provisions, and adopting the changed/improved provisions to facilitate the rebuilding of large projects.

Section 2: Best practice for Project Inception/Pre-Feasibility stage of a project

The pre-feasibility section is the modification to the phase model introduced and endorsed by the CII. It is expected that government planners examine the external environment that surpasses the immediate external environment.

Section 3: Best practice for Project feasibility stage of a project

This section includes guidelines to verify the project's technical, economic, legal, operational, and scheduling feasibilities.

Section 4: Best practice for the Project Concept stage of a project

This section includes guidelines to identify and select among alternative ways of achieving a flagship project's objectives

Section 5: Best practice for Detailed Scope stage of a project

This section includes guidelines to ensure that planners develop a scope of work that shows high predictability in terms of cost, schedule, and quality.

10.3 Section 1: Best practice for creating support through governance and legal provisions

Introduction

This section outlines the three steps to take before the planning officials attempt to rebuild using flagship projects. Some of those steps can be completed prior to a disaster so that the planning officials are more prepared when the actual disaster strikes.

Points to note:

As a best practice, a project team consisting of urban/town planners, designers, economic analysts, social scientists etc, to suit the context, will be chosen by the project owner at project portfolio level. They are required to provide an assessment of the situation against the project need at the portfolio level [P19, P21]. The designers shall continue to work on the project past the concept stage as they know best why certain things were included in the design.

Table 27 Best practice for creating support through governance and legal provisions

Area of focus	Why?	Best-Practice Guidelines
Reconstruction-supportive Acts	<p>The Civil Defense and Emergency Management Act 2002 is focused on immediate recovery, even though strategic planning stresses the importance of the ‘built environment’ to the overall recovery</p> <p>[As stated in Section 2.7 where Wilkinson, Chang-Richards, and Rotimi, 2014 stress the importance of the built environment to recover fast]</p>	<ul style="list-style-type: none"> • Statutory and regulatory frameworks by the Emergency Management office should consider the periods stretching beyond emergency to include reconstruction using flagship projects • CDEM groups to engage with urban and building developers, engineers, and transport and insurance sectors to comprehend the current level of resilience that exists in relation to different types of disasters, for both national and local authority levels, to improve 4Rs before a disaster event takes place • CDEM to determine successful reconstruction goals for the built environment. CDEM to ensure local and regional planning policies, frameworks, arrangements, and rules are flexible to allow rebuilding works
	<p>The Canterbury Earthquake Recovery Act 2011 included a number of statutory requirements for consultation and engagement; however, the numbers consulted were low</p> <p>[As stated in Section 2.9.1]</p>	<ul style="list-style-type: none"> • Have a clear and consistent communication strategy and engagement strategy in place at the start
	<p>In Canterbury, during reconstruction, orders in the council made changes to the resource consent process.</p> <p>[As stated in the author’s own conference paper Appendix 7 Section 3.2 that quotes</p>	<ul style="list-style-type: none"> • This is encouraged for faster construction of flagships

	Office of the Auditor General, 2017 and as evidenced in Section 9.3.1 Immediate political constraints]	
Recovery agency/personnel	<p>Much quicker establishment of recovery agencies following Black Saturday bushfires</p> <p>[As stated in 2.9.2 in the main study quoting Leadbeater, 2013 and Mannakkara, Wilkinson, and Potangaroa, 2014 and Simons (2016), as stated in 4.1.1. in the author’s Conference Paper- Appendix 7]</p>	<ul style="list-style-type: none"> • Civil Defence Emergency Management (CDEM) and The Public Service Commission NZ need to have a pre-existing plan for the establishment and role of a disaster recovery agent. The setup would be similar to CERA but with the following changes • Have a legislative framework in place for quicker setting up of a recovery agency that allows a faster transition from response to recovery
	<p>During its time as the Recovery Authority, CERA opted for a flat organizational structure and then a matrix structure when the projects were more defined and ready for execution.</p> <p>[As stated in the author’s own journal paper Rodrigo and Wilkinson (2020) in Appendix 8]</p>	<ul style="list-style-type: none"> • Keep the flat organisational structure where there is no hierarchy, where communication is more effective, and allow for speedy decision-making for the first months of the reconstruction and recovery. • Change to that of a matrix to facilitate information sharing and pave the way for multi-disciplinary ways of working once the projects are detailed but establish ground rules for operating agreements on communication and resource allocation and performance goals and metrics at the point when the team is formed
	Many local entities already had existing recovery roles when the CERA was	<ul style="list-style-type: none"> • Define roles and responsibilities of the team upfront, especially around decision-making authority.

	<p>established. Some of the responsibilities that the Canterbury Earthquake Recovery Authority was given might otherwise have been the responsibilities of local entities. At the start, this led to some tension and a lack of clarity about who was responsible for what. The local council's role and significance were diluted as a result.</p> <p>[As stated in the author's journal paper Rodrigo and Wilkinson (2020) in Appendix 8]</p>	<ul style="list-style-type: none"> • Limit the powers bestowed upon the CEO that overrides local planning. • Review governance arrangements when new roles and responsibilities are undertaken. • Pre-arranged service level agreements with a large government department, including policies, systems, and processes across core corporate services (including financial controls and management, performance management and reporting, human resources, information services and technology, and Ministerial services) would reduce risk, cost, and complexity in setting up and running any future recovery authority. A pre-determined approach will reduce duplication and delays in getting flagship projects off the ground. This would also help understand the institutional capacities of each entity in the flagship generation.
	<p>Australia has permanent disaster recovery agencies due to the frequency of disasters</p> <p>[As stated in 2.9.2 by National Recovery and Resilience Agency, 2022; Wahlquist, 2022]</p>	<ul style="list-style-type: none"> • Have a permanent flagship delivery unit/entity within the recovery agency that formulates plans and keeps track of ongoing flagship projects and their performance until all projects are completed, beyond the sunset date of the recovery authority
	<p>CERA was based in Christchurch for local engagement but was continuously influenced by the ruling political party</p>	<ul style="list-style-type: none"> • A recovery agent should preferably be closer to the disaster point and employ local expertise for better outcomes. A top-down approach limits the effect of locating closer to the

	<p>[As stated in the author’s Journal paper in ‘International Journal of Construction Supply Chain Management’ Appendix 8 – CERA Act and CERA]</p>	<p>disaster point as the agency still requires to consult and be consulted as a government agency. Establish the authority below that of the national government to decrease the level of influence from the local government. This will ensure a more localised rebuilding initiative.</p>
	<p>CERA was overburdened with additional jobs/functions. It meant that it was difficult to focus on rebuilding through Flagships at the start of their role (By 2014, the Canterbury Earthquake Recovery Authority had over 300 staff and 150 contractors leading or involved in 24 major programmes and more than 130 projects)</p> <p>[As stated in section 4.1.1. in author’s conference paper in Appendix 7]</p>	<ul style="list-style-type: none"> Periodically, review the responsibilities and define the role of the recovery agency and its personnel.
	<p>Canterbury rebuilding experienced politically-influenced appointments</p> <p>[As stated in the author’s journal paper in ‘International Journal of Construction Supply Chain Management’– in Appendix 8 The composition and Role Definition of the New Government Organisations]</p>	<ul style="list-style-type: none"> Have pre-determined criteria in place for the type of people who can lead and plan for each of the area/functions of flagship projects so that skillful and suitable people will be appointed
	<p>Canterbury earthquakes showcased unclear and under-defined governance structure at</p>	<ul style="list-style-type: none"> Review governance arrangements at each stage of the flagship project life cycle and make changes as necessary. A clear

	<p>the portfolio level in the building of Flagships</p> <p>[As stated in the author’s journal paper in ‘International Journal of Construction Supply Chain Management’–In Appendix 8 The composition and Role Definition of the New Government Organisations]</p>	<p>indication of reporting lines and leadership would avoid ambiguity over the responsibilities of each stakeholder</p> <ul style="list-style-type: none"> • The project planning body needs to communicate the structure of flagship project governance to the general public to provide clarity of accountabilities and responsibilities
<p>Pre-determined criteria for flagship project generation at the start of the process</p>	<p>The disaster event exhausted the planning/provisions that were in place</p> <p>[As stated in Section 2.9.2. in the main study]</p>	<ul style="list-style-type: none"> • Have a set of clear national, regional, and local roles and responsibilities for planning flagship projects determined for each disaster type/scale
	<p>The timing and duration of the initial project team were too short, and consequently, some of the Flagships’ design aesthetics were lost once the design was passed through to the project team</p> <p><i>“I think had the design team been allowed to carry on working beyond the 100 days we could have found a more popular design and Urban Design outcome that might have taken into account the current landowners and what their needs and wishes were and still got fundamentally what we were trying to achieve which was a sort of green frame that help compress the city.” -P19</i></p>	<ul style="list-style-type: none"> • Ensure the initial project team or the blueprint vehicle be able to continue beyond the early stages to ensure their input and contribution to flagships during construction

	<p>The blueprint plan created just after the earthquakes had big builds that had taken years to build which delayed the economy from returning to pre-disaster levels</p> <p><i>“So we never said look the business case for a 300 million dollar is weak. We never said let's do a business case for 30 million dollar convention centre and see how strong that is. We never did that. It would have been a really useful exercise. Does that make sense? That convention centre that is 300 million dollars by definition is going to take four or five years, you know, just even if everything goes fantastically it's going to take a long time. Thirty million dollar convention centre potentially will be up in six months”. P1</i></p>	<ul style="list-style-type: none"> • Have a phased approach of focusing on immediate rebuilding for functionality, medium-term rebuilding to cater to changing needs, and long-term rebuilding for scale while taking into consideration the level of priority of each project
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Source : Author’s own based on case study findings and analysis of data

10.4 Section 2: Best practice for Project- Inception/Pre-Feasibility stage

Points to note:

1. The pre-feasibility phase is the modification to the phase model introduced and endorsed by the CII. It is expected that the government planners engage in an extensive examination of the external environment that surpasses the immediate external environment of the project to cover the following.
2. A project team with experience in commercial investments will be appointed at the start of the pre-feasibility stage.
3. Aligning the project team would happen in the feasibility stage in the traditional FEP phase model that CII (2014) proposed. For the model that is based on the research data for this study, team alignment will occur at the inception/pre-feasibility stage, as project alignment is a prerequisite for all the other activities in the process.

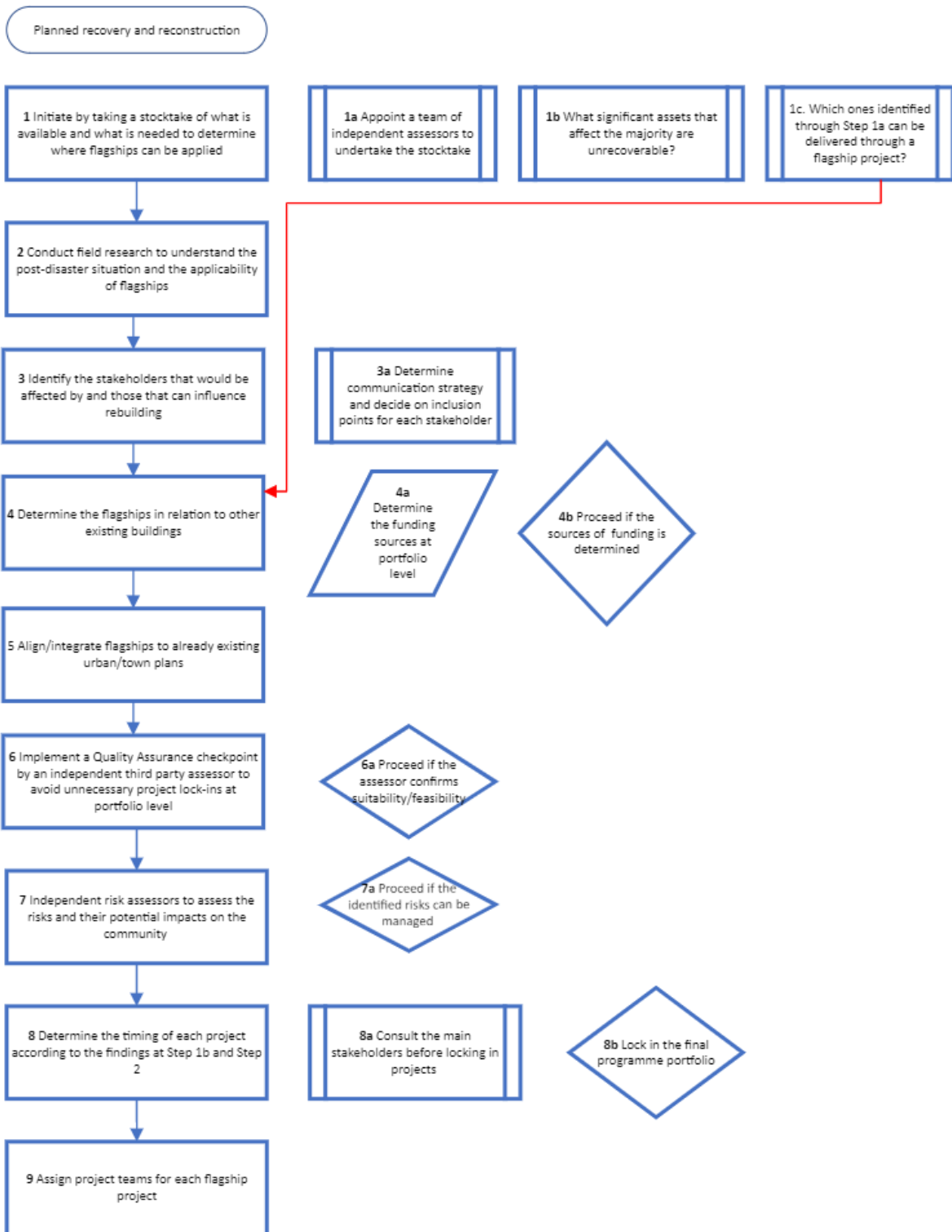


Figure 51 Flowchart showing best practice planning guidelines for the pre-feasibility stage

Author's own

The above flowchart is a graphical presentation of the process in decision-making in the FEP. the red arrow that goes from 1B to number 4 is an indication that the independent assessment will steer a need to evaluate if the need for a flagship project whilst being mindful about the existing building stock. Each best practice guideline is explained below.

