Te Hotonga Hapori

connecting communities

Project 5

Tracking Indicators of National Wellbeing

Dr Lisa Meehan, Dr Thomas Schober, Linda Kirkpatrick, Prof Gail Pacheco

AUT

Disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit https://www.stats.govt.nz/integrated-data/.

Research Aims

1. Develop a framework to measure population-wide wellbeing indicators using linked administrative data

2. Evaluate the short-run wellbeing impacts of urban regeneration, specifically housing intensification, using this Wellbeing Outcomes Framework

INTRODUCTION

New Zealand faces substantial housing challenges including persistent housing shortages, rising housing costs, poor quality stock and overcrowding issues

Kāinga Ora is making significant investments towards increasing the housing supply and improving the quality of the existing housing stock in New Zealand.

$ 1.4 BILLION

...of the Housing Acceleration Fund (2021) allocated to building homes in Auckland over the next ten years

$2.3 BILLION

...invested by Kāinga Ora into building and upgrading new homes (2022)

10,000

...new homes have been built by Kāinga Ora since 2018, most of these being social housing

35,000

...new homes are expected to be built by Kāinga Ora in the next 15 years

INCREASING THE HOUSING SUPPLY

NEIGHBOURHOOD IMPROVEMENTS

REVITALISING TOWN CENTRES

IMPROVING EXISTING HOUSING STOCK

WALKING AND CYCLING FACILITIES

PUBLIC TRANSPORT

PUBLIC FACILITIES AND GREEN SPACES

TRAINING & EDUCATION HUBS

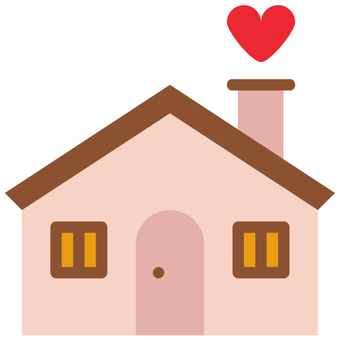
COMMUNITY ENGAGEMENT

INTRODUCTION

Housing intensification is the main policy tool used by Kāinga Ora to deliver its urban regeneration initiatives

It involves redeveloping larger blocks of land, often consisting of a single dwelling, into multi-unit dwellings such as apartments or units

These urban development investments aim to improve wellbeing through the provision of affordable homes, shared community spaces and active transport options to support access to employment, amenities and services



RESEARCH AIM 1

RESEARCH AIM 1 - Using big data

By regenerating urban areas via housing intensification, there is the potential to **improve health and wider social outcomes** for individuals in affected communities.

There is **limited research** evaluating the wellbeing impacts of housing intensification, and this is likely due to **lack of appropriate data.**

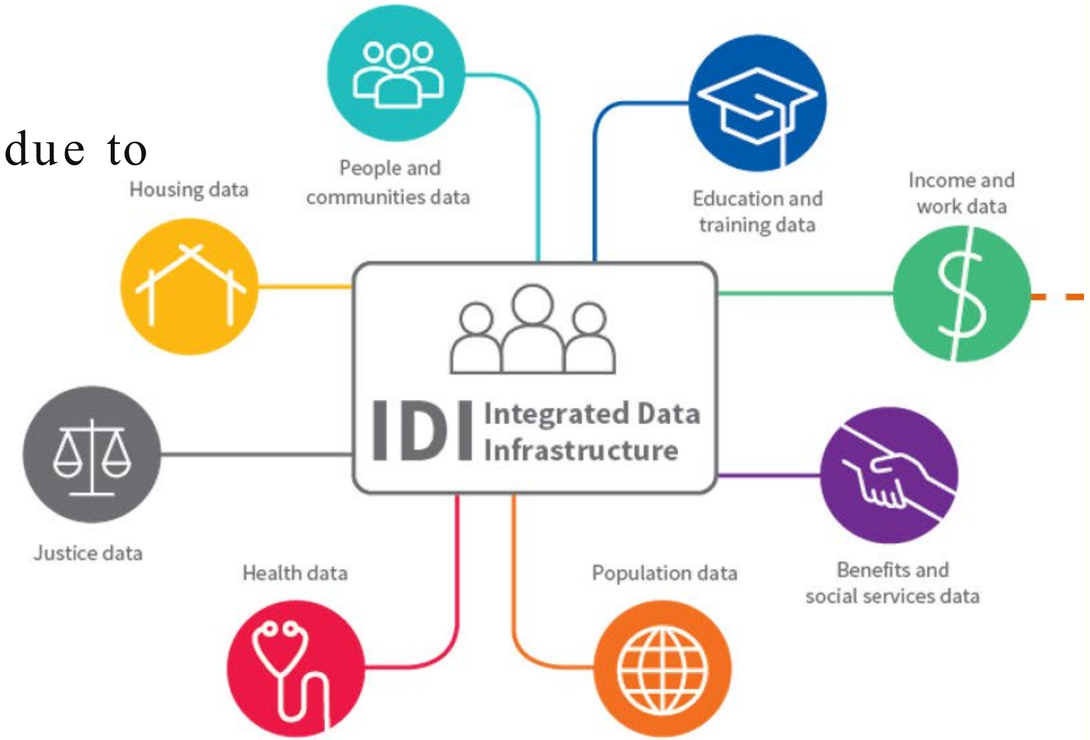
There is potential to use "big data" to derive data-driven evidence that supports Kāinga Ora's aim to enhance wellbeing through its housing-led initiatives

