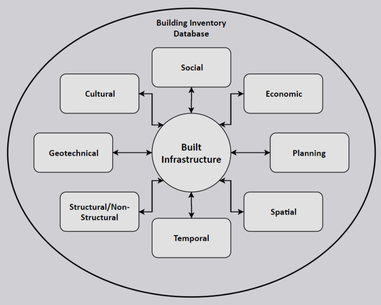
Technology Platform 3: Multi-Disciplinary Community Datasets

Demonstrating Nationwide Scalability of a GIS Building Inventory for Seismic Risk Research, Planning, and Decision Making

The Problem

Multi-disciplinary datasets exist, but are not currently linked to a standardized format that can be used easily. Research, solutions and decision making could be better informed with integrated datasets, appropriate tools. If extended nationwide, this database could enable world-leading research across the country and aid communities become more resilient in the face of a seismic event.



Key Thrust Areas

1. Linking multi-disciplinary researcher and community knowledge
2. Integration of datasets into a new multi-disciplinary dataset initiative
3. Development of database tools for understanding links between data and facilitating database development, appropriate access, and usage

Objectives of TP3

Collaborate with two/three councils to create:
1. A database for their council,
2. Earthquake research opportunities,
3. A process showing nationwide scalability

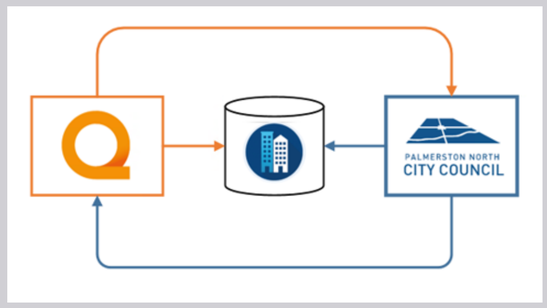
Core Components

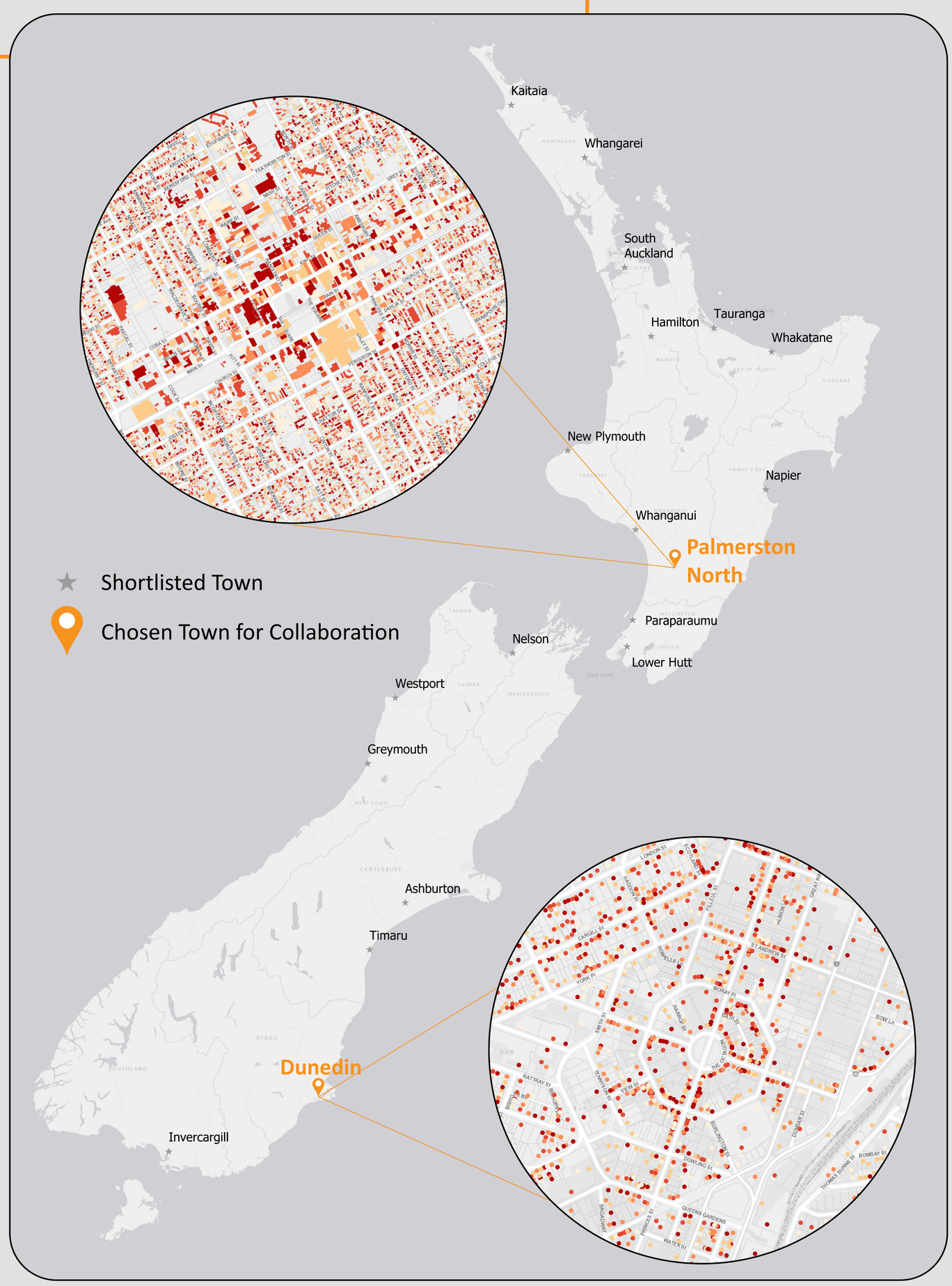
LINZ Building Footprints: will act as the anchoring layer for datasets to be linked to. Contains excellent metadata and allows for other spatial layers to be integrated and visualised