Table 28 Best practice for Project Inception/Pre-Feasibility stage of a project

Area of focus	Why?	Best-Practice Guidelines
Post-disaster built environment	A lot of the existing, recoverable buildings were demolished after Canterbury Earthquakes and Black Saturday Bushfires in Australia [As stated in Chapter 5]	<ul style="list-style-type: none"> • Conduct a stocktake of critical infrastructure and other public builds before deciding on flagship projects
Field Research	CERA's/VBRRRA's Planning officials were time-pressed to conduct extensive research into people's perceptions about what they were proposing as Flagships [As stated in Section 4.11]	<ul style="list-style-type: none"> • Not limited to the immediate project environment, a broader examination of the external environment, including population movement, post-disaster changes that may affect the use and perception of public projects, changes to the built environment, changes to the construction environment, any population and user projections that may affect the project and a survey of the affected/market need to be conducted.
Portfolio of projects at the programme level	A number of projects that were not requested by the public made it into the CERA's blueprint plan [As stated in Section 2.9.1.]	<ul style="list-style-type: none"> • A Quality Assurance checkpoint to be implemented by an independent third-party assessor to avoid unnecessary lock-in of projects at the portfolio level.
	Ten years post-disaster, there are a lot of vacant spaces within the CBD, and for some projects, the expected benefits could not be	<ul style="list-style-type: none"> • Consult plans already in place and integrate the recovery construction plans and flagship projects with those. For the individual projects, it is worthwhile to understand the

	<p>released due to immediate physical environmental factors (not fitting to the environment)</p> <p>[Author's own observation + Section 9.3.1. Vacant spaces diagram- Figure 49]</p>	<p>existing urban setting versus the proposed, to see the generic fit of the project</p>
Stakeholder identification for flagships	<p>The incorporation of Māori in the planning of Flagships</p> <p>[As stated in Chapters 6,7 and 8]</p> <p>Unheard voices or non-inclusion of the general public within the planning of Flagships</p> <p>[As stated in Section 5.5]</p>	<ul style="list-style-type: none"> • Early stakeholder identification, especially the parties particularly relevant to a specific flagship project. Involve local leaders, designers, economists, urban planners, Social units such as iwi in NZ, consultants, relevant businesses, and community representatives in planning. • Stakeholder inclusion/engagement in decision-making and two-way communication at each critical decision-making stage of a flagship project. Establish communication channels, and determine the methods of communication, frequency, and direction (top-down, bottom-up, etc.) to reduce misunderstandings and obliviousness, to increase buy-in.
Stakeholder Management	<p>Stakeholders, specially the general public, have mostly been involved up to the concept stage [As proven by Chapters 6,7 and 8]</p>	<ul style="list-style-type: none"> • Determine Stakeholder communication strategy and inclusion points
Timing of flagships	<p>There was a pre-arranged sequence for Flagships, but this was not followed in practice, which prevented the benefits of interdependencies between projects within a portfolio [As stated in Chapter 7 and recommended in 4.8]</p>	<ul style="list-style-type: none"> • Ensure a strategic sequencing process for flagships and other critical projects on the road to reconstruction and revival. For the individual project understanding the time frame will allow for spreading out activities to avoid time pressure as the project advances

<p>Risk identification/management</p>	<p>Risk assessments for the projects were not detailed and were influenced by the decision-makers to ensure the projects received the go-ahead.</p> <p>[As evidenced by the case study of CJESP-Chapter 6]</p>	<ul style="list-style-type: none"> • Independent risk assessors to identify and assess risks and their potential impacts on the surrounding environments and to communicate those to decision-makers and stakeholders before project confirmation
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Source: Author's own

10.5 Section 3: Best practice guidelines for FEP of flagship projects- Project feasibility

This section includes looking at the project's technical, economic, legal, operational and scheduling feasibilities.



Figure 52 Flowchart showing best practice planning guidelines for the feasibility stage

Source : Author's own

Points to note:

1. The numbers within the diagram continue from the previous diagram to show the continuity of the exercise.
2. The guidelines are produced with the assumption that laws and regulations pre-disaster have been changed to facilitate the rebuilding through flagships
3. It is anticipated that legal feasibility [such as zoning laws] is already covered within the blueprint plan or at the project portfolio level as the projects are naturally designed to adhere to the legal requirements/changed laws that facilitate flagships.
4. A site has already been chosen prior to the start of the FEP for the project at the project portfolio finalisation stage [blueprint], and therefore, a site investigation is recommended at the feasibility stage.
5. Financial ownership decisions would be finalised at the feasibility stage. The price will be more realistic as the decision is driven by the situation and /or public needs.
6. The project would not advance to the concept stage unless 4 and 5 are fulfilled.

The guidelines are elaborated in the table below.

Table 29 Best practice guidelines for FEP of flagship projects- Project feasibility

Area of focus	Why?	Best-Practice Guidelines
Alternative uses of Flagships	<p>The flagships that are built are not used to the optimum or are not put to the intended use</p> <p>[As stated in Section 4.9.1 and Section 6.5.1]</p>	<p>Have a contingency plan for every flagship project in case the original project is feasible</p> <p>Building a flagship in phases helps get the basics build quickly. This will also help achieve the spillover benefits of the project much more quickly.</p>
Land acquisition for the building of Flagships	<p>Land acquisition work delayed the planning and building of Flagships in Christchurch and made people resent the process and the cause for acquisition</p> <p>[As stated in Section 2.9.4 and Section 5.4.1]</p>	<p>Ensure that land acquisition for the project is complete at the start of the feasibility stage. Early land acquisition will allow for early site investigation that can have a bearing on the design requirements. The earlier the designers learn about the site, the more tailored the design can be</p>
Statutory Planning related to feasibility	<p>CER Act overrode the District and Regional plans for quick deployment of flagships</p> <p>[As stated in Section 5.4 and 9.2]</p>	<p>Check the flagship adheres to the zone and activity use of the land chosen for construction. It is assumed that zoned and activity use of the land set out in the District or Regional Plan does not affect the new flagships as the new legislation would override those plans. When this is not the case, any alterations to the District or Regional plan need a private plan application prepared at the feasibility stage.</p>
Flagship's economic feasibility	<p>CERA officials agreed that economic feasibility was overlooked for most of the projects that came about as a result of the CCC draft plan and finally in the blueprint.</p>	<p>Hire an independent consultant for <i>economic feasibility</i>. This will result in an independent project assessment of the cost and benefits of the flagship project. As a part of the study, the financial/economic impact on the asset owner needs to be included</p>

	<p><i>“It should have been “let's go and work out what's going to create the most economic value and work back from there? But we've done the overall design already and tried justifying afterwards. It is always SCM and SEF – It's someone else's money. It's someone else's fault” - P1</i></p>	
Flagship's technical feasibility	<p>Tūranga's technical details around streamlining library services using new technology was trialled with customers early on in the process whereas the CJESP project technical details were determined/changed later by the construction company that did not allow for user testing. The latter created many issues that led to repairs and rework. [As evidenced in Chapters 6 and 7]</p>	<p>Be specific about the <i>technical</i> details of the project. Clients' expectations about technical aspects and their effects on the project need to be determined at this stage</p>
Determine the initial budget and cost bearer	<p>Determining details around cost sharing was delayed, and as a result, some of the flagships took time to get off the ground in Christchurch. In Australia, after the bushfires, the project moved on to detailed planning soon, as the projects were donor-funded and the funds were already in place.</p> <p><i>“I think in projects like the case of the convention center, probably the lack of specificity on the brief and we were going without knowing what was the budget at the start meaning we were sort of designing in a</i></p>	<p>Determine cost-sharing before proceeding. An agreement around the percentage of cost-shared between the funding parties will help a more reliable test of economic feasibility</p>

	<p><i>vacuum. That was the biggest challenge”- P22</i></p> <p>[Evidence as stated in Chapter 7]</p>	
Flagship project’s operational feasibility	<p>The asset ownership remained unsolved for a long time after the bus interchange was built</p> <p>[As stated in Section 8.7.1 of The Bus Interchange case study-Chapter 8]</p>	Determine the asset owner and understand how their requirements will be met through the execution of the flagship project
Field research	<p>In Marysville, people were not in a position to submit project ideas or give insights to help plan because of personal losses [As evidenced in Section 4.10.2]</p>	Understand and cater to the changing needs of the population as personal recovery happens
Feasibility-fit with the stakeholders	<p>As evidenced by the CJESP project [Section 6.3.1]</p>	Determine the ways in which the stakeholders can affect the project, and the project deliverables can influence the stakeholders.
Public engagement and input points	<p>In Marysville, community-led recovery proved difficult initially because the residents were not emotionally recovered.</p> <p>In Canterbury, the residents were engaged with the process, which later turned to one-way communication to inform the decisions made</p> <p><i>“Yeah, so the public was informed about what was happening at intervals, but there is no public engagement in the true sense of the</i></p>	Determine and educate the public for each flagship at what stages their input will be sought and how it will be utilised depending on the complexity of the flagship

	<p><i>word. Should have there been?"</i> -P19</p> <p>[Also supported by the content in Section 2.9.1]</p>	
Flagship project's scheduling feasibility	<p>The schedules determined for all flagship projects at the start of the blueprint exercise were optimistic. All the projects could not achieve the initial completion dates that were announced.</p> <p><i>"So I think the message there would have been, and this applies to just about everything associated with the recovery, be realistic in time frames and expectations. Don't try and set up these massive things which you can't deliver". -P22</i></p>	Consider phasing out the project to achieve scheduling feasibility.
Active engagement with neighbouring community/organisations/businesses	<p>The proposed projects were disconnected from the realities where people do not want to use what has been built. E.g., CJESP [Chapter 6]</p>	Conduct market research to understand how a proposed project can connect with the community the project targets, the behaviour of the target market, their use of similar services etc., need to be explored.
Holistic recovery for flagship acceptance	<p>Unwanted demolitions and taking over lands with little compensation left people critical of what was built on the lands brought off them, especially when those delivered less than what was promised. [As stated in Section 5.4.1.]</p>	Emotional recovery takes time. Arrange for emotional recovery alongside as people tend to be less critical of big builds when they have come to peace with the disaster, losses, and the new normal, as proven by many disaster situations. E.g., Community events at a library, yoga and meditation at a park may help

Source: Author's own

10.6 Section 4: Best Practice Guidelines for FEP of flagship projects- Project concept

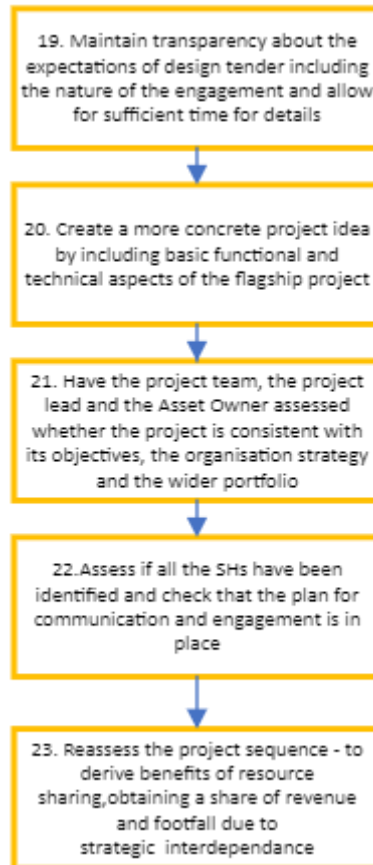


Figure 53 Flowchart showing best practice planning guidelines for the Concept Stage

Source: Author's own

Points to note:

- A more feasible design would result at the concept stage due to the situation analysis and financial ownership decision.

Table 30 Best Practise guidelines for FEP of flagship projects- Project Concept

Area of focus	Why?	Best Practice Guidelines
<p>Transparency/open communication about the expectations of the design tender</p>	<p>Tendering for flagship projects had been rushed. P10 said that “Most of the projects that were contracted in a rush came to a halt all of a sudden and took much longer to get off the ground again. The supplier needs to take time to de-risk a project than jumping straight into designing.”</p> <p>Development of the design of the Bus Interchange was done by two designers, but one was not paid for the work once the desired consultant was hired.</p> <p>[As stated in Section 8.5.4]</p>	<p>Ensure the suppliers are educated about the nature of the engagement. Allow for sufficient time for the design of the tender documents and be clear about the expectations.</p>
<p>Basic functional and technical aspects in the concept phase</p>	<p>Times of completion of the actual projects in the blueprint were based on concept designs that lacked detail. The result was cost and time overrun</p> <p>[As shown in Table 3]</p>	<p>Create a more concrete project idea by including basic functional and technical aspects of the flagship projects</p>
<p>Strategic planning fit</p>	<p>Bus interchange was a strategically relevant project within the ‘Accessible City’ plan that was underway [As shown in Chapter 8]</p>	<p>Have the project team, the asset owner, and the project lead work out whether the project is consistent with the achievements of its objectives whilst still aligning with the overall</p>

		organisation strategy and the wider portfolio. Engage in strategic alignment as early as it is possible
Stakeholder Management	As documented in Chapters 6,7 and 8 under Stakeholder Management	Assess that all stakeholders have been identified and the plan for engagement and communication is in place
Project sequence within the portfolio	The projects were not managed as a portfolio but as individual endeavours. [The library could not derive the benefits that were stated in its business case because the Convention Centre was delayed [As evidenced in Chapter 7 and also stated in Section 4.8]	Reassess the project sequence to derive the benefits of resource sharing

10.7 Section 5: Best practice guidelines for the FEP of flagship projects – Detailed scope phase

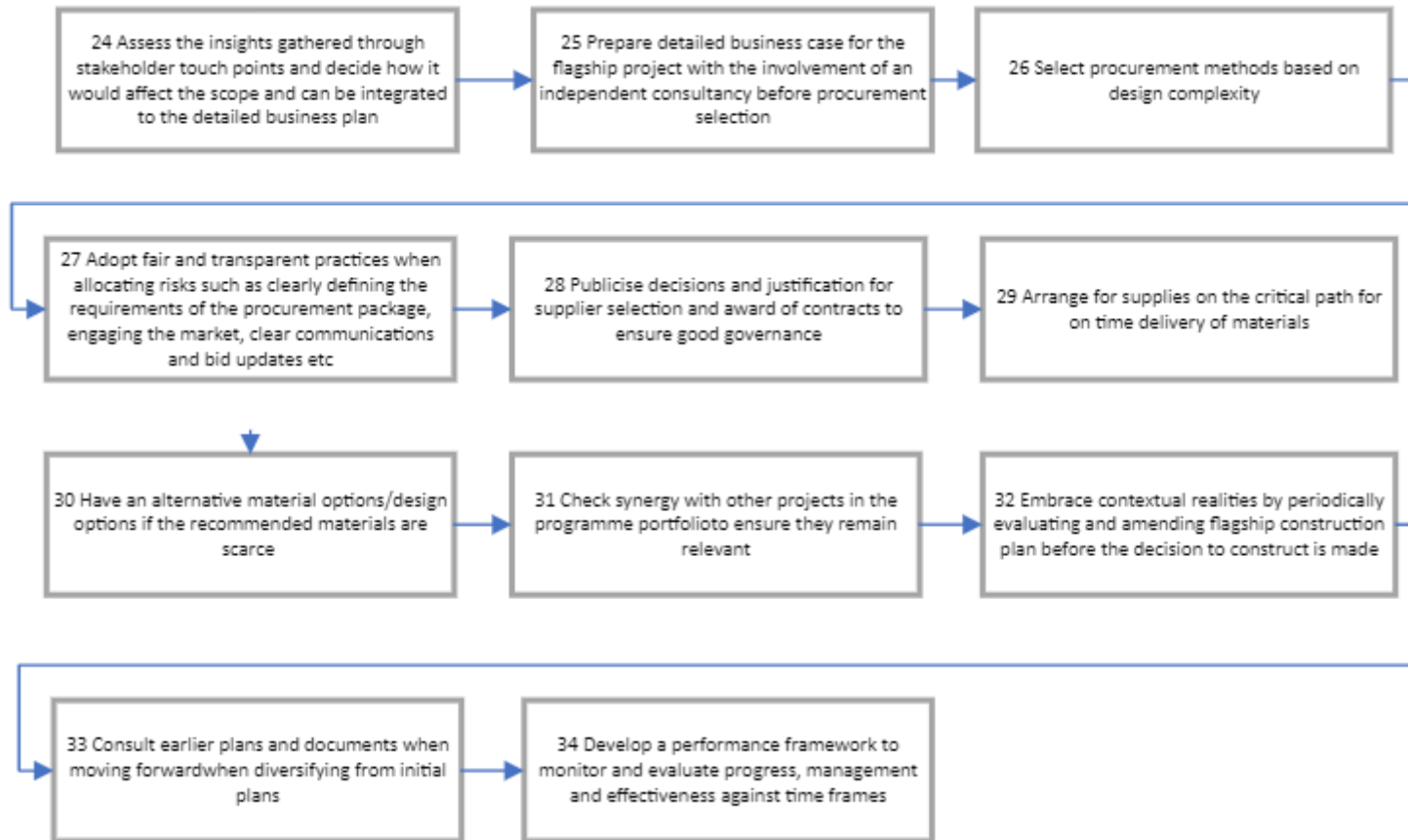


Figure 54 Best practice guidelines for the FEP of flagship projects-detailed-scope phase

Table 31 Best Practise guidelines for FEP of flagship projects- Project Concept

Area of focus	Why?	Best Practice Guidelines
Business case	CJESP business case lacked in detail but was allowed to proceed, which later created issues[As explained in Chapter 6]	Prepare the detailed business case for the flagship project with the involvement of an independent consultancy/assessor before procurement selection
Selection of procurement methods	Alternative procurement methods such as the one adopted by Stronger Christchurch Infrastructure Rebuild Team (SCIRT) in New Zealand have proven the advantages of a collaborative approach to procurement (Abouelezz, 2019; Liu, Scheepbouwer, & Giovinazzi, 2016). [As suggested in 9.6]	Select procurement methods based on design complexity and context. Planners should explore innovative post-disaster rebuilding projects, which should be an option for increasingly complex projects such as the CJESP
Risk Management	The CJESP project showed the outcomes of unfair risk allocation by the client and undermining of the stated risks on an agreement by the supplier [As explained in Chapter 6]	Adopt fair and transparent practices when allocating risks, such as clearly defining the requirements of the procurement package, engaging the market, clear communication and bid updates, etc.