RESEARCH AIM 1 - The IDI

The Integrated Data Infrastructure (IDI) is administered by Stats NZ and houses a wide range of population-wide administrative data collected from government organisations, as well as survey data.

Administrative data is collected by government agencies while conducting its business or legislative duties.
However, it is increasingly being used for research due to several advantages:

- High population coverage
- Timely updates
- Linkage across datasets
- Consistency and accuracy
- Longitudinal analysis
- Cost-effective



RESEARCH AIM 1 - Wellbeing frameworks

Research outcome	Living Standards Framework domain	Index of Multiple Deprivation
Human capital (education & labour market)	Knowledge and skills	Education
	Work, care and volunteering	Employment
Physical and mental health	Health	Health
Crime and Safety	Safety	Crime

WELLBEING OUTCOMES FRAMEWORK

HUMAN CAPITAL

Education
- Educational attainment of the adult population (secondary)
- Educational attainment of the adult population (tertiary)
- Youth NEET rate

Labour market
- Employment rate
- Median/average earnings
- Benefit recipiency (any benefit)
- Benefit recipiency (unemployment or sickness-related)

PHYSICAL AND MENTAL HEALTH

Physical health:
- Emergency department (ED) admissions
- Cardiovascular disease (CVD) related hospitalisations
- Respiratory-related hospitalisations

Mental health
- Mental health services access
- Self-harm events (including self-harm resulting in death)

CRIME AND SAFETY

Crime
Victimisation rates of offences related to:
- Family violence
- Assault
- Sexual assault
- Theft
- Abduction and harassment
- Robbery and extortion

Safety
Accidents and injuries related to:
- Work
- Home
- Road

Framework for measuring monthly population -wide wellbeing indicators using administrative data from the IDI.

Provides a systematic approach to assessing wellbeing through administrative data across various dimensions.

