SCIRT Rebuilding Infrastructure

LEARNING LEGACY

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.

Scope Management Plan

Story: SCIRT Management Plans

Theme: The SCIRT Model

A plan which outlines the principles and methodology for the development of projects.

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

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SCIRT
Rebuilding Infrastructure

Scope Management Plan

Review:

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ACRONYMS, ABBREVIATIONS AND DEFINITIONS

AA	Alliance Agreement
CCC	Christchurch City Council
CERA	Canterbury Earthquake Recovery Authority (later became Department of Prime Minister and Cabinet (DPMC))
DMP	Design Management Plan
DTL	Delivery Team Leader
EGM	Executive General Manager
EMP	Environmental Management Plan
FMP	Financial Management Plan
GST	Goods and Services Tax
HIGG	Horizontal Infrastructure Governance Group
IRTSG	Infrastructure Rebuild Technical Standards & Guidelines
IST	Integrated Services Team
IRMO	Infrastructure Rebuild Management Office
ITP	Inspection and Test Plan
KPI	Key Performance Indicator
KRA	Key Result Area
NZTA	New Zealand Transport Agency
NOP	Non Owner Participant
PMP	Programme Management Plan
QMP	Quality Management Plan
SCIRT	Stronger Christchurch Infrastructure Rebuild Team
TOC	Target Out-turn Cost

1 INTRODUCTION

1.1 Purpose

The purpose of the plan is to outline the principles and methodology for the development of projects based on the Owner Participant requirements. At the start of SCIRT the requirements were defined in the Infrastructure Rebuild Technical Standards & Guidelines document (IRTSG). In August 2014 the requirements changed to being defined in the Network Guidelines.

1.2 Objectives

The objective of this plan is to ensure prioritised catchments and projects are scoped to meet the Alliance objectives to repair earthquake damaged infrastructure in-line with Owner Participant's Guidelines for levels of repair or renewal.

1.3 Requirements

The IRTSG has been produced by Christchurch City Council (CCC) and NZ Transport Agency (NZTA) to identify the scope, objectives, intervention levels and defined standards for the response to the Christchurch Earthquake events.

In August 2014 the Network Guidelines were issued by the Horizontal Infrastructure Governance Group (HIGG). These were endorsed by CCC, NZTA and CERA.

Rebuild/repair criteria have been produced for the following assets:

- Wastewater assets including pump stations but excluding the Wastewater Treatment Plant
- Roading assets including bridges and retaining walls
- Water Supply assets including reservoirs and pump stations but excluding Wells
- Land Drainage assets excluding open channels and rivers

It is intended that this document outlines how these documents are used to define the scope of individual projects.

1.4 Relationship to other Management Plans

This Scope Management Plan has interfaces with other Management Plans in the programme set:

- Prioritisation Management Plan – outlines how the projects are prioritised and released for scoping to support the programme.
- Design Management Plan – outlines the methodology and principles for the Concept and Detailed Design process.

2 PROJECT SCOPING PROCESS

Project Scopes are produced to allow project initiation within the SCIRT business process, ordered by the prioritisation framework outlined in the Prioritisation Management Plan. Information produced for the scoping process includes information to allow all known factors to be considered by the Design teams when developing the Concept solutions.

2.1 Definition of Projects and Project Boundaries

There are two main interdependencies used to define project boundaries, network interdependencies to define catchments, and proximity dependencies to define projects:

- **Catchments**: Network assets such as wastewater and stormwater pipes can only be designed by considering the damage to the hydraulic catchment area. Due to the widespread ground settlement, individual lengths of pipe cannot be replaced in isolation. This is because gradients have changed and in some cases no longer meet hydraulic capacity, or self-cleansing velocity requirements. Therefore all wastewater and stormwater assets must be designed within independent hydraulic catchment areas.

  For SCIRT purposes, the Wastewater Hydraulic model catchment boundaries or groups of catchments have been used and specifically referenced as 'Rebuild Catchment Areas'. These can be seen on GIS.

- **Projects:** The project boundaries can only be defined for network assets once the Catchment Concept Design is complete. Based on proximity interdependencies, assets are grouped with other assets in geographical proximity to achieve a target project size of $10M, or to achieve a one pass approach. Therefore a catchment is broken into a series of projects for the detailed design and delivery phases.

  Structural assets such as bridges, reservoirs and retaining walls are also grouped if appropriate to provide value opportunities, or if no interdependencies exist, then a stand-alone project is created.

