

Rebuilding A City From the Pipes Up:

An Examination of the Public-Private Partnerships Responsible for Building a New Christchurch

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It's every planner's dream to build a city from scratch. But what if it was a city devastated by two major earthquakes, a mere 6 months apart? This was the reality faced by the citizens, planners and engineers of Christchurch in 2010 and 2011 respectively. In what was a previously unknown seismic zone, Christchurch was hit with an earthquake measuring 7.1 on the richter scale 10 km below ground, in September of 2010. Six months later in February of 2011, Christchurch was hit again with an earthquake measuring 6.3 on the richter scale, less than 5km below ground. The second earthquake delivered a devastating blow to the City's horizontal and vertical infrastructure and destroyed a majority of the City's downtown and rendered several suburbs as red zones. To put things into context, over 1,700 of Christchurch's 2,300 commercial buildings in the city's core were deemed unstable and inhabitable after the string of earthquakes that occurred in these two years. Rebuilding the city after these major earthquakes was nearly impossible, due to the occurrence of over 8,300 aftershocks in the year that followed the initial September earthquake.

As a response to the devastation faced in Christchurch, the heads of several key public and private organizations in the Christchurch area came together to discuss how to begin the rebuild process. The 'Stronger Christchurch Infrastructure Rebuild Team' (SCIRT) was formed

consisting of 'owner' participant organizations and 'non-owner' participant organizations. The owner participant organizations are made up of representatives from the Canterbury Earthquake Recovery Authority (CERA), Christchurch City Council, and the New Zealand Transport Agency, which are responsible for providing funding and resources from the public sector.

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The non-owner participants are made up of five separate private construction companies. What makes this model so unique and unlike any partnership formed before, is that the framework encourages both collaboration and competition. As different projects receive funding, each of the five contracting companies place a bid to complete the work. A contractor is then selected based on the success rate of the other projects completed with SCIRT: how quickly their work was completed and how effectively they stayed within the budget, among other key performance measures. Every time a project is successfully completed, the company with the winning bid keeps a large portion of the profit while the others are awarded a fraction of that profit. When contractors struggle to complete a project within the time and budget constraints,



Image: Christchurch's iconic church remains in ruins amidst debates about safety and demolition.

other companies contribute resources and manpower so that they do not miss out on their portion of the total profits.

This allows the work to be completed quickly and within the budget, thereby streamlining the work to be completed and allowing the City to more effectively rebuild critical horizontal (or underground) infrastructure. The competitive yet collaborative nature of the organization is what makes this framework transferrable to other cities across the world.

Although this model has been largely successful in achieving its goals, with nearly 78% of the projected work completed thus far, there have also been major barriers in re-establishing underground infrastructure in a timely manner. Because the cost of damage incurred was upwards of NZD \$40 billion, a stable funding agreement while initially effective, quickly began to give way.

The three primary funding agencies could not agree on priority funding areas and the scale of rebuild required. The funding responsibilities also became contentious, with the owner-participants being unable to decide what portion of the costs they were required to pay.



Image: A temporary shipping container mall erected to help local businesses recover while the construction of a permanent mall is underway.

The City of Vancouver has been anticipating a major earthquake, predicted by some experts to be a magnitude of 9.0 on the richter scale. While the City has effectively developed an Earthquake Response Plan, based largely on the actions taken by Christchurch immediately post-disaster, the City still lacks an effective framework to address major issues related to the rebuild of critical infrastructure and the various funding strategies required to do this. The structure of this model allows it to be developed before disaster strikes; allowing public sector funders to develop a framework that assigns responsibilities for particular infrastructure projects anticipated in the recovery process. Economic and disaster modelling can provide funders with an anticipated budget and can allow them to develop strategies to meet individual targets. Setting clear priorities ensures that key players are held responsible for contributing the necessary funds to rebuild underground infrastructure after emergency services are delivered.

Potential funders could include local governments, the BC Ministry of Transportation, the Province of British Columbia and the Federal Government. Other funding agencies may also be identified for alternative funds related to emergency housing provisions and the like.

While Christchurch's progress has been slower than most would have anticipated; the scale of destruction, the cost of damage, and the continuous onslaught of aftershocks have proven challenging. These realities however, are ones that need to be recognized by local governments in British Columbia as being the likely outcome of disaster when it strikes. What can be planned for however, is how frameworks can be set up to effectively deal with the enormous cost of rebuilding a city from the pipes up.



Image: Construction continues on the City's main stadium in the downtown core.