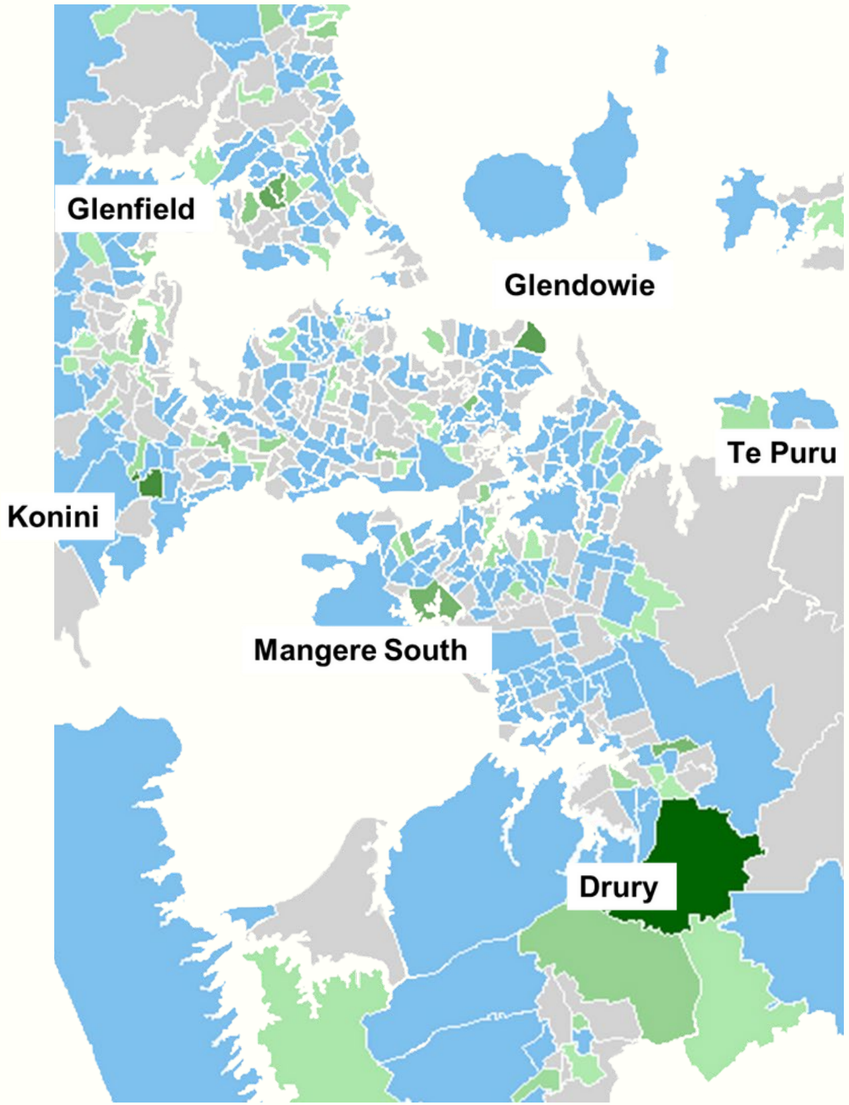
RESEARCH AIM 2

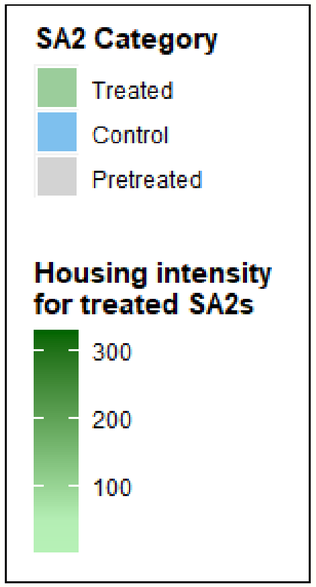
RESEARCH AIM 2 - Kāinga Ora data

- Urban regeneration is measured using housing intensification (“pipeline”) data from Kāinga Ora - **register of current and future Kāinga Ora-led urban regeneration projects**
- Available at the monthly level between **January 2018 to December 2021**
- Geographic information is available for each project which allows for the identification of areas **“treated”** by urban regeneration
- Control group is areas which have not been exposed to urban regeneration
- The number of dwellings expected to be built is recorded by each project and provides a measure of **urban regeneration intensity**

Kāinga Ora
Homes and Communities

RESEARCH AIM 2 - Kāinga Ora data





- Most developments are based in Auckland
- Expected to build 3,252 dwellings *
- 80% of expected housing built will be social housing
- Impacts measured at broader SA2 (2000 to 4000 residents) and localised SA1 (100 to 200 residents), as well as individual level

CAVEATS

- Data measures only housing intensification - while other UR initiatives occurring, unable to disentangle in the data
- Many pipeline SA2s excluded from treatment and control group as pre-treated (treatment prior to 2018)
- Development is still ongoing at the end of 2021- cannot observe full treatment effect

RESEARCH AIM 2 - Sample formation

Monthly panel formation

STEP 1

Create monthly panel of individuals who are active in the IDI using the ERP for each year between 2015 - 2021

