

Request for Proposals

**BUILDING BETTER HOMES TOWNS AND CITIES SCIENCE CHALLENGE –
CONTESTABLE INVESTMENT PROCESS**

Key Information Summary

Building Better Homes Towns and Cities: Ko ngā wā kāinga hei whakamāhorahora National Science Challenge – Contestable Investment Process	
Investment Mechanisms	Projects & Think Pieces
Available Funding	\$4.4M GST Exclusive
Research Priorities	<ul style="list-style-type: none"> • Achieving Transformational Change • 21st Century Building Industry • Research that enhances existing Strategic Research Areas and strengthens connections across Strategic Research Areas.
Proposals Due by	Noon Tuesday 18th July 2017
Funding announcements made	14 September 2017
Contracts begin from	1 October 2017
Further Information email	NSCinfo@branz.co.nz

Overview

- The Building Better Homes, Towns and Cities (BBHTC) National Science Challenge (NSC) is running a Contestable Round to deliver on the challenge vision, mission and objective.
- Available funding \$4.4m in total.
- The contestable process is set in the context of the existing Challenge research portfolio. Research funded in the contestable process should complement and build on existing research and not duplicate it.
- The BBHTC NSC research programme is based on principles of; co-creation, collaboration, partnership and multi-disciplinary teams. These principles are also core to this investments in this process.
- Three themes have been prioritised for this investment:
 1. Achieving Transformational Change
 2. 21st Century Building Industry
 3. Research that enhances existing Strategic Research Areas and strengthens connections across Strategic Research Areas.
- Research can begin as soon as contracting is completed. All research will be expected to begin from 1 October 2017 – including ethics applications submitted (or agreed) and budget ready for expenditure. Research contracts will terminate on 30 June 2019, in line with the Challenge’s current funding from MBIE.
- Proposals should be led by New Zealand-based organisations (including the Principal Investigator) and be submitted by noon on 18 July 2017. Submitters of proposals are requested by email these to NSCinfo@branz.co.nz. Late applications will not be accepted.
- All funded projects must relate to the Challenge’s Vision, Mission and Objective (see www.buildingbetter.nz) and the strategic research signals outlined in this document.

- Regular written progress reports will be required from the funded project(s). These will be agreed during the contracting process.
- Final funding decisions will be approved by the BBHTC Governance Group on 4th September 2017.

Co-funding:

- Co-funding is not a requirement; however, it is encouraged as it demonstrates strong connections with end-users.
- Research teams are encouraged to include co-funders in research design from the early stages of the proposed project. Co-funders may provide in-kind funding.
 - In-kind funding in this instance could include the use of services and/or facilities, professional expertise (for instance, through staff time), provision of or access to equipment.
- Co-funding is required for any capital items as NSC funding may not be used for capital items

Rationale and Background

The vision of the Building Better Homes Towns and Cities: Ko ngā wā kāinga hei whakamahorahora NSC is:

Ka ora kāinga rua: Built environments that build communities.

Our mission is:

Manaaki Tangata: Co-created innovative research that helps transform dwellings and places where people live into homes and communities that are hospitable, productive and protective.

Our research programme is structured around six Strategic Research Areas which are outlined on the following page:

KĀINGA TAHI KĀINGA RUA	SHAPING PLACE: FUTURE NEIGHBOURHOODS	SUPPORTING SUCCESS IN REGIONAL SETTLEMENTS	TRANSFORMING THE BUILDING INDUSTRY	NEXT GENERATION INFORMATION	ARCHITECTURE & LOGIC OF DECISION MAKING
<p>The Kāinga Tahī Kāinga Rua Strategic Research Area recognises the dual and complex nature of Māori identities and the many communities we construct our lives in. Simply all Māori by whakapapa originate from a specific place, rohe, marae, kāinga but are more likely now to live at their Kāinga Rua in a city. Many Māori may consider their Kāinga Tahī being the city now and their Kāinga Rua their marae.</p> <p>Developing solutions to collaboratively finance, design and build developments, with buy-in from multiple stakeholders, in ways that overcome discriminatory policy, legislative barriers and actively support Māori aspirations and needs for long term affordable, healthy housing.</p>	<p>This research will focus on the larger cities – home to around half of all New Zealanders. It will lead to an understanding of the principles and processes that create more successful neighbourhoods.</p> <p>By investigating the complex factors involved in urban design, especially in relation to New Zealand cities. This will improve future urban environments through better planning and better integrating affordable housing in future communities.</p> <p>Evaluating real neighbourhoods, including ones with a high proportion of Māori residents, to discover how successful they are and why.</p>	<p>Model the system of regional settlements and their linkages to cities and rural activity.</p> <p>Build a knowledge platform based on regeneration in practice, to support Māori regeneration activities in regional settlements.</p> <p>An inventory of regeneration approaches, including assessment methodologies.</p> <p>Build a community of practice involving researchers, key stakeholders and users, sharing information about how to create prosperous, liveable, healthy and sustainable communities.</p>	<p>Improve the quality and functionality of new buildings through the use of technology and education to improve housing stock.</p> <p>Use new technologies and education to reduce the cost of building, thus meeting future demand for affordable housing</p> <p>Co-innovate with numerous industry organisations and upskill the labour force to increase the likely uptake of innovation.</p> <p>Draw on values embedded in mātauranga Māori in upskilling the Māori labour force.</p>	<p>Increase the understanding, management and use of geospatial information, including knowledge of the existing data and its use.</p> <p>Identify critical new data, to improve planning of urban environments</p> <p>Develop a framework for data collection and collation as well as a geospatial toolkit, to support improved urban planning.</p> <p>Determine the role of sensor and crowd-sourced data in improving planning of urban environments</p>	<p>Involve decision-makers in improving their own system, making them more likely to take up innovation. This will lead to improved housing stock and will meet future demand for affordable housing.</p> <p>Improve decision-making for urban environments and land use through a systemic approach, which should improve urban environments and residents’ wellbeing.</p> <p>Improve decision-making on land use.</p> <p>And it will pay particular attention to Māori in terms of resource holding and critical actor positioning of iwi, hapū and Maori trusts, as well as the two-tiered regulatory environment Māori operate in.</p>

Through this contestable process we are seeking to build our research portfolio with additional research that addresses issues that have been identified as requiring further or more in-depth attention.

Strategic Research Signals

The following research signals need to be addressed in proposals and indicate the strategic priorities of this investment. The first section of these should be addressed in all proposals. If a signal is not addressed then a strong rationale for the decision must be provided in the proposal.

- Research that is novel, innovative and does not duplicate previous efforts.
- Experienced research leadership and demonstrated track record including in end user engagement and uptake of research outcomes.
- Strong end user engagement with iwi/hapū/whānau, territorial authorities, central government, industry, community groups and academia as appropriate to ensure active pathways for uptake is required.
- Evidence of working with communities that want to engage.
- Research that continues to extend the Mātuaranga Maori continuum beyond Vision Mātauranga and delivers tangible outcomes for diverse Māori populations.
- Clear value proposition to the research project.
- Clear pathways for research capability development.

The following signals should be addressed where appropriate

- Action research to create action and engage stakeholders early.
- Use of techniques such as fail-fast and rapid prototyping.
- Multi-disciplinary and multi-organisational team(s) are required for medium and large projects.

Research themes for this investment

As noted earlier, three themes have been prioritised for this investment:

1. Achieving Transformational Change
2. 21st Century Building Industry
3. Research that enhances existing Strategic Research Areas and strengthens connections across Strategic Research Areas

Beneath these over-arching themes a number of research questions and ideas have been identified. These identify the range and types of projects we are looking to invest in via this funding round.

- **Achieving Transformational Change**

- **Wellbeing and Urban Characteristics:** Which settlement characteristics affect the wellbeing of residents, and which detract from wellbeing? How do the effects of these characteristics on wellbeing differ by type of person (e.g. ethnicity, age, etc.) and type of place (e.g. (large city vs small town)? Based on this information, and on information of how past policies have affected urban wellbeing, which (feasible) interventions can increase overall wellbeing of urban residents (and/or the wellbeing of certain groups)?
- **What do People Value in Urban Settings?** Projects that are designed to improve urban outcomes should be able to demonstrate the benefits for the affected population. What tools can be used to demonstrate benefits – for instance of improved urban design? In addition to describing relevant tools, the research should produce practical application(s) of the tool(s) for an actual urban-related project (or issue) so that the usefulness of the tool is demonstrated, and the information on the relevant project (or issue) can be used by policy-makers.
- What are the **benefits and value cases for non-financial values**? How can we improve the robustness and consistency of understanding the value of amenities? How do we robustly and credibly articulate, measure and understand benefits and risk? How do we measure implementation?
- How do we **measure progress towards medium and long-term outcomes** in the early stages of projects?
- What are the available techniques for, and benefits arising from, '**City Information Modelling**' using BIM models and virtual planning tools to enhance forward planning of cities including evaluation of 'what if' scenarios? How do these fit with current capability and technology and what are potential implementation pathways for New Zealand?
- As infrastructure costs and availability are one of the limiting factors behind the speed with which our urban areas can grow, this may provide answers to some critical choke points on housing supply. What are the economies of **neighbourhood developments using 'stand alone' infrastructure facilities** (i.e. rainwater potable water, local waste-water treatment, solar generation coupled with sub-station batteries for storage etc)? What are the opportunities for and barriers to implementation in New Zealand?
- How do we achieve **effective retrofit at community / neighbourhood / village level**?
- **Financing home ownership and improving security of tenure.** This is a critical element in housing affordability and there has been limited progress in this area. The range of financing options has remained relatively static and is closely connected to other considerations such as land/property tenure (i.e. loan security). There is good evidence of correlations between good quality housing and security of tenure and improved long-term outcomes in health, education, wellbeing and justice. What innovation is possible in financing home ownership?
- What is the role of '**public housing**' in delivering a more balanced range of housing choices. Over the last 80 years public housing has become synonymous with 'social housing'. What leverage could be gained through a rethinking of the role of public

