

Lessons learned from one of New Zealand's most challenging civil engineering projects: rebuilding the earthquake damaged pipes, roads, bridges and retaining walls in the city of Christchurch 2011 - 2016.

## What is SCIRT?

**Story:** What is SCIRT?

**Theme:** The SCIRT Model

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An article that explains the innovative work of SCIRT in a post-disaster environment.

This document has been provided as an example of a tool that might be useful for other organisations undertaking complex disaster recovery or infrastructure rebuild programmes.

For more information about this document, visit [www.scirtlearninglegacy.org.nz](http://www.scirtlearninglegacy.org.nz)



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**Background**

A purpose-built organisation, the Stronger Christchurch Infrastructure Rebuild Team (SCIRT) rebuilt the publicly owned horizontal infrastructure of roads, retaining walls and bridges and the fresh water, wastewater and stormwater networks damaged by the Canterbury earthquakes.

Three public and five private sector organisations worked together under the SCIRT alliance. Its construction teams competed for work during a five-year programme of nearly 700 projects spread across the city. SCIRT was funded by New Zealand taxpayers and Christchurch ratepayers, along with a small amount of insurance.

The scope of rebuild work was expected to be between \$2 billion and \$3b. It was limited to \$2.1b halfway through the programme.



**Principles and objectives**

The work was defined by damage repair levels and design and construction parameters set by the funders and asset owners.

The variables involved would be subject to funding agreements and options for enhancements. These would be reset three times.

Broader programme objectives from funders or asset owners refined the scope. These were developed in parallel with the creation of the contractual agreement binding the participants.

In summary, the scope of work and approach – using constructor partners and hired designer resource and public entity staff – were developed and agreed on by the asset owners and funders in a tailored agreement.

**Challenges to be addressed:**

The challenges could be grouped into key areas that defined the value of SCIRT.

**In getting started**

- Huge scale – biggest civil rebuild programme in NZ history
- Damage and scope largely unknown
- Urgent output required to address community needs
- Commercial control to ensure value for money

**To do the right work**

- Asset/damage assessment took time
- Agreement on scope and standards
- Design consistency across hundreds of projects
- Cost control of all parts of the organisation and work
- Price control of the subcontractor and supplier market
- Risk management of programme, projects and working with other rebuild entities

**To do the right work in the right sequence**

- Stakeholders' priorities reflected in the order of work
- Coordination with other programmes and third parties
- Constraints management for interdependencies and impacts on communities
- Deployment flexibility

**To enable progressive improvements**

- Uniform high standards
- Sharing best practice and innovation
- Comprehensive measurements
- Continuous improvement focus
- Focus on delivering best value for programme

The "Value of SCIRT" report set out features and processes that addressed these challenges, and the results achieved.

**Successful initiatives**

Form and function: The SCIRT Model was the most successful initiative, regarding creation, ongoing review and adaptation, and in the results achieved.

Safety: Achieving 2.8 million worker hours without a lost time injury.

Engagement: From the outset, SCIRT interacted with stakeholders and the general and business public, outlining intentions, progress and achievements. Regular surveys showed high approval ratings.

**Lessons learnt**

SCIRT created a Learning Legacy facility of about 75 items across eight themes, describing features, operations, successes and shortcomings. The legacy site was launched in March 2017.

At the highest level, the lessons included:

- The SCIRT Model was very successful during the post-disaster rebuild, particularly in terms of safety, environment, time, cost, quality and overall value.
- A high level of staff satisfaction and alignment of outlook was achieved from initiatives focusing on its people.
- The inclusive approach to the public regarding planning and delivering activities reaped rewards of confidence and community support.

**What would you do differently?**

The principal challenges arose from two aspects:

- The funders had different views on the appropriate infrastructure rebuild scope, standards and spend, which could have been aligned earlier.
- The competitive element of the model created tensions between Delivery Teams and designers and project cost estimators. More early training regarding the delivery model would have benefited the programme.