Address Notification

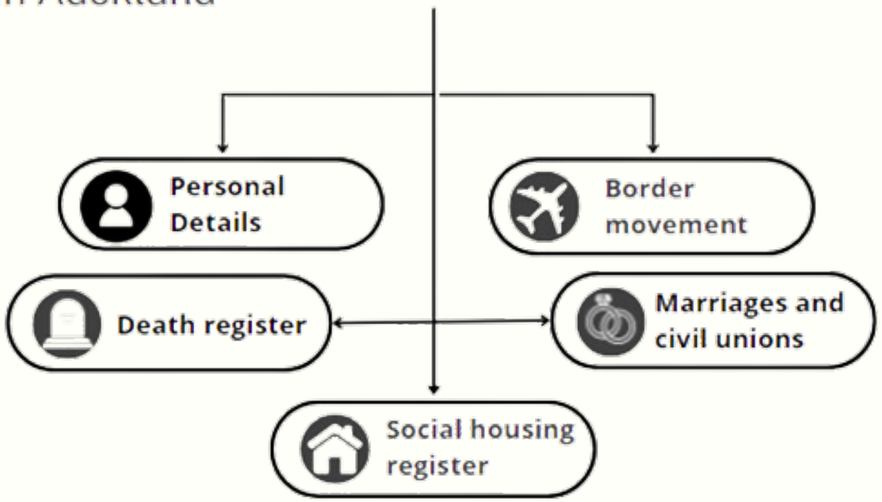
STEP 2

Attach geographic information to individuals and restrict to those living in Auckland

Demographic data

STEP 3

Characterising individuals using IDI administrative datasets



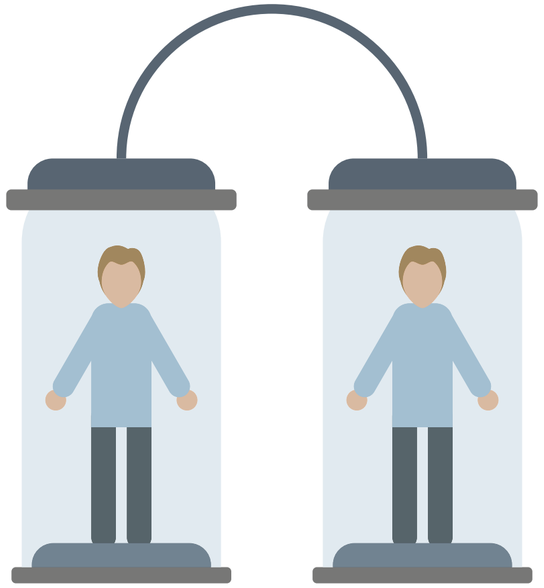
Aggregate to area-level

STEP 4

Aggregate monthly individual-level data into monthly-area observations

RESEARCH AIM 2 - Matching areas

To examine the wellbeing impacts of urban regeneration, we would like to know what would have happened to individuals living in areas undergoing urban regeneration, had the area not undergone regeneration



STATISTICAL TWINS

- This counterfactual scenario is unobservable
- So, need to compare areas that underwent urban regeneration to areas that did not
- Direct comparison is unlikely to attribute changes in wellbeing outcomes to urban regeneration and would yield bias results
- To address this, treated areas matched to control areas using observable characteristics
- After matching, treated and control areas are identical based on observable characteristics

RESULTS

RESULTS & DISCUSSION

- Social housing dwellings increased in treated areas compared with control areas
- But no difference in number of dwellings – as much development was going on in control areas
- Generally, no short-term impact on urban regeneration on wellbeing outcomes (education, labour market, physical and mental health, crime & safety)
- But, still potential to improve wellbeing in longer run. Urban regeneration was still ongoing and full effect of treatment not yet assessed
- Wellbeing Outcomes Framework developed in this study means wellbeing outcomes can be assessed once urban regeneration is complete
- Admin data on when KO developments were completed would help future analysis

THANK YOU!