The prioritisation process then defines the order to which these projects are released to the Design teams through the creation of a Scope Report.

2.2 Project Scope Reports

Scope Reports are produced to identify the damage levels within the catchment area along with all associated factors relevant to the design process known at the time. This information identifies the assets which are to be included in the project to meet the overall scope of work.

The reports include the following information to assist the Design teams:

- Network Performance
- Asset Condition and Earthquake Damage

- Existing Projects within, or adjacent to the scoped area
- Early identification of known programme risks
- Opportunities for betterment
- Value opportunities including CCC/NZTA Capital work inclusion
- Planned work by Utility operators
- Project Definition estimated TOC
- External factors and strategic plan inclusion and consequence
- Community priorities (Medical & Emergency, Schools, Hospitals and transportation - MESHT)
- Consent, Planning, Environmental and Heritage issues

2.2.1 Network Performance

For earlier projects carried out in accordance with the IRTSG: A requirement within the IRTSG states that the rebuild work will return levels of service to pre earthquake levels. Therefore where known, the Scope Report details the changes in network performance following the earthquake events. This may also include historic performance issues to identify any betterment (also known as Improvement) opportunities the Owner Participants wish to include within SCIRT's scope, funded separately to maximise value opportunities.

2.2.2 Asset Condition & Earthquake Damage

The Guidelines have different rebuild criteria for the different asset types. The Asset Assessment Team is responsible for the collection of this data through various methods of surveys, testing and predictive modelling. The asset condition is based on the severity of the earthquake damage. This information along with statistical analysis is included in the Scope Report. The collection of this data is a progressive process and therefore the designers, as part of their Concept Design identify gaps in information and make further assessment requests to finalise the actual repairs required.

2.2.3 Existing Projects

The Scope Report summarises all existing SCIRT projects within the proximity of the catchment/project being scoped to ensure that interdependencies on other designs are taken account during the Concept phase and avoid duplication of work.

2.2.4 Risks to the Project

Early identification of risks are included where known. This will be specifically around programme risk rather than project risk which will be developed during the design stages. Conflicts with other work or dependencies on strategic plans may be identified risk areas.

2.2.5 Opportunities for Betterment or Planned CCC/NZTA Capital Work

The Scope Report identifies any short/medium or long-term capital projects that overlap with the rebuild catchment area. This is to ensure that any value

opportunities are identified, or that the long-term needs are accounted for within the design process, though funded separately if approved by the Owner Participants. The Scope Report initiates the consultation process with the Asset Owners where these overlaps are identified.

2.2.6 Planned work by Utility Owners, Other Asset Owners or other Rebuild teams

SCIRT's GIS system is used extensively to build and update other work programme information to identify conflicts, duplication of effort or risks to the SCIRT programme. This information is to be reviewed and updated by the Design and Delivery Teams, who will to manage these issues during the project lifecycle.

2.2.7 External Factors and Strategic Plans

There may be multiple external factors affecting the SCIRT project or programme of work. Where known, these are accounted for within the project prioritisation process if SCIRT needs to support other recovery or rebuild programmes. The Scope Report includes a description of these known issues for consideration within the design process. These may include (the list is not exhaustive):

- Strategic Transport Plans
- Wastewater Strategic Plans
- Water Supply pressure rezoning
- Central City development & Blueprints
- CCC Suburban Centre Plans
- Port Hills Geotechnical work
- Land Use Recovery Plans
- Population movement
- Red Zone land decisions
- Social, economic, environmental or cultural drivers
- Market led recovery
- Community needs or political imperatives

The Project Definition Team will liaise with the appropriate key stakeholders to ensure the required information is reported within the Scope Report. However SCIRT is reliant on the Client Management Team to instruct on the existence, relevance, affect or consequence of these factors.

2.2.8 MESHT Influences

Medical & Emergency, Schools, Hospitals and Transportation requirements may require consideration or influence the timing and priority of the programme. The location and details of these important community facilities is identified in the Scope Report.

2.2.9 Consent, Planning, Environmental and Heritage Requirements

The SCIRT GIS holds all CCC information relating to these issues. The Scope Report provides these details where identified.

2.2.10 Project Definition Estimated TOC

The Scope Report provides a high level Delivery Target Outturn Cost to allow the volume of work to be assessed for resource utilisation. This is based on level of damage and average rates for different types of assets. At this stage of development, this TOC is for administration purposes only, and aims to be +/- 25% of the designed value.