Ethical behaviour	Lessons learned from the CJESP Chapter 6	Publicise decisions and justification of supplier selection and award of contracts to ensure good governance
Resource Management	Late delivery of material delayed the construction work and pushed the timeframes further for the CJESP [As stated in Chapter 6]	Arrange for supplies on the critical path for on-time delivery of materials
Resource Management	Lessons learned from the CJESP [As explained in Chapter 6]	Have alternative material options/design options if the recommended materials are scarce
Programme portfolio synergy	Considered as best practice in the handling of Bus Interchange project. It was completed on time so that the CJESP could start construction promptly [As mentioned in Chapter 8]	Check synergy with other projects in the programme portfolio to ensure they remain relevant
Project Plan	Some of the earlier designs in 2012 had become obsolete and needed revisions before proceeding as individual and independent projects [As mentioned in Section 5.4.1.]	Embrace contextual realities by periodically evaluating an amending flagship construction plan before the decision to construct is made
Review	Lessons learned from the CJESP [As stated in Chapter 6]	Consult earlier plans and documents when moving forward or when diversifying from initial plans
Monitor and control	P20 mentioned, “ The level of reporting was more, but everything else was the same. ” and P21 “ There was no process in place to see where we were heading. That is	Develop a performance framework to monitor and evaluate progress, management, and effectiveness against timeframes

	one complaint I have about the approach. That's one thing I would change if given a second chance."	
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Source : Author's own

10.8 Chapter Summary

This chapter achieved the ultimate aim of the research study to produce best-practice planning guidelines for the use of government planners of future flagship projects. The guidelines were based on case study evidence through data collection and analysis and were supported by the literature. Guidelines have been sectioned into five sections to cover the governance of projects at the portfolio level, pre-feasibility phase, feasibility phase, concept phase, and detailed scope phase. There have been criteria under Stakeholder Management added to each of the above stages in the FEP. The reason for such inclusion is that Stakeholder Management is considered to be of importance throughout the FEP. It is expected that the planners will benefit from the guidelines that are driven by real-life flagship projects in the recent past. It is advised to check the relevance of guidelines before applying them, as each disaster situation creates a unique post-disaster environment. Any guiding material should therefore be amended to fit a given set of circumstances.

Chapter 11 Conclusion

11.1 Introduction

The aim of this study was to understand the factors that cause limitations in Flagship projects and to propose a set of guidelines for the FEP of flagships following disasters. The previous chapters explicated the research process to arrive at the ultimate aim of the study. A cross-case analysis helped the readers understand the FEP process that is followed by flagship projects to appreciate how that can negatively impact project outcomes. The findings were presented and discussed in the context of extant literature. The study data was then used as the basis for a set of planning guidelines for the decision makers of future flagship projects post-disaster. This final chapter concludes the thesis. It starts with a revisit to the purpose of this study and the findings in relation to the research objectives. The researcher then presents an evaluation of the research to establish the quality of the findings. The chapter concludes with a section on the implications and recommendations arising from this study, with suggestions for future research and study limitations.

11.2 Revisiting the purpose of the study

The purpose of this study was to fill the gap in the literature concerning the planning of flagship projects in the front end of large public projects/flagship projects post-disaster. There was a lack of research on why the flagship projects result in limitations once built. That created a need to trace back to where those projects are initiated. The study used three Christchurch flagship projects as case studies to achieve the purpose. Through this research, three case studies revealed how the project outcomes were influenced by the decisions/conduct in the FEP for each of the projects. As suggested by the pilot study, the areas of governance, early planning, and stakeholder management mattered in the early stages of the project life cycle. Collectively, these findings inform recommendations about how to plan for flagship projects in the event a government decides to embark on flagship-led post-disaster rebuilding. The following section revisits the initial research aim, questions, and design and aligns the key findings to the four research questions in this study.

11.2.1 *Research aim*

This research study intended to understand how planning in the front end affects flagship projects in post-disaster rebuilding and to produce a set of guidelines for the planning of future

post-disaster flagship projects. The researcher intends to assist government planners in determining if flagship projects would support rebuilding post-disaster by following the guidelines generated using the data of this study. In this pursuit, the following objectives are considered.

11.2.2 *Research Objectives*

The project started with four objectives, with number 1 based on a literature search and the rest on the findings of the primary case study.

- Understand why flagship projects are used in post-disaster reconstruction
- Identify how governance of projects affects the FEP process
- Identify how the Front End Planning of a flagship project impacts the project outcomes
- Investigate the social outcomes of flagship projects in a post-disaster context
- Formulate a set of best-practice planning guidelines for future planning of flagship projects

11.2.3 *Research design*

The research was conducted in two phases. The researcher, equipped with limited knowledge about the flagship projects and their effects on the community, undertook a pilot study in Marysville, Australia. The case study of flagship projects in the bush-fire-stricken town revealed three areas in the FEP that seem to affect the outcomes of flagships through a Grounded Theory approach. In order to avoid bias that post-disaster construction projects encounter the same outcomes and factors that influence those problems could be the same for any construction project, a grounded theory analysis was used. The pilot study was used to ensure the fit of the questions to be asked and the kind of participants to be interviewed. The model with the three significant areas in the FEP has been further developed through the use of literature and used as the basis for analysis of the main case studies. A collective case study method (Crowe et al., 2011; Stake, 2006) was employed where the researcher aimed to provide insights into the top-level governance, early planning, and stakeholder management of the three projects and how those have had an impact on the project outcomes. Data gathered was analysed individually and then collectively across the three cases. The researcher integrated the findings from each case study to interpret against the research objectives. The researcher then explored differences across the cases to replicate findings common to the cases. The researcher used purposive and snowball sampling to select the respondents for semi-structured interviews. Data collection involved semi-structured interviews and document analysis

11.3 Conclusions and fulfilling research aim and objectives

This research aimed to understand the FEP of flagship projects and to develop a set of planning guidelines for flagship projects post-disaster. Five objectives were formulated to achieve the aim, as mentioned earlier. One was related to literature, and four objectives were specific to this research. The subsequent subsections describe the attainment of objectives in the process and their conclusions.

11.3.1 *Objectives related to the literature review*

First objective: Understand why flagship projects are used in post-disaster reconstruction

A comprehensive literature analysis was conducted to achieve the first objective and is presented in Chapter 2 of this thesis. The literature search started by explaining the approach to the literature search and setting the background for exploring ‘flagship’ projects [upto 2.8]. From then onwards, the literature review chapter directly related to the first objective of the study, as stated above. The first objective was to explore the reasons behind the government’s decision to rebuild using flagship projects and the limitations of the decision to do so. The intention was to understand the motives behind adopting flagship projects, whereas rebuilding can happen without flagship development. The literature review revealed no specific reasons to support the need for large-scale projects. Still, it collectively revealed the intentions to use flagship for town planning and to attract people to the places destroyed by a disaster. The literature search allowed the researcher to group the objectives according to the area the objectives target. Most of the reasons for undertaking flagship projects belonged to the category of objectives related to the outlook/appearance of the city. The others were the objectives related to the strategic direction of a city, objectives related to welfare, and objectives related to resilience. The literature review that addresses the research question ‘*Why are flagship projects used in post-disaster reconstruction?*’ concluded that the governments mostly undertake those projects of grandeur to enhance the appearance of the city steered by the opportunity created by the disaster to change/enhance its outlook.

Literature on the intentions of rebuilding through flagship projects and the limitations of those approaches were quite limited. A parallel literature review that looked at the criticisms of flagship projects shed light on some factors that limit the achievement of the objectives of flagships. Some of the criticisms found in the literature were inherent in large public builds, not specifically those of flagships post-disaster. The literature search and review on the objectives prompted a need to address the knowledge gap to understand the limitations further before a set of guidelines could be produced.

11.3.2 *Objectives related to the current research*

Second objective: Identify how governance of projects affects the FEP process

Chapter 5 presented the way Christchurch planning officials' approach the governance of projects. The unplanned and haphazard way of planning the 'The blueprint 100' process has had harmful effects on the FEP at the project level. The 100-day plan proved over-optimistic and over-ambitious, too rushed, lacked detail, included non-strategic locations for projects, had no logical lineup for construction, included ineffectual design concepts unfitting the definition of 'public projects', and was politically driven.

The chapter concluded by mentioning how the shortcomings had affected the FEP at the individual project level. Lengthy design work from scratch, land acquisitions, stakeholder consultation, and cost-sharing lengthened the FEP process for individual projects. The public felt bitter about the projects that had made it to the blueprint without their seal of approval. Hasty decisions at the higher level meant the projects expanded in scope and budget at the FEP process at individual project levels. The Feasibility stage proved difficult for some of the projects that could not be justified through a feasible business idea.

Third Objective: Identify how the Front End Planning of a flagship project impacts the project outcomes

The second objective was to identify how early planning in the FEP process of a project, impacts project outcomes. FEP stages of pre-feasibility, feasibility, concept, and detailed-scope stages are explored with case study examples and quotes by interviewees for all three projects to understand the ultimate impacts on the project outcomes. Chapters 6, 7, and 8 have a dedicated section for discussing the early planning stages. In Chapter 9, the author compiled the findings in a cross-case analysis that revealed the FEP of complex flagship projects post-disaster does not follow the traditional FEP phases proposed by the Construction Industry Institute (1994). The pilot study data and the primary case study amended the FEP model proposed by CII to include a vital pre-feasibility phase that provides for exploring the situation created by the disaster.

The CII proposed FEP phases start with the feasibility stage but the interviewee data suggested that a much-needed first phase should be the pre-feasibility stage, with a primary focus on situation analysis. The situation analysis will look into the changes made to the wider project environment, such as actual and projected population changes, possible effects on the services

that the flagship would be providing, and the changes and plans to the surrounding areas of the project.

The data also suggested that stakeholder management is a process that runs from inception through to the detailed scope stage and beyond. Projects that engage in careful Stakeholder identification, role definition, inclusion, communication, and interaction have a better chance of favourable outcomes, as shown by Chapter 8. The traditional FEP process only mentions Project Team alignment in the front end, but the data suggest that a more integrated approach at each stage is needed. Two projects had good stakeholder management and interaction plans at the concept and feasibility stage, but once the plans were to become more solid and detailed, the focus on stakeholders drifted for one of the projects. From the data and the interviewees' responses, it is recommended that stakeholder identification and project team selection happen at the inception stage to have better control over the activities that follow.

In the case of flagship projects post-disaster, governance of projects at the portfolio level significantly affects planning in the early stages. Governance of projects is identified as a factor that overarches planning, and each project will be subjected to the governance decisions made at the portfolio level. Irrespective of the quality of planning that goes into the early stages, a project's outcomes may be influenced negatively because of governance decisions and conduct at the early stages of planning.

Achieving the aforementioned objective also highlight an important contribution to post-disaster FEP for large public builds. The case studies exemplified a need to study the changes brought about by the disaster and spending time in doing so which in require the planners to form project teams quicker and have more detailed plans in place much earlier than for a normal construction project.

The guidelines were based on the modified FEP phases resulting from the data.

Fourth objective: Investigate the social outcomes of flagship projects in a post-disaster context

The fourth objective of the research was to investigate the social outcomes of flagship projects in a post-disaster context. The outcomes that were found through the pilot study indicated that the root causes of the project limitations lie in the FEP phase of a project. Based on that finding, the research proceeded to explore the limitations of those projects. Each project was explored to understand its limitations. The limitations were mainly dependent upon the decisions taken in the FEP phase of those projects. For CJESP, the wrong selection of procurement route for

a complex project, mismanagement of stakeholder interactions, ignorance of lessons learned from previous projects elsewhere in the world, being fixated on the precinct design, limited stakeholder input into the design, unfair risk allocation, and the poor management of subcontractors are seen as the main factors that cause the limitations.

For Tūranga, the FEP proved that the design and construction success were a result of extensive stakeholder consultation, testing the budgets before lock-in, and following the most elements within the FEP.

For the CBI, the project limitations were partially connected to the situation created post-disaster. The failure to anticipate the project's immediate external environment and the disintegration among the parties that run the facility have limited the positive effects that the project could have created.

All three projects created favourable culture-related impacts by incorporating Maori and Ngai Tahu elements into the design process. The majority of the negative implications for all three projects were economic impacts. Common to all three is the high running costs yet low-income return due to the public nature of the projects. The community impact was somewhat positive as the projects aimed to bring the normal lifestyle back to Christchurch to increase community feeling. All three projects also scored well in terms of sustainability and resiliency as the designers strived to incorporate earthquake-resistant, environmentally friendly technologies into the designs.

Fifth objective: Formulate a set of best-practice planning guidelines for future planning of flagship projects

The fourth or final objective was to prepare a set of guidelines for the planners to consider before deciding to rebuild a city through flagship projects post-disaster. The guidelines are specifically for the NZ context as the pilot, and the main case studies showcased that activities with the phases of the FEP process need to be altered to the specific disaster contexts and would be shaped by how it affects a given location. (Marysville respondents spoke lengthily about the significance of emotional and social recovery alongside the economic recovery expected from the creation of flagship projects. This factor was not mentioned by the respondents from Christchurch central as damage to residential property was limited, unlike for the residents of Marysville).

The guidelines have been carefully formulated based on interviewee data, site visits, and documentary evidence which fulfill the requirement to provide evidence of triangulation within a research study.

11.4 Evaluating the quality of the case study

The research is evaluated for the credibility of the findings in this section. The research process and the research outcome are evaluated, and the research rigour and quality are explored.

11.4.1 *Research rigour and quality*

In the case study design, it is paramount to safeguard the quality and the rigour of the research. At the end of the study, it is recommended that one reviews the process to verify the credibility of the findings.

Within the context of a qualitative study, trustworthiness often refers to the legitimacy, quality, and truthful nature of the findings (Connelly, 2016; Cypress, 2017). The researchers established the idea that the process of trustworthiness can be a way to help researchers persuade

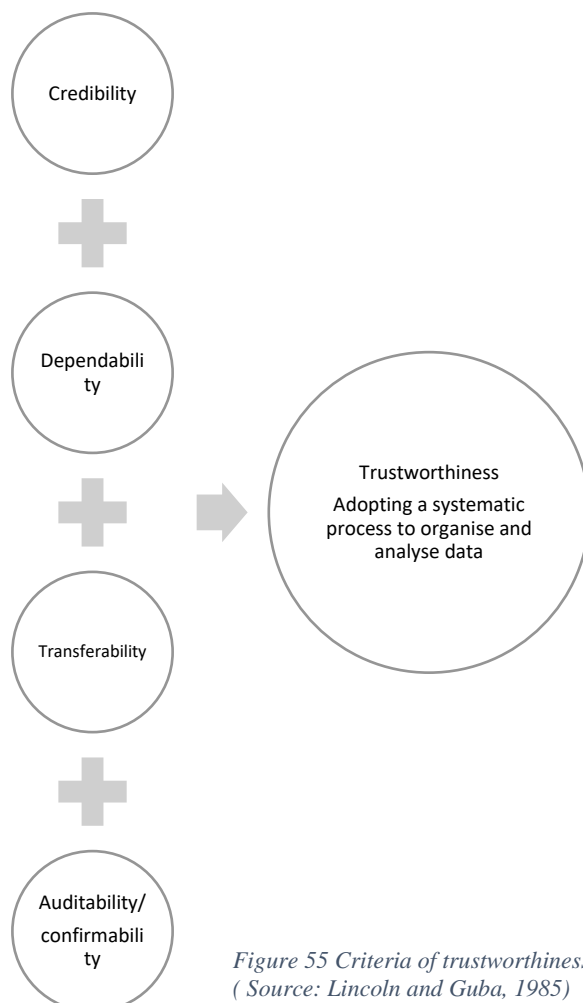


Figure 55 Criteria of trustworthiness (Source: Lincoln and Guba, 1985)

themselves and their readers that their work is noteworthy. The criteria of trustworthiness as noted by Lincoln, Guba, and Pilotta (1985) are credibility, transferability, dependability, and confirmability.