LISA.MEEHAN@AUT.AC.NZ

MEASURING URBAN ACCESSIBILITY

Professor Daniel Exeter, The University of Auckland

Jessie Colbert, The University of Auckland

Ed Randal, The University of Otago

UNIVERSITY OF AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

ACCESSIBILITY INDEX – FIRST RUN, NOVEMBER 2024

EDUCATION	ENV. 'BADS'	HEALTH	MAORI CULTURE	SOCIAL & CULTURAL	SHOPPING	RECREATION	EMPLOYMENT	PUBLIC TRANSPORT & COMM.
• ECE • Schools • Training institutions	• Fast food outlets • Gaming venues • Licensed alcohol premises or outlets • Takeaways	• A&E • GPs/Maori primary care • Hospitals • Oral healthcare services • Pharmacies • Well Child services	• Kohanga Reo • Kura • Marae • Te Reo street name density	• CABs & other social services • Community centres or halls • Religious institutions or places of worship • Work & Income offices	• Café • Banks, ATM & money lenders • Dairies • Foodbanks • Fruit & Vegetables • Laundromats • Malls • Op shops • Service stations • Supermarkets	• Arts & Crafts • Blue spaces • Libraries • Parks • Sports clubrooms or facilities	• Sites of employment	• Bus, train, ferry stops • Postal services

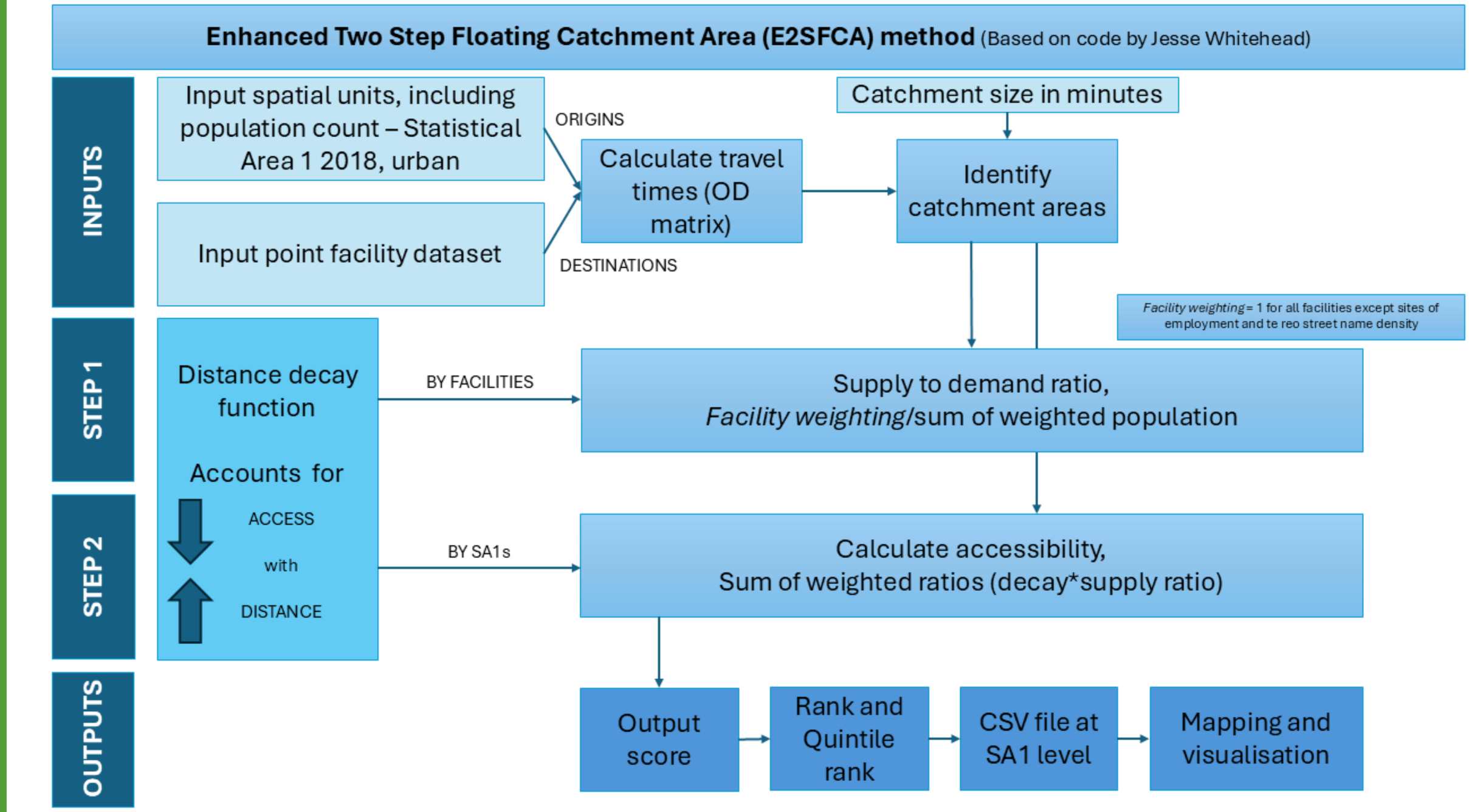
E2SFCA is run for each facility type, then ranked and transformed to a normal distribution.