2.3 Gate 0 Approval Process

Once the Scope Report is complete, this document is reviewed and approved by the Asset Owner Representatives to ensure alignment with the objectives of the Alliance, and alignment with Owner Participant scope requirements.

The Project Definition Manager creates a project number within Project Centre which is used for the Scope Report.

Completing the process within Project Centre is the Gate 0 approval and the project is then passed to the Design Allocation phase.

2.4 Project Scope Changes

During the Concept design process, option selection and inter-dependencies created through adjoining catchment areas may require project boundary changes. In these cases, the designers complete a Scope Change Form and discuss the changes with the Project Definition Team. On agreement, the Project Scope Change is added to the Project on Project Centre and the boundaries / inclusions / exclusions reflected in GIS. It may also be appropriate to update the Project Definition TOC at this stage.

3 PERFORMANCE MONITORING AND EVALUATION

3.1 Monitoring

The Project Definition team present the Scope Reports to the Design team members at Project Initiation meetings as a handover process once the Project has gone through Gate 1 (Project Design Allocation). Any feedback with regards to information required to facilitate the design process is fed back into the next Scope Reports for on-going development of the process.

The Project Definition phase (prioritisation and scoping) is also included in SCIRTs audit schedule.

3.2 Evaluation

The results obtained from monitoring and measuring will be evaluated to:

- Correct poor performance
- Identify the reasons for poor performance

- Address the potential likelihood of future poor performance

From the monitoring activities, conformity with the processes and procedure in the management plan set will be evaluated. Non-conformances will be identified and addressed utilising the systems defined in the Quality Management Plan.

The results of monitoring will be evaluated against the programme objectives and targets in identifying opportunities for improvement, utilising the systems defined in the Quality Management Plan.

These evaluation processes will operate independently of any internal or external audit/review function, and are a core management responsibility.

4 MANAGEMENT PLAN CONTROL

4.1 Authorisation

Initial authorisation is in accordance with the AA, Section 6.1.1, authorised by the EGM and submitted to the Board for approval in the first Board meeting following the execution of the AA.

Subsequent revisions to plans will be authorised by the EGM unless the EGM deems the revision requires endorsement by the Board.

4.2 Distribution

This Plan is a controlled document and shall be distributed and revised in accordance with the SCIRT Quality Management Plan. Hardcopies are Un-Controlled copies. The Controlled copies are maintained in Project Centre which supports various project management functions for the Programme including "configuration management" i.e. version control of documents.

4.3 Auditing

Systematic internal audits will be undertaken to monitor the Plan for suitability, relevance and effectiveness. The auditor will be a person who is independent of the activity being audited.

Various audits are undertaken, including but not limited to:

- Internal Audits (System)

Refer to Quality Management Plan.

4.4 Management Plan Review and Revision

This Plan is a dynamic document that is current at the time of issue. The process for monitoring and review of the Plan or its implementation and operation are detailed within the SCIRT Quality Plan.

The document may be revised and updated in response to areas identified for improvement, such as:

- Changes in the Requirements and Minimum Standards defined in Schedule 5 of the AA
- Substantial changes in design or scope, construction sequence, staging, methodology, process or resource
- Requests by a Statutory Authority
- Internal and external audits, and necessity for corrective action
- Suggestions and comments from personnel
- Preventative action following a non-conformance

5 RECORDS AND REPORTING

5.1 Project Information, Data & Records Management

Scope Reports are uploaded into Project Centre through the Gate 0 approval process. The data sets used for the Scope Report are dynamic and therefore kept on GIS with continual updates. Because of this, the Report is accurate at the time of reporting with updated data reviewed through the design process.

For management, storage and archiving of project data, refer to Administration Plan.

For IT Systems, including support, security, licenses and usage, refer to Administration Plan.

5.2 Reporting

Significant Non-conformance with this plan will be included in the Monthly report to the Board.

6 ROLES AND RESPONSIBILITIES

Schedule Management Plan	Responsibility								
Role	Alliance Manager	Human Resources Manager	Community Stakeholder Manager	SQE Manager	Delivery Managers	Professional Services Manager	CCC Interface Manager	Value for Money Manager	Commercial Manager
Plan Issue/Revision authorisation						Own			
Monthly Report Content						Own			