There have been other researchers in the recent past who have made efforts to introduce other criteria to check the quality of research (Whittemore, Chase, & Mandle, 2001). Their criteria include four primary and six secondary or supplementary criteria, of which the adaptability largely depends upon the study type. This research will follow the most established and used

trustworthiness criteria by Lincoln and Guba (1985) (Nowell, Norris, White, & Moules, 2017).

Looking at each of the criteria of trustworthiness, as mentioned by Lincoln and Luba (1985) refers to credibility as ‘taking a research journey that the readers believe in, followed by the provision of a write-up that demonstrates credibility’ (Kyngäs, Kääriäinen, & Elo, 2020).

Dependability refers to a test of the quality of the consistency of the integrated processes from research inception, data collection, and data analysis through to theory generation (Lincoln et al., 1985).

Confirmability is a measure of how well the study findings complement the data or how far the readers confirm the author’s findings and the conclusions (Lincoln et al., 1985; Nassaji, 2020). Guba and Lincoln (1989) said that confirmability is the last step out of the four factors where credibility, transferability, and dependability are all achieved before confirmability.

Transferability refers to the applicability or generalisability of the research findings to other context {Lincoln, 1985 #1093}. In qualitative studies, transferability will depend upon the extent to which the researcher describes the sampling techniques, inclusion criteria used in the study, main traits of the respondents so the reader can decide whether the results are applicable to other settings {Kyngäs, 2020 #1134}

Apart from the above four terms mentioned above, authenticity is another factor that is often mentioned in literature. Authenticity is the researcher’s display of fair and faithful set of realities with the use of citations that can be traced down to identify the category to which the respondent belongs (Kyngäs et al., 2020; Lincoln et al., 1985). They extended the idea to include that the researcher should not present any data that could expose the respondent, which would be unethical behaviour against the data protection act. Due to that reason, the researcher has opted not to include at least one transcript as a sample because the way respondents share information gives an idea of the category they belong. The researcher's choice of the top level of the organisation makes it easy to identify respondents based on their responses. Only quotes that are relevant from different types of stakeholders have been included to support the points made.

The quality and rigour of the research were further checked against a case study-specific descriptions framework to test the extent of the adoption of methodological descriptions of case studies (Hyett, Kenny, & Dickson-Swift, 2014).

The reader can check for the presence of four trustworthiness criteria within the process and the end result of the research work by addressing the questions in Table 32.

Table 32 Checking for trustworthiness criteria within the research process

Questions for qualitative research assessor	Evidence
1. Is this thesis easy to read?	Thesis divided into sequenced chapters
2. Does it fit well as a whole?	Thesis
3. Does the thesis have a conceptual structure that has themes?	Chapter 1-3 and 11
4. Are its issues developed to fit the scholarly standards in academia?	Chapter 1-3 and 9
5. Have quotations been used to enhance writing?	Chapter 4, 5, 6, 7, 8, and 9
6. Has the writer made sound assertions?	Chapter 4-9
7. Has the writer used appendices, headings figures and indexes effectively?	Forward pages, Table of Contents, and thesis
8. Was the thesis edited to a satisfactory academic standard?	Supervisor check, proof-reader check and self-editing
9. Was sufficient raw data produced?	Chapters 4-8
10. Is the intended audience for the thesis clear?	Chapter 1-3 and 11
11. Does it look like individuals have been put at risk?	Chapter 3
12. Is the case defined with sufficient detail?	Chapter 1, 3, 5-8
13. Is there a sequence in the way it is presented?	Chapter 4-9 and 11
14. Is the reader provided a real life experience through the writing?	Chapter 4-9
15. Has the researcher paid satisfactory attention to various contexts?	Chapter 1, 4-9
16. Were data sources adequate and appropriate?	Chapter 4-8
17. Is the role of the researcher and his point of view apparent?	Chapter 9-11, Prologue
18. Is empathy shown for all sides?	Chapter 1
19. Are personal intentions examined?	Chapter 1, prologue
20. Does the study design suit the methodology? (Creswell, 2013)	Chapter 3

Source: Hyatt et al. (2014)

11.5 Generalisability of the research

The generalisability of the research refers to the extent the findings of the study can be applied to other settings. The research study was based on Marysville (Pilot case study) and Christchurch to study the flagship projects that were built after the Black Saturday Bushfires in 2009 and the Canterbury Earthquakes in 2011 respectively.

The main findings of the study concluded that the FEP of a project follows a different path from that of a routine construction project that is affected by the situation created by the disaster. The case studies confirmed that the projects that took time with each of the activities presented within the phases performed better than those that either rushed or skipped an activity. The introduction of the pre-feasibility stage was an indication that the situation needs to be considered at the onset, and the people responsible should be gathered before any planning can take place. The guidelines that were based on the case study findings (interviewee data, case examples, site visit observations, and document evidence) were grouped into the different phases of the FEP process. Guidelines were designed to cover the five phases, namely; 1) Governance and legal provisions, 2) Project pre-feasibility phase, 3) Project feasibility stage, 4) Project concept phase, and 5) Detailed scope phase.

The FEP process is universally applicable. The applicability of the guidelines for Governance and legal provisions will depend on the type of governance that would prevail in post-disaster situations. Australia and New Zealand seem to have a similar arrangement where a recovery authority takes over the rebuilding, and new laws come into effect to support and speed up reconstruction work. It is strongly recommended that other countries take note of the guidelines for governance and legal provisions that are applicable to Oceania, as the guidelines have been developed after a thorough examination of the governance and legal provisions structures used by Australia and New Zealand following large-scale disasters. The rest of the guidelines for the remainder of the phases, from the pre-feasibility to detailed scope, are applicable in other countries despite their governance structure, as those guidelines are project-specific.

There's a well-known argument that case studies do not provide statistically generalisable results (Yin, 2014). They went on to explain that claims made when generalising from case studies cannot be considered as supporting any statistical generalisations but those claims build theoretical premises, which then allow the creation of assertions about similar situations to the one studied. The data gathered through interviews, site visits, and document analysis based on

multiple case studies ensured the simultaneous and triangulated use of different instruments, which allowed the researcher to achieve greater constructive validity for the research (Yin, 2014). Each of the guidelines has been developed with case/document evidence, interviewee insights, and site observations. The best-practice planning guidelines are applicable to any country that would face a large-scale disaster and decide to rebuild a place using large-scale projects to help the decision making of planning officials in the public sector.

11.6 Implications and recommendations

Understanding the effect of the FEP on the end project outcomes has implications for the planners of the flagship projects. The main implication to theory is that the FEP for post-disaster public projects need a different approach than that of ordinary public builds. Applying the guidelines following a disaster would ensure that the special considerations are automatically taken into consideration that will ensure large public builds help rebuild the economies as anticipated. The guidelines will be specifically useful to the planning officials to determine the human resources arrangements and arrange for any other external enabling factors such as governance arrangements so the FEP would be more effective.

Recommendations are presented in Table 33

Table 33 Recommendations from the research

Context	Recommendations
Planners	Conduct post-project reviews for flagships to understand the effects those projects have on society, post-handover
	Register lessons learned for future flagship projects
	Use the guidelines as a basis to establish a tool for future flagship projects
	Do similar outcome investigations for other projects that are completed to strengthen and add-on to the guidelines that are proposed
Stakeholders	Use the case study findings to understand the views of other stakeholders on the role played by each one
Research community	Conduct similar outcome exploration studies on other locations that had flagships built following disaster to expand international applicability/common themes
Policy	Understand the role of governance that facilitates the FEP of projects to ensure those are applied at times of disaster events
	Have an idea of how the governance arrangements shall change prior to the next large-scale disaster

Source: Author's own

11.7 Limitations

Firstly, the research mainly employed a qualitative data collection method-semi structured face to face interviews. The depth of answers that could have been obtained may have been limited due to how the questions were asked. The answers may have been indirectly influenced by the probes based on the participants' responses to the primary questions. Even though every effort was taken to ask similar probing questions, the questions were not common to everyone. Additionally, during the interviews, some participants were reluctant to reveal commercially sensitive information such as the number of bidders, the price of the bids, and the designations of the government officials who influenced the decisions. Even though the researcher assured them that their responses would be treated confidentially and collectively and there would be no adverse impact on them or their organisations. It was particularly, noticeable that the respondents were reluctant to accept their mistakes/shortcomings that affected the project outcomes and passed the fault to other project stakeholders. Perhaps the most crucial limitation was the failure to recruit a decision-making figure from the construction company of the CJESP. To compensate for that, construction experts who built other flagship projects were asked to provide insights. In this context, the respondents belonged to the external expert group, where they provided contextual knowledge about the target stakeholder group (Döringer, 2021). Furthermore, the choice of case-study-based interviews limited the generalisation of the research findings since respondents' answers were grounded on one or more of the three particular case studies/projects. It is difficult to determine the impacts of the above on the research results, and the outcomes may be subjected to methodological effects such as research bias.

Secondly, the initial research plan was to hold a second data collection round in Australia to generalise the findings to Oceania. Due to the covid situation in New Zealand and Australia and the borders remaining shut, this was not possible. The researcher tried to get some respondents to commit to virtual meet-ups, but this proved unsuccessful due to the demands of working from home.

Thirdly, yet related to the methodological effects mentioned above, the use of case study as the research strategy and confined to three case studies, this research provided an output best fit for theoretical generalisation, rather than statistical generalisation as described by Yin (2009).

The findings of this research, basically the guidelines developed to determine the public sector flagship projects post-disaster, should be used in NZ or a country with a similar disaster

rebuilding strategy/approach, rather than a generalised set of guidelines to decide on flagship projects elsewhere. Its relevance to developing countries that adopt different definitions of ‘flagship’ projects is inadequate. The guidelines are only applicable to government-funded/public projects due to the inherent features and cannot be used to determine the appropriateness of any other private investments post-disaster. However, the guidelines can be used as a guide in making decisions about any large-scale government project specially for regeneration purposes within Aoteroa.

11.8 Chapter Summary

This chapter concludes the thesis. This study used a collective case study to understand the project outcomes and the FEP shortfalls linked to those outcomes and to propose a set of best-practice planning guidelines for future flagship projects in NZ. The concluding chapter also assessed the positioning of this thesis as a piece of work that adheres to the standards of quality research work.

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Appendices

Appendix 1: Participant Information Sheet – Employees- For Interviews



Department of Civil and Environmental Engineering
Engineering Building
20 Symonds Street
Auckland, New Zealand
Telephone: +64 9373 7599 ext. 88166
The University of Auckland
Private Bag 92019
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET (Employee-Interview)

Project title: **Anchor projects as cornerstones of city-rebuilding following disaster- Christchurch earthquakes 2010-2011 and Victoria bushfires 2009**

Investigator/Supervisor: **Prof. Suzanne J. Wilkinson**

Name of Student Researcher(s): **Witharanage Lourdes Niransha Rodrigo**

Introduction of the researcher

I, W. L. Niransha Rodrigo, was a doctoral candidate in the department of Civil and Environmental Engineering at the University of Auckland now studying at Massey university since 2019. This ethics form was approved by the university of Auckland at the commencement of studies.

Project description and invitation for participation

The purpose of this Participant Information Sheet is to invite you to take part in the above-mentioned doctoral research study which aims to understand anchor projects that are undertaken following a natural disaster.

In the recent past, the world has seen post-disaster rebuilding taking place as a series of key (anchor) projects that are believed to add value to the cities and to help them bounce back faster and stronger. Therefore, anchor projects following a natural disaster have a significant role to play in the city rebuilding process. As an area that has not been thoroughly researched yet, the study will broaden the understanding of anchor projects. It is believed that in-depth understanding of anchor projects and their role in city rebuilding process will help communities plan better for future hazard events.

The study has the following objectives

- To understand the different types of anchor projects and their respective purpose and objectives in city-rebuilding following a natural disaster
- To understand the process of anchor projects in city reconstruction efforts
- To identify the different stakeholders and explore the roles they play with

- regard to anchor projects
- To formulate a best-practice decision-making guidelines for planning and delivery of anchor projects
- To understand the implications of anchor projects on the community, businesses and the government

The researcher believes the most appropriate insights of this study will come from the experts in the field who were/are involved with the rebuilding of cities through anchor projects. The designers, contractors, sub-contractors and planners' experiences will help identify the role played by anchor projects in disaster reconstruction.

Therefore, the study has the following objectives

- To understand the different types of anchor projects and their respective purpose and objectives in city-rebuilding following a natural disaster
- To understand the process of anchor projects in city reconstruction efforts
- To identify the different stakeholders and explore the roles they play with regard to anchor projects
- To formulate a best-practice decision-making guidelines for planning and delivery of anchor projects
- To understand the implications of anchor projects on the community, businesses and the government

Your business name and contacts for the proposed interview were obtained from the company's corporate website, government website about project details and project related material available on the internet.

Your participation in this research is invaluable to the quality of this research. However, participation is at your discretion and will be respected at all times.

Project Procedures

Your participation is expected at an open-ended, semi-structured interview that will have a maximum duration of ½ hour. The interview will be held over zoom. The interview will be audio recorded given your consent to do so. However, you may request the audio recorder to be turned off at any stage during the interview, without giving any reason.

Data storage/retention/destruction/future use

The recorded interviews will be stored electronically without any third party and/or unauthorised access to the data. The researcher or a third-party transcriber who has signed a confidential agreement will transcribe the data.

The data in electronic format will be stored for a period of 6 years secured under a university server protected by a password accessible only by the researcher and subsequently destroyed at the end of the 6 years by reformatting the storage device. The data will be held for the aforementioned period to aid any peer-reviewed articles that could result from the data gathered.

Right to Withdraw from Participation

You are given the right to withdraw participation in the interview at any time during the interview as well as within a period of two weeks after the interview has taken place, without giving a reason for your withdrawal.

The occurrence of incidental findings in the course of the research is highly unlikely but in the rare event of an incidental finding, the participant will be informed of the same. If you do not agree to be informed of such a finding, you are kindly requested to opt-out of research.

Anonymity and Confidentiality

All measures are taken to ensure your anonymity and confidentiality. The analysed data will be used in a final report, conference papers or journal articles undertaken throughout the doctoral study. However, no person will be identified by name, innuendo or inference in any of the research work indicated above.

A summary of findings will be made available to you on request by indicating on the consent form, if you wish to receive a copy.

It is expected that the research will broaden the understanding of the role played by anchor projects in the overall city rebuilding process following a natural disaster.

Contact Details and Approval

Below is a list of contacts relevant to the research concerned. Please feel free to contact any of the mentioned people with regard to any query about the research.