Combined using *weights generated by factor analysis* to create the domain score. | ***Equal weights***

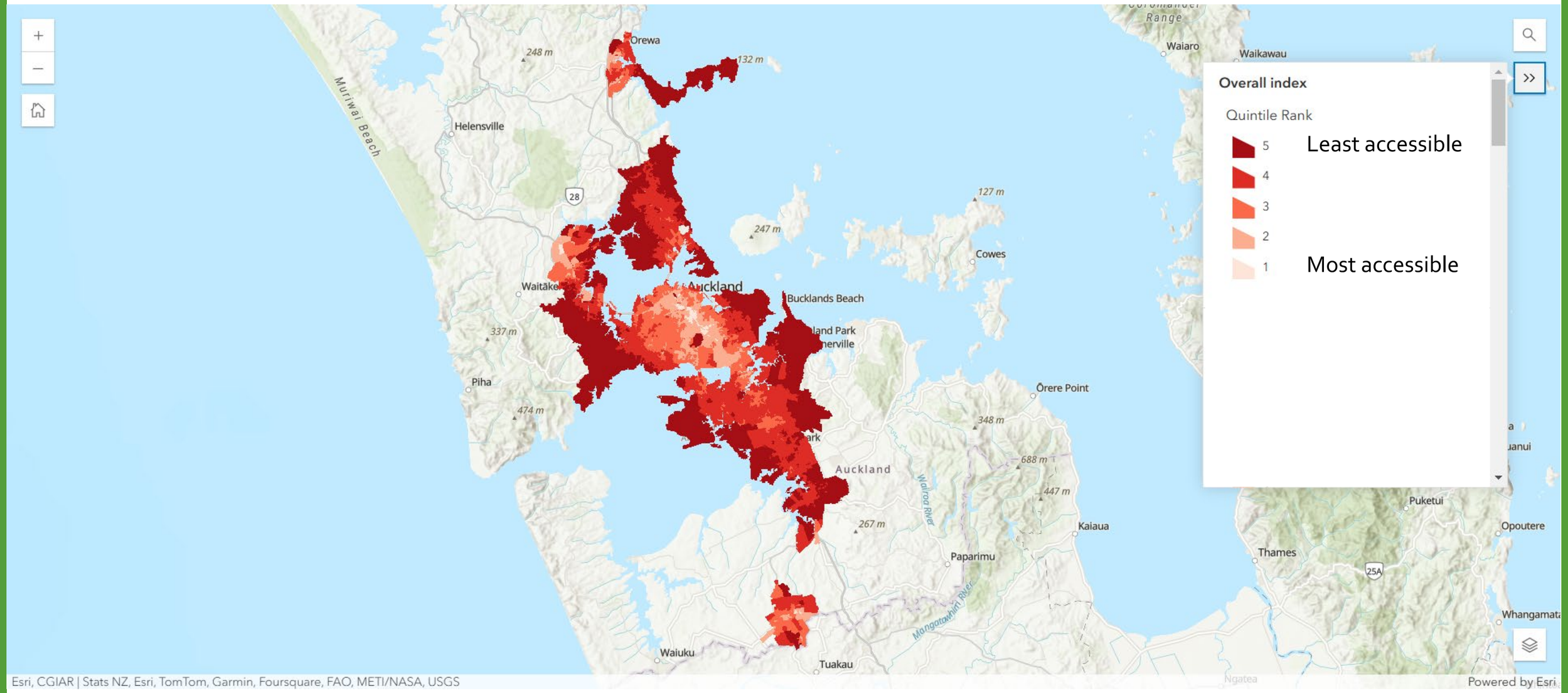
The domain score is ranked to create a domain rank. The rank for the Environmental 'Bads' domain is inverted. Domain ranks are combined using equal weights.