Metadata: for the datasets to be usable by different researchers and groups, appropriate metadata and documentation of the database will be produced throughout the project

Data Processing: will follow a process called ETL (EXTRACT, TRANSFORM, LOAD) which takes live feeds of datasets, transforms it, and loads to the GIS platform for users. Will allow for easier nationwide scaling

Collaboration: in order to produce datasets that are useful for both researchers and councils, effective colloboration is required between council staff and TP3. This will involve an AGILE approach where input is valued from both sides and the database is produced iteratively





Project Timeline

Complete

- February 2019 — Start of TP3
- May 2019 — GIS Platform and Location Selection
- June 2019 — Data Dictionary and Hosting of Wellington Building Inventory (FP3)
- August 2019 — Initial engagement with Dunedin and Palmerston North City Councils

Ongoing

- September 2019 — Identifying relevant and available council datasets
- October 2019 — Linking datasets to LINZ Building Outlines
- December 2019 — Development and testing of GIS Platform to host Databases
- March 2019 — Socailisation of databases to QuakeCoRE Community
- July 2020 — Full release of building inventory databases to wider QuakeCoRE community via GIS Platform

GIS Platform

ArcGIS Online

VICTORIA UNIVERSITY WELLINGTON
TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

Free Hosting: Victoria University's ArcGIS license will be used to host the GIS Platform at no cost.

Data Security: security is ensured as data access is granted through ArcGIS Online account invitations.

Collector: ArcGIS Online can integrated with Collector which is the an industry standard for street surveys

Extraction: data can be digested in a range of formats, including csv, shp, wfs, and tabular. Researchers can also upload data they produce to benefit other users

Note: LINZ Building Footprints are not yet available for Dunedin City. Other options will be explored, including address points and land parcels

QuakeCoRE — NZ Centre for Earthquake Resilience — Te Hiranga Rū
PALMERSTON NORTH CITY COUNCIL
DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti
Land Information New Zealand — Toitū te whenua

Ilan Noy[1], Emily Lambie[2], Hayden Rickard[1]

[1]Victoria University of Wellington,
[2]Joint Centre for Disaster Research - Massey University