Witharanage Lourdes Niransha Rodrigo
Doctoral Student Researcher
N.Rodrigo@massey.ac.nz
0064224282349

Professor Suzanne J.Wilkinson at the School of Built Environment
Main Supervisor S.Wilkinson@massey.ac.nz

Alternatively, if you have any ethics-related question, please contact

The Chair, University of Auckland Human Participants Ethics committee at UoA Research Office, Private Bag 92019, Auckland, 1142. Telephone 09 373-7599 ext. 83711. Email: ro-ethics@auckland.ac.nz

Approved by the University of Auckland Human Participants Ethics Committee on 14.09.2018 for a period of three years. Reference Number 021973

Appendix 2: Consent Form: Employees-For Interviews



Department of Civil and Environmental Engineering
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Telephone: +64 9373 7599 ext. 88166
The University of Auckland
Private Bag 92019
Auckland, New Zealand

Consent Form

(Employee- For Interviews)

(This form will be held for a period of 6 years)

Research Topic: Anchor projects as cornerstones of city rebuilding following disaster – Christchurch earthquakes 2010-2011 and Victoria bushfires 2009

Researcher: Witharanage Lourdes Niransha Rodrigo

Email: wrdo429@aucklanduni.ac.nz

Research Supervisors: Prof. Suzanne Wilkinson (Main)

I have read the Participant Information Sheet (PIS) and understood the nature of the study and its significance in the field of research. I have had the opportunity to inquire about the study and have received satisfactory answers to the questions raised. I am fully aware of the role I play in this research and why I have been invited to take part.

- I hereby agree to participate in the research.
- I understand that the occurrence of incidental findings during the research is highly unlikely but in the rare event of an incidental finding, I agree to be informed of such findings.
- I agree / do not agree that the interview will be audio recorded.
- I agree that the interview will last a maximum of 1 hour.
- I agree understand that the interview will be transcribed by the researcher and a third-party transcriber who has signed a confidentiality agreement.
- I understand that if I wish to withdraw from the interview I can do so anytime during the interview and two weeks after the date of the interview, without providing any reasoning for my withdrawal.
- I understand that if I wish to withdraw from the interview I can do so anytime during the interview and two weeks after the date of the interview, without providing any reasoning for my withdrawal.
- I understand that the data that is gathered will be kept password protected in the university server for 6 years with the researcher and the supervisors being the only people having access to data.
- I understand that the confidentiality and anonymity will be maintained throughout the study and the data will be used in a generalised form and solely for the intended research, any conference materials or journal articles that are part of the same.
- I wish to obtain a copy of the summary of findings of the above-mentioned study. If YES, please provide your email address below.

.....

Signature

Name

Date

Approved by the Human Participants Ethics Committee on 14.09.2018 for 3 years. Reference Number
021973

Appendix 3: Interview Poster

Anchor projects as cornerstones of city-rebuilding following a disaster – Christchurch earthquakes 2010-2011 and Victoria Black Saturday bushfires 2009

In the recent past, New Zealand and Australia have seen a trend in rebuilding their cities through anchor/catalyst projects following a natural disaster. Do these anchor projects deliver what is promised? How can we ensure that the future anchor projects live up to their expectations?

I am conducting a research study to understand the role played by anchor projects in city-rebuilding post-disaster and to create best-practice decision-making guidelines for the planners for future anchor projects.



Marysville Conference Centre, Victoria



Marysville Community Centre, Victoria



Christchurch Central Library



Justice and Emergency Services Precinct, Christchurch

Dear Sir/Madam,

You are invited to take part in an interview with a maximum duration of one hour. Your response to the questions will be kept confidential. Please see the attached PIS (Participant Information Sheet) for further details about the project and the interview process. It will be invaluable to have your participation in this project as your input would add value to my research and it will give further understanding of anchor projects from the points of view of all involved stakeholders.

Date:

Time:

Location:

Please inform your willingness to participate within 14 days from this email, to wrdo429@aucklanduni.ac.nz.

Thank you

Yours faithfully,
W.L.Niransha Rodrigo

Approved by the University of Auckland Human Participants Ethics Committee on 14.09.2018 for three years.
Reference Number 021973

Appendix 4 : Semi-structured questions for the main study

General questions (Government Officials)

1. What flagship projects are you involved in?
2. What is your role in the process? Since when?
3. How do you feel about the success of the project thus far? Explain.

Topic specific questions

1. What are the types of flagship projects that were given priority in city-rebuilding? Why?

Prompt? : Objectives?

2. What is the process followed for a flagship project from idea generation to delivery?
3. Who were involved in planning for anchor projects?

Prompt?: Their responsibilities? / Significance of their contribution to the process?

4. What are the important considerations in choosing a project to be a flagship project?
5. What are the successes and failures surrounding the flagship projects that you are involved with?
6. In your opinion, how do the projects that you have been a part of affect the government, economy, community, and businesses?

Prompt: objectives (answer to question 1) versus real outcome?

General questions (Designers)

- 1) What anchor projects are you involved in?
- 2) What is your company's role in the process? Since when?
- 3) What is your role in the process? Since when?
- 4) What is the current status of the projects that your company has undertaken?

5) How do you feel about the success of the project thus far? Why?

Topic-specific

Fit for purpose

6) What is your company's background in handling government rebuilding projects following a disaster?

Prompt? : How was your company chosen as the designer for these projects?

Stakeholder relationship

7) What other organisations and stakeholders were you involved with? With regard to what aspects of rebuilding?

Prompt? : What level of government?

Prompt? : Are you satisfied with the level of engagement and input into the design process from the following parties? Why? Government as Project owners/planners, builders, general public and any other

8) What was your company's role in the building phase of the project?

The process

9) How were these projects put in place? The process from being chosen as a supplier to the point of handover?

Prompt ? : Length? Priority?

10) What went particularly well?

11) What were the key issues?

12) What measurements were in place by your company, to ensure the success of the project? (KPI's in rebuilding project success)

13) What would you change about the process? Why?

General questions (Builders)

1. What aspect of the construction process are you involved in?
2. What is your company's role in the process? Since when?
3. What is your role in the process?
4. How long have you worked in the role?
5. What is the current status of the projects that your company has undertaken?
6. How do you feel about the success of the project thus far? Why?

Topic-specific

Fit for purpose

7. What is your company's background in handling government rebuilding projects following disaster?

Stakeholder relationship

8. What other organisations and shareholders were you involved with? With regard to what aspects of rebuilding?

Prompt ? : Sub-contractor selection?

Prompt ? : Are you satisfied with the level of engagement and input into the building process from the following parties? Why? Government as Project owners/planners, sub-contractors, designers and any other

9. What was your role in the designing phase of the project?

The process

10. Explain the building process of anchor projects from bidding to the point of delivery?
11. What went particularly well?
12. What were the key issues?
13. What measurements were in place from your company, to ensure success of the project? (KPI's in rebuilding project success)

14. What were your building priorities? Why?
15. What would you change about the process? Why?
16. What are the differences between a normal construction project with the government and that of a flagship project?

General Questions (End Users of Christchurch Justice and Emergency Services Precinct, Christchurch Central Library, and the Bus Interchange)

1. What was your role, and how long have you been in the position?
2. What are your thoughts on this anchor project/being in this building/precinct?
3. What is the role of the government in the project since hand over?
4. How has the new building impacted your role?
5. What are the positive characteristics of the building/premises?
6. What are the practical problems that you encounter in your work in the new building, if any?
7. What would you like the government to consider before embarking on flagship projects post-disaster?

Appendix 5: Coding exercise for the pilot study: Marysville

Number	Open coding	Axial Coding	pre-project		Execution	Post-project	Throughout the project	
			Planning	Governance	Execution	Post-completion	Stakeholder Management	Monitor and control
	Issues with flagship projects							
1	Too grand	Financial planning	1					
2	Too expensive	Financial planning	2					
3	Not needed	Project outcomes	3			3		
4	Waste of tax money	Financial planning	4					
5	Volunteer-driven	Project outcomes	5			5	5	
6	Floating population	Understanding population dynamics	6					
7	Ageing population	Understanding population dynamics	7					
8	Ongoing emotional recovery	Emotional and personal recovery	8					
9	Seasonal tourism-led	Market/situational analysis	9					
10	lack of financial support for individuals	Financial planning	10					
11	Location of projects	Urban Planning	11					
12	Loss of history and nature	Urban Planning	12					
13	Absence of gov/council back up	Financial planning	13					
14	Settlement	Understanding population dynamics	14					
15	Ongoing personal recovery	Emotional and personal recovery	15					
16	Low business turnover	Market/situational analysis	16					
17	Poor management skills	Project planning	17					17
18	Poor marketing skills	Project planning	18					
19	Lack of commercial know-how	Project planning	19					
20	Minimal tourism promotion	Project planning	20					
21	Integrated town centre development	Urban Planning	21					
22	Alternative uses of projects	Project planning	22					
23	Customer dissatisfaction	Project outcomes				23		
24	Need determination	Market/situational analysis	24					
25	Post-evaluation	Monitoring and control						25
26	Public consultation	Public participation	26					
27	Hasty rebuilding	Project planning	27					
28	Organisational structure	Public Project Governance		28				
29	Interrelationships between rebuilding actors	Public Project Governance		29				
30	Rigid project processes	Public Project Governance		30				
31	Government laws and regulation	Public Project Governance		31				
32	Readymade plans	Public Project Governance		32				
33	poor quality buildings	Project outcomes	33		33	33		
34	weak procurement	Procurement planning	34					
35	Speed not quality of rebuild	Procurement planning	35					

Appendix 6 : Journal Paper 1

DRC 16



STATEMENT OF CONTRIBUTION DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the candidate and the candidate's Primary Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of candidate:	Witharanage Lourdes Niransha Rodrigo	
Name/title of Primary Supervisor:	Professor Suzanne Wilkinson	
Name of Research Output and full reference: Impact of flagship projects on the recovery of a city post-disaster. <i>International Journal of Disaster Risk Reduction</i> N., & Wilkinson, S. (2021). Impact of flagship projects on the recovery of a city post-disaster. <i>International Journal of Disaster Risk Reduction</i> , 58, 102191. doi: https://doi.org/10.1016/j.ijdr.2021.102191		
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and		
<input type="checkbox"/> Describe the contribution that the candidate has made to the Manuscript/Published Work:		
Literature search, data collection and analysis, and drafted the first manuscript		
For manuscripts intended for publication please indicate target journal:		
Published in the <i>International Journal of Disaster Risk Reduction</i> in 2021		

Candidate's Signature:	Niransha Rodrigo <small>Digitally signed by Niransha Rodrigo DN: cn=Niransha Rodrigo, c=NZ, email=niransha@do@gmail.com Reason: I attest to the accuracy and integrity of this document tion: Auckland, New Zealand Date: 2022.05.11 09:34:54 +12'00'</small>
Date:	11.05.2022
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Impact of flagship projects on the recovery of a city post-disaster

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ARTICLE INFO

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ABSTRACT

Following the Christchurch earthquake sequence in 2010–2011, the New Zealand government formulated a blueprint plan constituting 17 flagship projects to lead the economic and social revival of the city. Taking Christchurch Bus Interchange as a large scale project, the researcher undertakes an ex-post impact assessment to understand the social impacts the project has had on the city of Christchurch. Seventeen face to face interviews with stakeholders of the project revealed that most of the negative impacts are related to the service offered by the interchange and its environment, not limited to the building itself. The identified high impact long-term factors are linked to significant operational costs, relatively novel design, ongoing inner-city construction work, and declining passenger numbers in Christchurch. To achieve the recovery goals set at the start, a project needs to consider fundamental relationships between built, social, economic, and natural environments, align its service with those objectives for the physical building and be public-led. The case study suggested that flagship projects require careful planning that may not be possible post-disaster due to time and resource constraints. The author recommends potential solutions to mitigate the negative impacts that Christchurch faces currently.

1. Introduction

Public projects around the world are known to have the characteristics of poorly-defined objectives [1,2], informal project processes [3], inaccurate cost-benefit estimations [4] and project planning problems due to their high-investment, high-risk and time-consuming nature involving a large number of stakeholders [5]. On top of these routine construction project issues, disaster-specific issues make the post-disaster construction environment extremely complex. The recovery of the built environment essentially has important ties to the long-term recovery of a city. In the long-run, built environment recovery stretches to include a fundamental role in disaster prevention and enabling urban functions [6]. In general, public projects tend to focus on enhancing community development, promoting equality, minimizing environmental deterioration, and practicing sustainable resource use [7].

In post-disaster rebuilding environments, public projects are called 'anchor,' 'flagship,' or 'catalyst' under different contexts. In this paper, the word 'flagship' will be used because it is the term most commonly found in past literature involving similar projects. Flagship projects have become a common city-rebuilding tool following large scale disasters because those projects tend to touch on many rebuilding objectives simultaneously. However, early research on reconstruction projects

following the L'Aquila earthquake in Italy in 2009 revealed that some of the projects that have been built were ineffective in changing the lives of the residents in any productive manner [8]. Some of the flagship projects in New Orleans following Hurricane Katrina, such as large scale flood protection systems, made a strong case against rebuilding in disaster-prone areas as assets become inadequate due to increasing hazard risk [9,10]. Similarly, lessons from Black Saturday bushfires in Australia revealed that some of the catalyst projects that were built by the government served national goals rather than the local needs of the residents and were of little use to the community [11]. Marysville, a town severely damaged by the fires during the bushfires, experienced that reconstruction did not address the community's long-term needs and was limited to a short-term economic improvement that could not be maintained [12]. Nonetheless, projects such as Louisiana Superdome had renowned success post-Katrina. Governor at the time, Kathleen Blanco, referred to the Superdome, a "symbol of recovery," using it to refer to the government's commitment to rebuild New Orleans and showcase the city's 'progressive face' [13,14].

The literature search on post-disaster project evaluations resulted in an evident lack of research on the impact on the natural, built, social, and economic environments. There is a significant gap between the multidisciplinary disaster recovery research findings and the associated tools (such as flagship projects) required for disaster recovery [15]. A

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A Review of Innovative Approaches to Rebuilding Following Large-scale Natural Disasters: A Case Study of Post-earthquake Christchurch, New Zealand

Rodrigo, Niransha; *Wilkinson, Suzanne*
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ABSTRACT

Following Canterbury earthquakes 2010-2011 New Zealand government adopted new ways to rebuild the city. Given an opportunity to find solutions to pre-existed issues in the city, the government was keen to rebuild faster and better. The blueprint that was finalized in mid-2012, had 17 anchor projects to lead its rebuilding efforts along with governance and legislative changes to facilitate rebuilding. Drawing on past literature using the case study of Canterbury earthquakes 2010-2011, this paper reviews the rebuilding process in Christchurch. The study suggests there were limitations to the effectiveness of the processes due to the complex post-disaster environment. Literature provides evidence that the innovative rebuilding efforts suffered from time-pressure to rebuild resulting in hasty planning. Legislative and governance changes had limited impact due to incoherence between public agencies and ambiguity of roles and responsibilities. The final plans had limited public input irrespective of lengthy consultation. Evaluation of literature proposes that the changes adopted should have strategic relevance to ensure the final outcomes are accepted by the public. It is recommended that future research focuses on implications of post-disaster rebuilding practices on the wider community, businesses and the government.

Keywords: Anchor projects, Canterbury earthquakes 2010-2011, Christchurch Central Recovery Plan (CCRP)

1 Introduction

New Zealand, given its geographical setting, is especially susceptible to extreme and adverse weather conditions including flooding, landslides, volcanic eruptions and most importantly earthquakes. The country faced one of the worst earthquake sequences of its history from 2010-2011. The first significant earthquake with a magnitude of 7.1 occurred in 2010, 40km west of Christchurch and resulted in water, power and sewerage services being disrupted. With many aftershocks in between, the next and the most severe earthquake followed in 2011, 10km South East of Christchurch recording 6.3 on the Richter

scale, causing extreme damage and destruction to land, building and infrastructure in the central city and the surrounding area (Potter, Becker, Johnston, & Rossiter, 2015).