This creates the overall accessibility index score for each urban SA1, which is ranked to create the overall ranking.

Adapted from Figure 1 Developing the 2018 NZ Index of Multiple Deprivation: An overview of indicators, domains and weights. https://hgd.auckland.ac.nz/

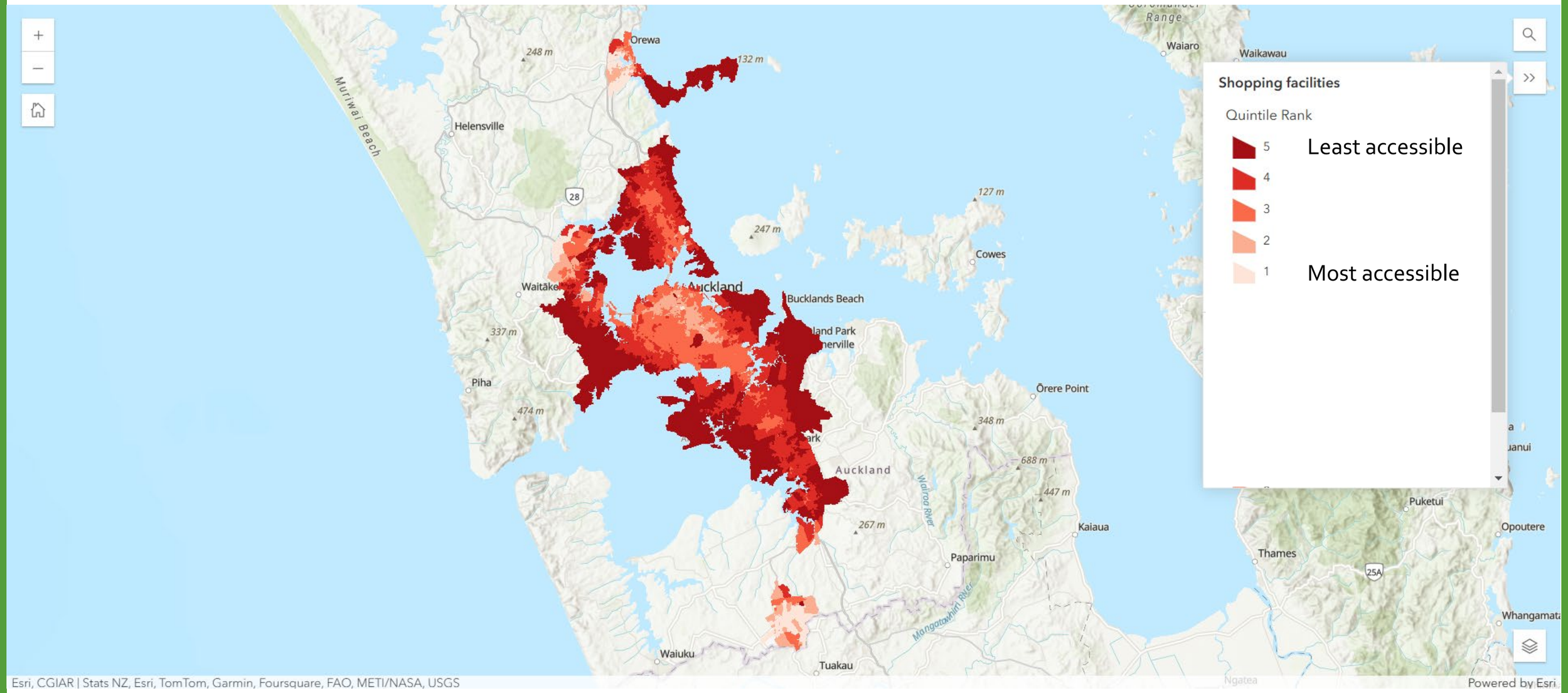

Enhanced Two Step Floating Catchment Area (E2SFCA) method (Based on code by Jesse Whitehead)
INPUTS
Input spatial units, including population count – Statistical Area 1 2018, urban
Input point facility dataset
ORIGINS
DESTINATIONS
Calculate travel times (OD matrix)
Catchment size in minutes
Identify catchment areas
Facility weighting = 1 for all facilities except sites of employment and te reo street name density
STEP 1
Distance decay function
Accounts for
ACCESS
with
DISTANCE
BY FACILITIES
Supply to demand ratio, Facility weighting/sum of weighted population
STEP 2
BY SA1s
Calculate accessibility, Sum of weighted ratios (decay*supply ratio)
OUTPUTS
Output score
Rank and Quintile rank
CSV file at SA1 level
Mapping and visualisation