housing in the sense of active governmental participation at various stages and models in the delivery of housing units? What new options are available and potentially applicable to the New Zealand context? How might these be implemented in New Zealand?

- **Rural communities** – Māori housing in rural areas; rural community regeneration; age friendly housing and amenities in rural areas;
 - **Effective public participation/ engagement** across diverse demographic groups and communities
 - How does **positive involvement of people and communities** impact on change? How do we build communities of change and peoples of change?
 - Action research to develop, adapt, refine and evaluate effectiveness of **tools, techniques and processes for groups to work collaboratively to develop solutions for difficult or complex issues and wicked problems** relevant to the challenge vision and mission.
- **21st Century Building Industry**
 - The impact of New Zealand as a small society on our building industry – How do we leverage this to innovate in an agile manner? What does this mean for adopting and adapting innovation and technology from overseas? How does the NZ industry fit within the global system? How does the industry maximise potential along the whole value stream?
 - What does the changing global market look like? How is the industry profile changing (companies coming in and going out)? What does this mean for industry in New Zealand?
 - Using BIM, or other alternatives, conduct an analysis of different building systems from around the world to ascertain which would be the most cost effective in the NZ environment. This research needs to include a demonstrated understanding of the New Zealand commercial landscape at a range of scales. The scope includes individual houses, townhouse style developments, medium and high-density developments. This research should also ‘flex’ the Building Code to understand whether some relaxations of the code would produce significantly cheaper dwellings, without compromising quality.
 - **Research that enhances existing Strategic Research Areas and strengthens connections across Strategic Research Areas**
 - Additional resources in key areas and /or skill sets across the challenge
 - Identifying and developing connections across SRAs that enhance the delivery of the challenge vision, mission and objective.

Available Funding

The total funding pool is \$4.4M (exclusive of GST). There is no alignment of funds or target investment levels for each of the theme areas.

We are looking to invest in a balanced portfolio of research which includes:

- Think pieces – concise reports that advances knowledge and adds to debate and discussion. Think pieces should be completed within three months and must

generate new knowledge and understanding. They may include recommendations for changes or actions that can be implemented immediately or recommendations for future research (which may be addressed in tranche 2 of the challenge). Think pieces should address public good issues and they will be published, including where appropriate on the challenge website.

- Projects that support emerging researchers to develop research project leadership experience.
- Maximum project size is \$1,000,000 total. Projects of this size must be multi-disciplinary and multi-organisation.

Assessment Process & Criteria.

Proposals will be subject to assessment by independent reviewers. The review process will include members of the Independent Science Advisory Panel and the Science Leadership Team of the Challenge. Final decisions will be made by the Challenge Governance Group.

Proposals will be assessed according to the following criteria.

Criteria

1. The potential impact of the proposal (clear benefit to NZ, strong pathway(s) to achieving impact, clear value proposition)
2. Science stretch and innovation (methodologically robust, novel, transformational, multidisciplinary)
3. Stakeholder engagement and knowledge exchange (co-creation, co-development, wider stakeholder engagement. Clear evidence of partnerships with end-users)
4. Team excellence (experienced research leader, end-user partners have relevant experience, multi-disciplinary, demonstrated track record in the delivery of mātauranga Māori outcomes, end user engagement and uptake)

Criteria Weightings

Criteria	Criteria weighting at Full Proposal Phase
The potential impact of the proposal	25%
Science stretch and innovation	25%
Stakeholder engagement and knowledge exchange	25%
Team excellence	25%

Key dates and activities

Release of documents

- 7 June 2017 Request for Proposals for the Building Better Homes, Towns & Cities contestable funding round released.

Proposals due

- 18 July 2017 (noon) – full proposals submitted
- 14 September 2017 – Notification of outcomes and funding decisions announced.
- From 1 October 2017 – Funded proposal(s) to be initiated.

Contact Challenge Office for further information: NSCinfo@branz.co.nz