At the time, reporters and researchers, referred to Christchurch earthquake (2011) as the worst natural disaster for 80 years of the history of New Zealand (British Broadcasting Corporation, 2011; Telegraph, 2011). It took 185 lives and injured several thousands (Davies, 2011; Gillespie, 2019). It is believed many of the deaths were caused by falling structures that were damaged as a result of the previous earthquake in 2010 (Potter, Becker,

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Rodrigo, N., & Wilkinson, S. (2020) Impact of post-disaster government policy on reconstruction: A case study of post-earthquake Christchurch, New Zealand. <i>International Journal of Construction Supply Chain Management</i> , 10(02), 172-193	
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Impact of post-disaster government policy on reconstruction: A case study of post-earthquake Christchurch, New Zealand

Rodrigo, Niransha, School of Built Environment, Massey University, Auckland, New Zealand
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ABSTRACT

The New Zealand government, following the Canterbury earthquakes 2010-2011, adopted new ways to rebuild the city. Given an opportunity to find solutions to pre-existing issues in the city, the government was keen to rebuild faster and better. The blueprint that was finalised mid-2012, had 17 anchor projects to lead its rebuilding efforts along with governance and legislative changes to facilitate rebuilding. Drawing on past literature using the case study of Canterbury earthquakes 2010-2011, this paper first reviews the rebuilding process in Christchurch. 14 face to face interviews were held with those involved in and subjected to these governance and structural changes. The study suggests the complex post-disaster environment limit the effectiveness of the imposed changes. Rebuilding efforts were hindered by the absence of a proper legislative framework, the ambiguity in defining roles and responsibilities of recovery agents, the time-pressure to rebuild resulting in hasty planning, limited public involvement in rebuilding and the lack of strategic relevance to ensure the outcomes are accepted by the public and fit with the city's image in the long run. It is recommended that future research focuses on implications of post-disaster rebuilding practices on the wider community, businesses, and the government.

KEYWORDS: Anchor Projects, Canterbury Earthquakes 2010-2011, Christchurch Central Recovery Plan (CCRP)

INTRODUCTION

New Zealand (NZ), given its geographical setting, is especially susceptible to extreme and adverse weather conditions, including flooding, landslides, volcanic eruptions, and, most importantly, earthquakes (OECD/The World Bank, 2019). The country faced one of the worst earthquake sequences of its history from 2010-2011. The first significant earthquake with a magnitude of 7.1 occurred in 2010, 40km West of Christchurch, and resulted in water, power, and sewerage services being disrupted. With many aftershocks in between, the next and the most severe earthquake followed in 2011, 10km Southeast of Christchurch, recording 6.3 on the Richter scale, causing extreme damage and destruction to land, building, and infrastructure in the central city and the surrounding area (Potter, Becker, Johnston & Rossiter, 2015).

Reporters and researchers referred to the Christchurch earthquake (2011) as the worst natural disaster for 80 years of New Zealand's history (British Broadcasting Corporation, 2011; Telegraph, 2011). It took 185 lives and injured several thousand (Davies, 2011; Gillespie, 2019). The majority of the deaths resulted from falling structures that were damaged due to the first earthquake in 2010 (Potter, Becker, Johnston & Rossiter, 2015). It was the costliest natural

Rodrigo, N. and Wilkinson, S. (2020). Impact of post-disaster government policy on reconstruction: A case study of post-earthquake Christchurch, New Zealand. *International Journal of Construction Supply Chain Management*, Vol. 10, No. 02 (pp. 172-193) DOI 10.14424/ijcscm100220-172-193.

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disaster for insurers worldwide since 1950, and the government estimated that the overall cost of the damage caused by the earthquake was equivalent to around 20% of the NZ Gross Domestic Product (GDP) at the time (Potter *et al.*, 2015).

The central government of New Zealand, given the scale of the catastrophe and the destruction caused by it, developed a city-wide rebuilding plan named 'Christchurch Central Recovery Plan' (CCRP). It constituted 17 public projects that were to lead the public rebuilding initiative following the disaster. Prior to designing the blueprint, the planners identified the problems Christchurch had in keeping with the image of a global city. An excess supply of bare land in the Central Business District (CBD), incoherence between buildings, a multiplicity of vehicles entering the city centre, yet with limited car parks caused the council to seek solutions to those issues (Canterbury Earthquake Recovery Authority, 2012). Prior to the earthquake, Christchurch City Council (CCC) had intentions to revitalise the city to match the likes of Copenhagen, Dublin, and Milan (Blundell, 2014). The planners viewed the opportunity to rebuild as a second chance to remedy the issues within the central city (Bakema, Parra, & McCann, 2019; McCloud *et al.*, 2014). The disaster called for a new rebuilding approach than the norm in NZ, following the first disaster of a grand scale.

Research Interest and Research Methods

The NZ government made several significant changes to its disaster management policies and governance structures to rise back up economically and socially from the effects of the disaster. These changes were needed to facilitate rapid yet productive rebuilding efforts (Canterbury Earthquake Recovery Authority, 2012; Wilkinson, Rotimi & Mannakarra, 2014). With less than half of the projects fully completed and with limited reviews of the effectiveness of these changes, there exists a significant knowledge gap. This paper strives to assess the effectiveness of these actions when considered as a chain of governmental procedures for more significant turnaround times in their long-term reconstruction response and efforts.

The article will first introduce literature related to the processes adopted after a disaster, along with a review of these processes and outcomes of these practices. The paper will then move on to research methods adopted for this study; interviews with key people who held top positions in organisations that made the changes as well as those that experienced the effects of these changes. These would feed into a set of criteria that limited the outcomes of the governance and structural reforms. The paper would conclude with a list of lessons learned for future flagship projects.

POST-DISASTER GOVERNANCE & STRUCTURAL CHANGES - CHRISTCHURCH POST 2010 EARTHQUAKE

Earthquake Recovery Learning (2019) emphasised that "the disaster destroyed the box so ... have to think outside the box". There is a unique chemistry of circumstance that supports new thinking and ways of doing things". As a result, new tools and approaches to rebuilding were adopted under new legislative and governance frameworks. An extensive literature search revealed the most notable ones to include:

- Canterbury Earthquake Recovery and Response Act (CERR Act) to facilitate recovery following 2010 earthquake

- Canterbury Earthquake Recovery Commission (CERC) to coordinate government’s recovery efforts post 2010
- Canterbury Earthquake Recovery Act (CER Act) to facilitate rebuilding following 2011 earthquake
- Canterbury Earthquake Recovery Authority (CERA) to lead rebuilding post 2011
- Christchurch Central Development Unit (CCDU) to deliver 17 anchor projects in the CBD
- Christchurch Central Recovery Plan (CCRP) constituting of key redevelopment projects
- Anchor Projects as the prime rebuilding artifacts



Figure 1: Governance and structural changes in post-disaster Christchurch (Author’s graphical presentation based on New Zealand Government (2010) and New Zealand Government (2011))

Figure 1 is a literature-driven, author-made presentation of the various legislative, governance (i.e. Acts in parliament and planning documentation), and structural changes (i.e. Committees and Authorities) just before and in the aftermath of Canterbury earthquakes 2010-2011 as established through the New Zealand Government (2010, 2011).

Literature used for the review constitutes government reports, CERA archived documents, independent reports, and academic publications. For this paper, the governance and structural changes will be divided into two phases as those that were introduced pre 2011 earthquake and post 2011 earthquake.

Legislative Background Pre-2011 Earthquake

The first major earthquake of the sequence that occurred on September 04, 2010, resulted in the NZ government declaring its first-ever local state of emergency (Canterbury Earthquake Recovery Authority, 2011b; Parliamentary Library, 2010). Within two days, the Prime Minister appointed a Member of Parliament solely responsible for the recovery work following the earthquake to send a message of commitment to recovery and rebuilding (Brookie, 2014; Parliamentary Library, 2010). The government had limited authority to influence the decisions of local councils, which was perceived to have a crippling effect on rebuilding (Greater Christchurch Group, 2017; New Zealand Government, 2010). Within two weeks of the appointment of the Minister, the cabinet passed new legislation in the form of the Canterbury Earthquake Response and Recovery Act (CERR Act). The cabinet approved this legislation to avoid bureaucracy and to speed up recovery (Johnson & Mamula-Seadon, 2014).

Ten days after the earthquake, the NZ government established the Canterbury Earthquake Recovery Commission (CERC) under the CERR Act. It had the responsibility to act as the advisory board to identify and inform of barriers to recovery and priorities of the process, to enable better coordination between local and central governments, that allowed for orders-in-council to the Minister (Canterbury Earthquake Recovery Authority, 2011b; Greater Christchurch Group, 2017; Johnson & Mamula-Seadon, 2014).

CERR Act expanded the statutory power of the executive level of the government. Yet, the Act restricted the role of CERC to an intermediary that collects information, disseminates funds, informs the government about recovery, and informs people about the government's decisions (Brookie, 2014; Greater Christchurch Group, 2017; New Zealand Government, 2010). As a result, the CERR Act faced problems from residents that the recovery was too slow, with rigid processes, unnecessary haste over planning, and lacking detail around the establishment of the CERR Act and the CERC (Brookie, 2014; Greater Christchurch Group, 2017; Johnson & Mamula-Seadon, 2014). Firstly, the general public was uncertain about the recovery governance process and how individuals and businesses can contribute positively to the recovery process. This was mainly a result of poor community engagement (Johnson & Mamula-Seadon, 2014). Secondly, a clear understanding of the roles of CCC and CERC was not achieved (Brookie, 2014; Glavovic, 2014), with the majority of top-level positions either being part-time or having permanent roles elsewhere. These issues brought the recovery to a halt.

Legislative and structural changes post-2011 earthquake: A dedicated governmental department for rebuilding - Canterbury Earthquake Recovery Authority (CERA)

However, the earthquake on February 22, 2011 was much worse in scale and damage. According to the United Nations International Strategy for Disaster Reduction, the main objective of establishing a recovery agent following a disaster should be to manage the recovery processes through better collaboration between a wider group of stakeholders (UN-ISDR,

2015). It further added that governments should rapidly implement the new arrangement, in unison with the existing good governance practices and institutional arrangements (UN-ISDR, 2015). According to Olshansky and Johnson (2014), Thiruppugazh (2014), and Smart (2012), it is common practice to establish an authority after every large-scale natural disaster due to the realisation of the lack of existing capacity and due to the need to return to business as usual for the government agencies.

On March 24, 2011, just over a month (35 days) after February 22, 2011 earthquake, the government established an innovative organisational framework to lead the rebuilding work, especially the flagship projects that would make a part of the plan (Canterbury Earthquake Recovery Authority, 2011a; Johnson & Mamula-Seadon, 2014; The NZ Government, 2011). Handing over the rebuilding responsibility to an independent authority following a disaster has been practiced elsewhere in the world, such as Victoria Bushfire Recovery and Reconstruction Authority (VBRRA) following Victoria Black Saturday Bushfires, 2009 and Louisiana Recovery Authority (LRA) following Hurricane Katrina, 2005 and Queensland Recovery Authority (QldRA) following Queensland Floods, 2011 (Acosta, Chandra, & Feeney, 2011; Smart, 2014). The NZ government created CERA as a government department following the example of QldRA but with a different institutional framework. The Minister, as a member of the cabinet, indicated more direct control over the rebuild. CERA was a novelty response approach as it was the first time the government had established a disaster recovery agent closer to the disaster point (Office of the Auditor-General, 2017).

CERA was set up to lead a coordinated response to the earthquakes. Main responsibilities of CERA (Canterbury Earthquake Recovery Authority, 2011b) include:

- To lead and coordinate recovery efforts together with Greater Christchurch, the councils, and the communities to ensure timely and effective outcomes
- To handle projects and programs that are significant to the process (including demolitions and purchase of properties to facilitate the blueprint
- To administer the Act
- To establish and monitor the progress of the recovery process

The significant difference between CERC and CERA was that the former was independent but lacked the power to take action, whereas the latter had true power but was tied to the government through the Minister (Dalziel, 2011).

New Legislation to Allow for Speed of ‘Anchor’ Projects Deployment - Canterbury Earthquake Recovery Act

With just two months to go before the expiration of existing orders-in-council, Canterbury Earthquake Recovery Act replaced the existing CERR act. It came with greater powers to override several local council plans and resource consents granted under the Resource Management Act (Office of the Auditor-General, 2017). The CER Act gave CERA the power to change or revoke statutory plans, demolish buildings to make space for the blueprint plan, and to acquire land to make way for the anchor projects (Canterbury earthquake Recovery

Authority, 2016b; Office of the Auditor-General, 2017; Smart, 2014). Minister of Canterbury earthquake recovery was given legislative power to bypass most New Zealand laws to achieve reconstruction objectives (Brownlee, 2012; Canterbury earthquake Recovery Authority, 2016b; Office of the Auditor-General, 2017).

A subdivision to Prepare a Blueprint for the Central City – Christchurch Central Development Unit (CCDU)

CERA and the Minister of Earthquake Recovery understood that much of the city's rebuilding and recovery was based on the development of anchor projects (Brownlee, 2012). People had lost faith in redevelopment, having witnessed demolitions and slow progress for over a year (Carlton, 2013).

CCDU was established as a unit within CERA in April 2012 which was then responsible for delivering the blueprint plan (Brownlee, 2012; Canterbury Earthquake Recovery Authority, 2016a; Office of the Auditor-General, 2017). It was tasked to facilitate the delivery of these projects by streamlining consent processes and coordinating all 17 projects while identifying links between those and promoting the city and its developments to attract investors (Canterbury Earthquake Recovery Authority, 2016a). Location identification, concept development, and draft design, stakeholder management, and promotion of anchor projects were among its main tasks (Brownlee, 2012; Canterbury Earthquake Recovery Authority, 2016a, 2016b).

A Public-led Recovery Plan - Christchurch Central Recovery Plan (CCRP)

A report to the cabinet committee by the Minister for Earthquake Recovery explained the reasons for new legislative changes, powers of CERA resulting from those changes, and the duties resting upon CCDU within the changed rebuilding framework (Office of the Minister for Canterbury Earthquake Recovery, 2012). It further allowed the Minister of Earthquake Recovery to hand over the responsibility to CCDU to prepare a recovery plan for Christchurch CBD in 9 months.

The idea generation for CCRP was exceptional with regard to the extent of public input into the process. Ten weeks following the disaster, a website - shareanidea.org.nz was developed (Carlton, 2013). The website sought contributions towards

- The use: What activities they would do in the city? How would they want to get from one place to another within the city?
- The composition: What businesses and public places they want to see come back into the city? how they would want to move about the city
- The means: How can the city attract people back?

Additionally, public educational institutes, digital and print media were used to educate people about the campaign and to receive their input. (Greater Christchurch Group, 2017; Johnson & Olshansky, 2016). All of these means generated over 106,000 ideas to rebuild the central city.

A draft plan was released within 100 days by taking the input from the public through the aforementioned idea-generation activities. The exercise was a holistic approach involving urban planners, architects, and consultants. Boffa Miskell, Resource Co-ordination Partnership (RCP), Warren and Mahoney, Populous, WoodsBagot and Sheppard and Rout were a few of the companies that participated (Amore & Hall, 2016). They identified anchor projects based on the CCC draft, located them in the CBD and established strategic links between those and provided guidelines for surrounding areas (Amore & Hall, 2016; Canterbury earthquake Recovery Authority, 2016b; Canterbury Employers' Chamber of Commerce, 2016). The final revised version of the blueprint was publicised in July 2012 with details around the 17 anchor projects (Brownlee, 2012; Canterbury Earthquake Recovery Authority, 2012, 2016a).

Anchor Projects as Primary Rebuilding Artifacts

The blueprint constituted of seventeen key projects that would lead the rebuilding initiative of the government. These were addressed as 'anchor' projects.



Figure 2: Anchor projects in Christchurch CBD (Source: Christchurch Central Recovery Plan (CCRP))

Ōtākaro Limited (2019), the company responsible of handling all crown-led regeneration projects in Christchurch after CERA was disbanded, defined anchor projects as those projects which aim to attract people into the city and create opportunities for related establishments to blossom due to their existence in a given location (See Figure 2).