Overall accessibility index – Quintile Rank



Screenshot from ArcGIS Online Instant App

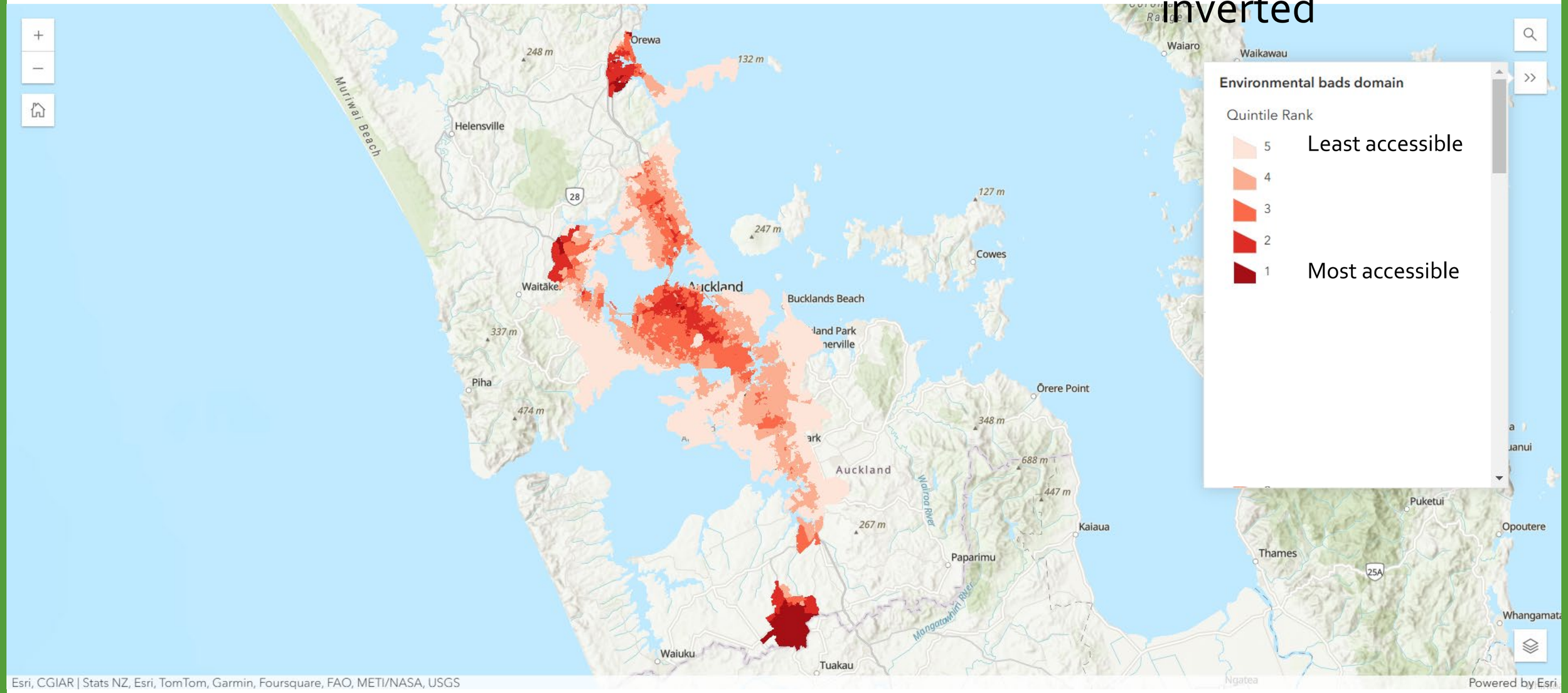
Shopping facilities domain – Quintile Rank



Screenshot from ArcGIS Online Instant App

Environmental ‘bads’ domain – Quintile Rank

Note – colour scheme inverted



Screenshot from ArcGIS Online Instant App