These projects, once completed, will be known as places to live, work and visit (Canterbury Earthquake Recovery Authority, 2012). The definition implies a spill-over effect where the key buildings, once established, will pave the way for other businesses to take root in and around the area. The legislative powers of CERA facilitated the rapid deployment of these buildings allowing the Minister to shorten the process of designating land under the Resource Management Act 1991 (Supreme Court of New Zealand, 2015). The significant effects of the designation were that the landowners had to abide by the wishes of CERA to obtain their lands (either by voluntary agreement or compulsory acquisition) and waive off on the provision of land use consents (Canterbury Earthquake Recovery Authority, 2016a, 2016b). Furthermore, there were restrictions in place for construction work within the CBD as the priority was anchor projects (Sheppard, 2014). The government perceived it necessary to get the city going again before investors return (Wilkinson, Crampton & Krup, 2018). These actions were deemed necessary to unveil the plans in place for Christchurch.

Convention Centre, Avon River Precinct, The Frame, and the Metro Sports facility were indicated as the first projects that would be built. The aim was to bring people back to a more compact CBD that facilitated 'Live, Work and Play' concept of CCRP (Canterbury Earthquake Recovery Authority, 2012).

DATA COLLECTION

The research design for this study takes the approach of a case study. A case study eliminates the gap between theory and real life, by allowing to base the findings in a real life setting (Crowe *et al.*, 2011; Roselle, 1996; Yin, 2014). Rowley (2012) recommended that qualitative methods such as interviews be used if the researcher wishes to find insights and opinions on a relatively unexplored topic that needs to be studied. Extending this idea further, Denscombe (2014) listed:

- Deeply-rooted, personal opinions, feelings, emotions and experiences
- Complex matters
- Privileged insights from key informants

can be obtained through the use of interviews. There is a lack of literature on how government policy affects the reconstruction of the city following a disaster, especially the effect on flagship projects that have been common in the recent past. Therefore, a qualitative approach constituting personal interviews using a case study was undertaken.

Two qualitative research methods were undertaken to understand the innovative approaches to rebuilding following a disaster and their effectiveness: 14 semi-structured in-depth face-to-face interviews and document analysis from 2012 to 2020.

The focus of this paper is only a fraction of a larger doctoral study. In order to make the findings and lessons relevant to Australasia, governance and structural changes in both Australia and NZ following two large scale disasters were studied. A pilot study to understand governance and structural changes after Black Saturday Bushfires 2009 was undertaken in Melbourne. The pilot study helped determine the most appropriate questions to be asked from people implementing and affected by policy and structural changes. To validate the designed questions to the NZ context, those were then sent to six experts in NZ. Their feedback helped ensure the suitability of the interview questions against the context and the research questions. The final interview questions intended to gather information about the research questions: what governance and structural changes were incorporated for reconstruction and recovery processes, what were the outcomes, what were the successes and failures, and what could be taken as lessons based on the participants' experiences.

Each interview lasted approximately an hour. 13 interviews were conducted in Christchurch, and one was held in Auckland in March 2019. The sample was drawn using purposive sampling to ensure that the participants' views were the expert views and contained the correct information. Purposive sampling is useful in studies where the researcher wishes to pick out 'key players' precisely because they are "specialists, experts, or highly experienced – and their testimony carries with it a high degree of credibility" (Denscombe, 2014).

The potential participants were drawn by referring to industry articles, paper, and online material related to post-disaster rebuilding and corporate websites. Using these materials, a list of people (32 in total) who initiated reconstruction work, those who were managing the process, and the decision-makers were identified. The potential participants were then reached through email along with the ethics approval documentation and consent form for participation, which offered more detail about the type of study. Where the potential participants could not take part, other suitable correspondents at the same hierarchy were proposed. The researcher reached out to the total number of directors or highest level of authoritative staff in each company and ensured at least two from each category were on board for the study. All participants belonged to the highest level of authority /decision-making unit within their companies (Director, CEO, Councillor etc.). The study participants were picked to represent the major stakeholders who had a direct involvement in the rebuild. Therefore, the sample can be regarded to be widely representative (see Table 1 for a list of participants).

Table 1: List of study participants

ORGANISATION	NUMBER OF PARTICIPANTS	INTERVIEWEE CODES
Government departments including CERA, CCC, CCDU, and Ōtākaro	6	P1, P2, P3, P4, P5, P6
Engineers involved with demolition	2	P7, P8
Designers of the blueprint	2	P9, P10
Project managers involved with demolition and the blueprint	2	P11, P12
Community Recovery Committees (CRCs)	2	P13, P14
Total	14	

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As the number of people at the highest level of authority was limited and often conveyed the same information and popular opinions, the interviews reached saturation after 11 interviews. Three additional interviews were conducted to confirm data saturation. The number of interviews was deemed to be theoretically sufficient for this type of study when the same insights/opinions were repeated and no novel ideas could be generated by each subsequent interview but are adequate to understand or build a theory (Fusch & Ness, 2015; Nelson, 2017). The findings and opinions were cross-checked against the publicised documents about the governance and structural changes before and after the earthquakes.

The General public was not included in this particular study because the opinions and experiences of the policymakers and the implementers were given prominence over the former. However, local community-level organisations such as the members of Community Recovery Committees (CRCs) were interviewed as representatives of the wider community as they made a part of certain policy decisions and reforms. The sample consisted of the highest managerial level staff at CERA, CCC, CCDU, and Ōtākaro, engineers volunteered during the emergency phase post-disaster, designers, and urban planners involved with the blueprint and project managers that handled demolition work.

Document analysis involved evaluating documents such as progress reports by CERA, CCDU, Earthquake Recovery Learning, government legislation, guidelines, and building reports related to the earthquakes. The advantage of using documents is that they are conveniently accessible by the researcher at a time convenient to him/her, but a significant limitation during analysis is the subjective nature of the material (Fitzgerald, 2012). The researchers were cautious about limiting themselves to primary sources (first-hand accounts produced by the relevant parties) to avoid interpretation and analysis of an event that could be biased and interfere with accurate data analysis (Fitzgerald, 2012). Official information also fared well against the four criteria, first introduced by Scott (1990) that need to be considered before including documents as data sources. These include authenticity, credibility, representativeness, and meaning. The cross-verification of interview data against the analysis of existing documents strengthened the reliability and validity of the research findings (Guion, Diehl & McDonald, 2011). Document analysis also served the purpose of triangulation of data.

Interviews were recorded and transcribed with participant permission. The researchers used a third-party transcribing service. Data analysis was done with the aid of the computer program NVivo 12. The transcriptions uploaded to NVivo were coded and analysed using common concepts and themes along with other documents to formulate recurring themes and categories and contextual relationships among the emerging themes (Hilal & Alabri, 2013). Interview data and information from the document analysis were grouped under five recurring themes. The limitations of the governance and structural changes include the absence of a proper legislative framework, the composition and role definition of the new government organisations, hasty planning, and a non-strategic approach to rebuilding, public involvement in decision making, and lack of reviewing, monitoring and controlling of plans. The results of this analysis will be explained in the following section.

ANALYSIS AND DISCUSSION

The research exercise found that the changes to governance and structural arrangements did not deliver the expected results. The data collected revealed several factors impeded the quick deployment of 'anchor' and other significant developments in the CBD.

Absence of a Proper Legislative Framework

The governance and legislative changes by way of new acts and the establishment of recovery agencies after the 2010-2011 earthquake sequence were perceived to be flawed.

CERR Act and CERC

The CERR act was passed in parliament the same day that a new Minister was appointed to take responsibility for recovery and reconstruction post-disaster. This was an indication of the urgency of the government to commit to rebuilding. This was embraced by the public as a quick reaction. However, as P1 and P3 commented, previous natural disasters did not call for a planned and strategic intervention initiated by governance and structural changes. As per P3

"We were navigating uncharted waters, and it was a learning curve for all people involved. We needed time to understand the governance structure that was needed, but time was what we could not spare".

P13 and P14 said that the general public believed that establishing an authority was done for two reasons. First, to establish the trust of the residents. Second, to follow the example of other developed nations stricken by large-scale natural disasters.

Moreover, according to all the respondents, the recovery was mainly central government-led, and the ministerial powers for execution facilitated central government involvement. P1, P2, P6 and P7 admitted that the role played by the commission was, therefore, nominal and intermediary.

CER Act and CERA

To eliminate the drawbacks of a commission without any decision-making power, CERA after the 2011 earthquake, came with greater statutory power. Due to the liberty to make decisions, CERA had performed well during recovery-initial six months, assessing buildings, cordoning off the red zone, and demolishing unfit buildings. P1 added that there were significant legislative loopholes that were not addressed by the Act, which partly led CERA to have a prolonged recovery phase. The reconstruction phase could not begin as the central and the local governments could not agree as to how the project costs would be divided. P5 addressed that the governance policy should have set out how the financial responsibilities of reconstruction would be shared and about ownership and maintenance of flagship projects that made a significant portion of the vision of a new Christchurch.

P1 believed that much of the blurred vision of CERA was a result of the minister's intervention within CERA's continuously expanding role. International best practice suggests having a layer of governance between the recovery agency and the ruling political party but CERA was established as a government department. Therefore, the mechanism was seen as an

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'untried' and 'untested' recipe that New Zealand was trying (Greater Christchurch Group, 2017). P1 and P2 mentioned that CERA was mainly coordinating with the government and the Minister, while the input from the council was non-existent and direct ministerial control was what the set up wished to achieve. According to all the respondents, the blueprint plan was used as a political tool. P4 and P5 expressed the view that the flexibility and freedom given by the Act, resulted in many of the buildings being wiped out from the CBD due to the political pressure. Previous work by Ballard *et al.* (2015) quoted some examples of heritage buildings being wiped out from the urban setting as a result.

The Composition and Role Definition of the New Government Organisations

Both CERC and CERA were established as government departments headed by the Earthquake Recovery minister appointed after the respective bills were passed at the parliament. CERC led by an independent chair had members including the mayors of Waimakariri, Selwyn, and Christchurch District councils, Environment Canterbury (ECan) Commissioner, and four government appointees. From the beginning, there was inconsistency in how recovery was arranged. CCC failed to make any recovery plans for the city as the Central government took leadership in deciding the fate of the CBD. P3 and P7 held the view that there was a lack of understanding about the separate roles of CERC, the local council, and the central government and how these should be inter-woven to arrive at one common recovery goal.

Unfortunately, the same vagueness in defining the roles and responsibilities of the recovery agent, the council and the central government post-2011 earthquake resulted in similar outcomes. In terms of composition, the team was made of personnel belonging to different government bodies, who had taken temporary roles within CERA. Those people most often were directly affected by or witnessed the disaster and possessed local knowledge (Canterbury earthquake Recovery Authority, 2016b; Office of the Auditor-General, 2017). According to P1, local knowledge could not be put into use due to the lack of knowledge these people possessed in a project environment. Also, P10 declared that most of the staff did not have commercial know-how that was necessary for anchor project deployment and marketing of the recovery plans. P1 revealed that they did not have faith that the people for the organisation have been chosen according to skill, expertise, or experience. The time pressure for results did not allow for the careful selection of people for top-level positions. The same respondent emphasised that the governance arrangement brought together two teams of people who did not have in-depth knowledge of designing or accurate insights on those complex projects.

CERA also struggled from its ever-expanding role during the reconstruction phase. CERA suffered from coordinating issues (Controller and Auditor General, 2017, Wilkinson, Crampton, Krupp, 2018) when at one point, it had to work with 33 public (national and local government agencies) and private entities (Office of the Auditor General, 2017). Complex and expanding role thus limited CERA's effectiveness as a rebuilding agency.

CERA had a flat organisational layout in terms of the structure, allowing people in control to make speedy decisions leading to smoother and effective communication than a tall structure (Smart, 2014). P2 revealed that the structure encouraged separate reporting from each team within CERA, leading to a lack of an organisation-wide effort. Furthermore, its structure meant that CERA's actions overrode the local planning and created power struggles between the local and national governments, delaying funds for the projects (Office of the Auditor-General,

2017). Later in 2012, CERA's lean structure changed to that of a matrix to facilitate the delivery of projects.

The new structure was adopted because it was thought to be more in line with the New Zealand government's recovery framework. P3 expressed the view that cross-team reporting and job rotation created enhanced knowledge and information management. On the negative side, members reporting to multiple managers received conflicting instructions. There was also uncertainty about decision-making and taking ownership of certain decisions that were made (CERA Recovery Learning, 2016). According to all the respondents from the government organisations, top-level employees were not aware of the reasoning behind grassroots level project and programme decisions and this created overall dissension between projects within the government rebuilding portfolio.

Table 2: Status of anchor projects (Source: Ōtākaro Ltd and interview respondents)

NAME OF PROJECT	STATUS
The Frame	Mostly complete
The Earthquake Memorial	Completed in February 2017
Cultural Centre	Scrapped
Avon River Precinct	Partially completed with the first phase completed in 2013. Avon Loop repairs are ongoing
The Square	In construction
Retail Precinct	Partially completed and opened to the public
Convention Centre Precinct	Scheduled to open in October 2020
Health Precinct	Partially completed with the construction of acute services building underway.
Justice and Emergency Services Precinct	Completed in September 2017
Performing Arts Precinct	Planning with the land to build the theatre secured
Central Library	Completed in 2017
Residential Demonstration Project	20 + homes complete, out of the proposed 900 townhouses and apartments
Metro Sports Facility	Construction
Stadium	Planning stage with a business case being commissioned in 2018
Cricket Oval	Completed in September 2014
Bus Interchange	Completed in May 2013
Innovation Precinct	Partially completed with some tech-related organisations occupying the space.

Hasty Planning and Non-Strategic Approach to Rebuilding

The legislative changes, the establishment of CERA, and the designing of CCRP all had a significant role in ensuring anchor projects are established fast so that the city can recover

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economically. However, to date, only five projects have been completed in full out of the 17 projects proposed by CERA with the first project being completed in 2013 (See Table 2).

CCDU was put in place to make sure the 17 projects happen to plan. However, even though the blueprint plan was in place by mid-2012, repetitive aftershocks, delay in developing individual business cases, land acquisition for anchor projects, land remediation work and funding arrangements meant the quick turnaround of projects that was expected took longer (Greater Christchurch Group, 2017; Johnson & Olshansky, 2016; Office of the Auditor-General, 2017). Apart from these, according to P5 the delays were further fueled by outdated plans that had to be revisited to fit the times (plans made in 2012 but executed in 2014 and beyond) and design complexities of flagship projects.

P3 mentioned that there was a sequence for the projects. However, this was restricted to paper. The projects with the resources and a builder went ahead whilst priority projects such as the stadium and the convention centre are still under construction. Restricting individuals and businesses to rebuild their homes and trade until the city plan was decided meant that people shifted away from the city into the outskirts (Williamson, Crampton and Krupp, 2018). P1 admitted that what the government should have done was to establish facilities they have lost in small scale before directing large investments for flagship projects “to keep something going was fundamental to keep the faith of the businesses and tourists”.

P10 and P14 identified that the first earthquake called for a restorative approach. In contrast, the 2011 earthquake needed a strategic approach to rebuilding as many significant rebuilding projects in Christchurch were proposed and built after the second major earthquake.

The government publicised that public engagement and input were the foundation for CCRP and ran an intensive opinion gathering programme stretching over more than three months (Office of the Minister for Canterbury Earthquake Recovery, 2012). Ironically, a strategic plan for the urban setting of Christchurch was only allowed 100 days. The plans, once confirmed, did not offer certainty around ownership of projects (e.g. who is going to own and operate the convention Centre?) or structural relevance (e.g. How the green space (the Frame) will be realised?) (Sheppard, 2014). Structural relevance in this paper is an extension of what has been previously mentioned by McCloud *et al.* (2014). Their work highlighted that flagship projects in Christchurch may promote land use monoculture, leading to other parts of town deserted.

Time pressure also resulted in projects appearing on the blueprint just hours before the cabinet approved it. These were added without economic reasoning. P9 and P10 opined that, as a result, they could not make the best out of the skillfulness and expertise of the design team. P10 insisted that some financial return should be generated by rebuilding projects to ensure the economic revival of the city. P11 and P12 voiced their concerns over the fact that the vast majority of these projects are welfare oriented. According to them, once completed, these projects would take several more years to bring in inward investment within the surrounding areas. Thus, P11 and P12 considered complex high-investment projects to add to the already weak financial position of the local council.

Lack of Public Engagement in Reconstruction

The NZ government had been certain from the first major earthquake that rebuilding would be public led and catered to local needs. However, the general public was uncertain about the recovery governance process and how the individuals and businesses can contribute positively to the recovery process post- 2010 earthquake. P11 and P12 concurred that there was not much opportunity for input into the plans, but the communication was mostly one-way. CERC gathering information about the damage and the destruction and then communicating the government plans accordingly. This was mainly a result of poor community engagement (Johnson & Mamula-Seadon, 2014).

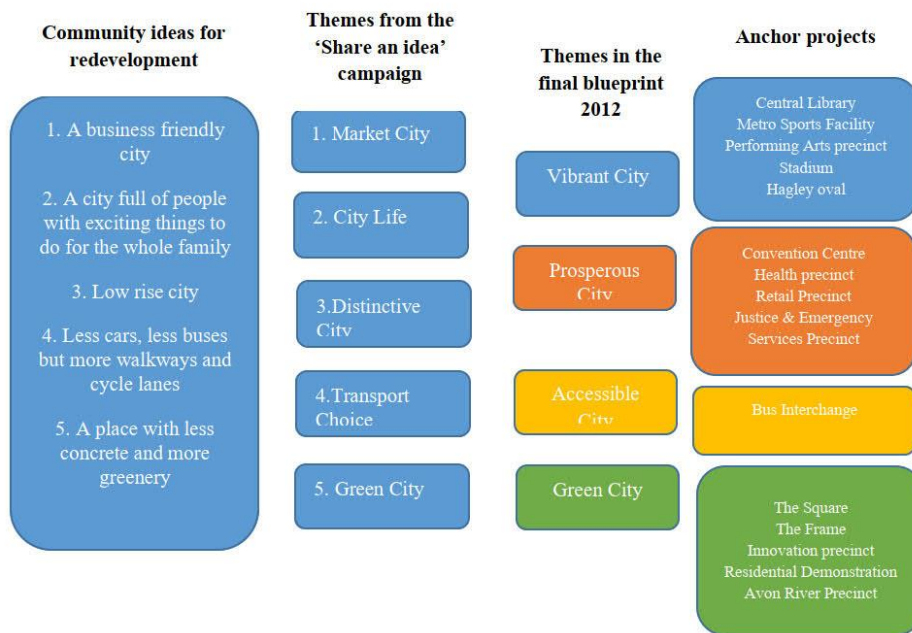


Figure 3: Evolution of themes from idea generation to the final version of CCRP (Author's own using CCRP Canterbury Earthquake Recovery Authority (2012))

CERA started out better, placing the public in the centre of their rebuilding initiatives. However, the significance of CERA's opinion-gathering exercises for the formation of the recovery plan diminished when the final version of the blueprint was released. P5 and P7 felt that the final version was a mere selection of projects off the Christchurch City Council draft plan of February 2010 (Menzies, 2015). Transport-related rebuilding was put down as secondary. The Minister expressed the need to consider the implications of some proposals such as one-way to

two-way street conversions and light rail. These were deemed time-consuming exercises, given their strategic nature and initial investment.

It is universally accepted that public involvement and local knowledge are essential elements to be fed into the decision-making process for urban development following a disaster (Burby, 2003), ensuring high-quality planning (Burke, 1979). However, irrespective of such consultation, it was evident that the government went ahead with its recovery plan (See Figure 3).

Hirschman (1970) emphasised that mere participation without any power to affect decisions may lead the citizens to exit the recovery process, weakening the information base for long-term strategic planning. As a result, some of the projects are considered little relevant to Christchurch but seem to serve national goals of development (Brand & Nicholson, 2016)

Review, Monitoring and Control of Plans

Even though the Office of the Minister for Canterbury Earthquake Recovery (2012) recommended keeping the blueprint as the guide to recovery, P1 said that the Minister did not want to revisit the plan for review and amendments. P6 added that hundreds of pages that gave background details of the projects were never signed off or revisited once the initial draft proposal was accepted and approved. CERA produced its first progress report in 2014 after almost 3 years in operation (Canterbury earthquake Recovery Authority, 2016b). Since then, program management improved, and internal reports, project briefs, weekly status updates to the minister, and programme concept reports were on paper as monitoring and control measures. The lack of consistency in reporting caused missed milestones, unclear expectations, and changes in scope. It was also understood that CERA's ever-changing role made it difficult to keep to the agreed reports and reviews. P5 said that monitoring and control procedures for anchor projects were the same for any public project, irrespective of the urgency to complete. The findings of this research reemphasised the importance of monitor and control during implementation. Previously, under the Build Back Better (BBB) concept, the relevance of monitor and control for successful outcomes across the areas of risk reduction, community recovery, and implementation have been widely studied (Mannakkara & Wilkinson, 2015).

CONCLUSION

This paper explored the limitations of governance and structural changes after a disaster in long-term recovery and reconstruction. To obtain an in-depth understanding of governance and structural changes, relevant literature was compared with the findings from interviews and document analysis. This paper highlights several key factors that hindered the outcomes that were expected from these governance and structural reforms. These include the absence of a proper legislative framework, the composition and role definition of the new government organisations, hasty planning and non-strategic approach to rebuilding, public involvement in decision making, reviewing, monitoring and control of projects and programmes. Lessons learned from the study include:

1. Governance and legislative structures should consider the local disaster context and preferably should be reviewed at six months or so for relevance. If these reforms seem to have limited impact, these can be changed to support rebuilding.

2. To avoid duplication of work and the ambiguity of roles and responsibilities, individuals should agree on workload. It is important to determine how each individual role reflects in the collective approach by the organisation in the broader plan.
3. Strategic city-building projects need careful consideration and planning that require time and should be considered once the city is operating with the bare minimum.
4. Local relevance fuelled by resident input for projects is important to ensure that these projects will be accepted and used once built.
5. Independent governance of projects or a layer of governance between the government and the Minister should be considered to avoid public projects being political tools.
6. To reap the benefits of these reforms, a clear and consistent connection to the end result /outcome and milestones should be determined at the start and reviewed periodically to ensure success.
7. Prioritising anchor projects and having arrangements to incorporate private investment along with these public rebuilding initiatives would have helped the investors gain more confidence in rebuilding.

The findings of this study have to be seen in the light of some limitations. The effectiveness of governance and structural changes studied for this research was limited to short to medium-term effects. It is worthwhile to explore the long-term impacts of those changes on the rebuilding of Christchurch in similar future research work. Another limitation is the applicability of findings of the study internationally or the inability to generalise the findings. Nevertheless, a globally applicable finding from this study could be the importance of linking the proposed governance initiatives with those planning tools and reviewing the rebuilding programs to ensure those changes are delivering the expected.

Some of the practical implications of this current study will help the policymakers avoid these limitations in future disasters that call for structural and governance changes. The evaluation reveals the need for further research to understand these innovative approaches post-disaster on the community, businesses, and the government.

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Appendix 9: Poster presentation at Quakecore Annual General Meeting, 2018

Reviewing issues with anchor projects in Christchurch following 2010-2011 earthquakes

W. L. Niransha Rodrigo

Introduction

In 2011 Christchurch city centre was brought to the ground by a massive earthquake that left the city in a state of destruction. Government-led anchor projects were tasked to bring Christchurch back from rubble within a period of 7 years. Out of 13 proposed projects, 11 have exceeded their completion dates and the ones that are completed, are under scrutiny for failing to deliver the expected.

Objective

The article attempts to understand the issues with these anchor projects and specifically with Christchurch Justice and Emergency Services Precinct (CJESP) from the moment they were assigned a place within the blueprint. An understanding of how these issues feed into disappointing end results for the projects was sought through in depth review of case studies related to CJESP, one of the two completed anchor projects thus far.

Reasons for less favourable anchor project outcomes

Slow speed of anchor projects

- regime uncertainty leading to thriving suburbs
- change in government in power steering recurrent changes to on-going projects and
- lack of commercial expertise and planning by the project owners

Anchor projects swallowed quake-survived buildings

- Quake-survived buildings were demolished to make space for anchor projects. Research reveals that Christchurch lost its image and heritage as a result and rebuilding was further delayed due to negotiations with land owners

Low population return to Christchurch

- Growth of outskirts,
- low property prices and
- the city centre failing to build back at expected rates result in underutilisation of built facilities leading to unbearable operational and maintenance costs.

Financial Implications

- Inability to come into an agreement over financial responsibility of anchor projects and discussions around the same meant delays in getting the anchor projects up and running.

The multi-agency government project to bring all justice, civil defence and emergency related services under a precinct was completed in 2017. Whilst in operation, it is criticised for having the following issues.

Issues with CJESP



Conclusion

Once established the projects seem to be suffering from lack of economic, social and positioning cohesion and absence of situational and need analysis prior to building seem to have made the projects less fitting for purpose than anticipated.

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Appendix 10: Poster presentation at Australian Disaster Resilience Conference 2019



Communities at the core of urban planning - Do they lead or are they misled?

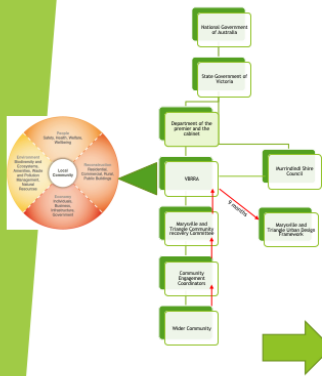
Niransha Rodrigo
Prof. Suzanne Wilkinson

Introduction

Following Christchurch Earthquake (2010-2011) and Victoria Black Saturday bushfires (2009), both NZ and Australian governments opted for a community-led approach to rebuilding the cities. More or less a decade post-disaster, there is a question if the rebuilding that has taken place actually reflect the ideas of the residents of those cities or whether they serve the purpose they were intended to deliver.

Findings

Stakeholder engagement flow in Marysville



Vibe Hotel and Conference Centre (AUS\$28M)
A boutique hotel with 100 rooms and 5 event rooms with a capacity for 350 attendees



Features of Marysville's public engagement strategy

- Workshops and planning days fed into a community recovery plan for Marysville
- BCG, an economic consultancy firm suggested the need of a hotel and convention centre for economic regrowth rather than the town's Community Recovery Committee(CRCs)
- CRCs agree the community welcomed the idea of a hotel because the fires destroyed the two accommodation facilities that Marysville had pre-fire

Planning

- No public engagement or consultation due to 'compressed time frames' once the projects were given OK

Execution

- Citizens rally against demolition of existing pool to make way for Hotel

Control

- Politicians wanted to sort out the disaster before election hence control measures were overlooked

Completion

- 6 years after the bushfires(with a delay of 1 year)

- Outcome
- Employs 1/4 of locals in its staff and sources local produce for its day today operations
- Both the hotel and the conference centre are operating at less than its capacity and was put on market in 2016 after just a year into operation
- 6 out of 8 respondents feel that the overall experience is more than satisfactory
- 4 out of 5 residents questioned feel the facilities are too grand for the small town.
- Increased council rates for the residents

Case study focus

This poster shows how residents' views have been incorporated to overall city rebuilding process and how those shaped the construction outcome of Christchurch Justice and Emergency Services Precinct (CJESP) and Vibe Hotel and Conference Centre, Marysville which were given prominence in rebuilding those cities, as catalyst or anchor projects.

Features of Christchurch's public engagement strategy

- No input from Community forums to CCRP and latter takes suggestions from 'Share an Idea' campaign instead
- All 18 respondents agreed that community participation was present up to the point of designing the 17 anchor projects and not beyond
- Pre-planned projects emerge
- CJESP emerge as a government-initiated project

Planning

- No public consultation after the projects are finalised
- All 3 operational staff interviewed agreed that their inputs were incorporated into detailed design

Execution

- Public backlash over lack of transparency and stakeholder engagement in the execution phase

Control

- No revisiting of original brief due to political pressure to achieve completion.
- Design issues from complexity of unifying justice related services

Completion

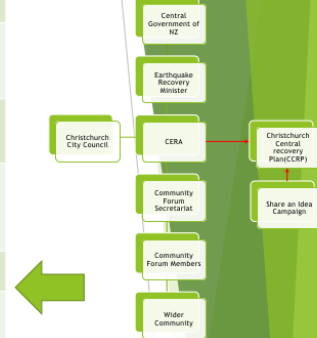
- 6 Years after the earthquakes(with a delay of 3 years)

- Outcome
- End users questions fitness for purpose
- All 3 operational staff interviewed agree that the design has streamlined service delivery
- Some aspects of design remain barriers to optimal operational capacity of the building
- Development of surrounding environment as a result of the precinct design has not taken place as anticipated even though, in 2019 returning of law firms to adjoining roads is evident
- All respondents agree the design is future-focused

Data collection

18 face to face interviews were carried out with the planners, designers, consultants, contractors, operational staff and end users that are involved in anchor projects in Christchurch and 13 with those involved with catalyst projects in Marysville, to understand the level of community involvement in bringing these projects to life. Desktop research was used to validate the findings and some areas were explored further.

Stakeholder engagement flow in Marysville



CJESP costing NZ\$300mm brings together all justice and emergency services under 1 roof.

Conclusion :

- Anchor projects often emerge as pre-planned projects that fit post-disaster needs
- Community involvement is only evident during the planning phase and are mostly limited to one way communication beyond that, i.e. communicating progress or giving updates and it decreases overtime
- Lack of engagement and transparency result in non-ownership of project after completion
- VBRRRA's public engagement resulted in CRCs having a direct effect on the outcome of Urban and triangle design framework and it appreciated the emotional recovery stages that residents experienced(arranged a day of celebration at three months and a 3 day planning session at four months post-disaster)
- VBRRRA attempted to localise its catalyst projects to suit each town but the end products mismatched the image of the individual towns
- CERA's approach is catering to national goals
- CERA's misalignment of input from CRCs and final blueprint is evident of wasted effort of public consultation
- Time pressure prevents anchor/catalyst projects engaging in public consultation
- Continued government support is needed to achieve strategic relevance
- Realisation of positive effects of catalyst projects may take a decade or more post-disaster

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Considerations for successful public engagement

Community Recovery Committees (CRCs) for each town

- Is there a presence of self-selected members + Council appointed members representing diversity of the community including members of the business community and community leaders to plan for their respective cities rather than a national or local government led approach?
- Is there a public place i.e. a community hub available to ensure continuity and ease of meeting up for future gatherings?
- Have CRCs determined methods of continuous communication of progress to the wider community?

Where are we now?

- Have the CRCs undertaken situational analysis including risk and need analysis considering population data, past usage behavior of similar facilities and the building environment post-disaster?
- Do the plans consider long-term strategic relevance?

Where do we want to be?

- Initiation :** 1. Determine a list of anchor projects
2. Recruit members from the community who are directly linked to the fields that these anchor projects cater to
- Planning :** 1. A pre-determined budget that demarcates the scale of each project
2. Invite relevant members of CRCs to get feedback into initial/concept design
3. Transparency around changes to current urban landscape i.e. demolitions and land acquisitions
4. Find alternatives for projects that are dismissed and offer justification for decisions made by the planners

Are we there yet?

- Monitor and Control :** 1. Feedback that is linked to initial plan and necessary alterations and engaging with CRCs to discuss detailed design stages
2. Have a contingency plan for each anchor project
3. Increase their initial plan fail so that there is greater accountability in spending tax payer's money.
- Execution :** 1. Periodic and continuous updates
- Completion :** 1. Celebrate and emphasize on community ownership of project

Appendix 11: Photographs of Marysville’s flagship projects

Photographs were taken by the author during the data collection visit to the town in 2019.

Vibe Hotel Marysville



The room occupied by the author during their stay



The swimming pool



The front view of the hotel



The side view of the hotel



The restaurant of the hotel

Marysville Convention Centre



The Front view of the Convention Centre adjacent to the Vibe hotel

The Police Station



The front view of the police station

Marysville Primary School



The front view of the school and the entrance



Placing related establishments together for cohesion

Marysville Community Centre



The Stadium

