

Public housing: maximising wellbeing & reducing carbon

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16 February 2021



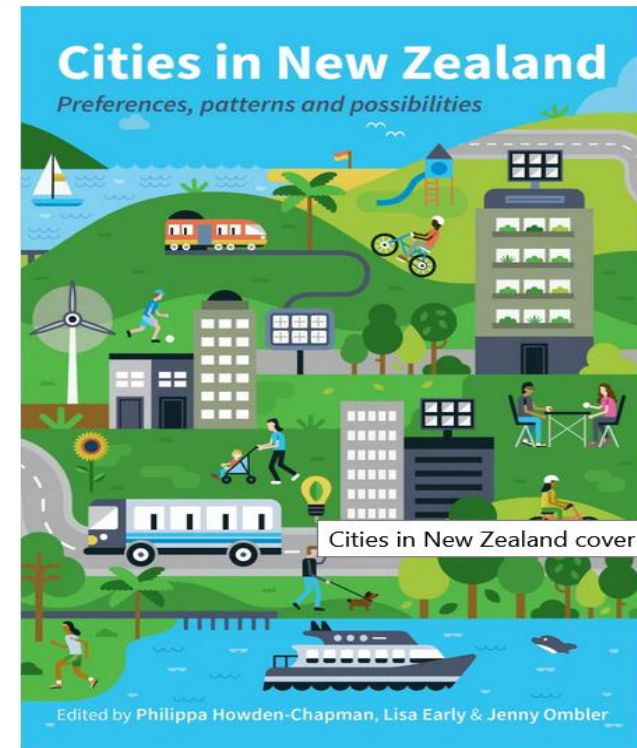
new zealand centre for

Sustainable Cities

te pokapū rōnaki tāone-nui

Current preferences for housing, travel mode & neighbourhoods

- Home ownership at lowest level in 60 years
- Public housing waiting list ~ 22,000 people
- Most people prefer stand-alone **housing**, but apartments increasingly popular
- Younger & older people opt for **compact neighbourhoods**
- Want access to **green space**
- Often rather **walk, cycle** or go by **public transport**, than use car
- Believe **local government**, rather than market forces, **should shape our cities**



Public housing & wellbeing*

- **Focus on quality public housing** as way of reducing inequalities, driving well-being & sustaining urban regeneration
- **Critical interactions** between public housing, urban design, energy, transport: impact on climate emissions & are levers for change
- **Aim** To understand the comparative effectiveness & co-benefits of different housing models on quality & health & wellbeing of tenants & communities

* Ministry Business Innovation & Employment funded 5-year programme
<http://sustainablecities.org.nz/2020/09/new-research-on-public-housing-urban-regeneration/>

Context

- Buildings, transport infrastructure & other long-lived network assets *lock in* carbon emissions
- Aotearoa one of first governments in world to adopt a wellbeing budget framework
- Combined with 2019 'Zero Carbon' Act provides system incentives to combine the **pursuit of wellbeing and decarbonisation**
- These goals align with broader co-benefit outcomes highlighted in the UN SDGs

Research team

Multi-disciplinary

Social sciences, economics, epidemiology, engineering,
Māori,

Multi-institutional

Otago, Victoria, Massey, Waikato Universities, Motu,
Wainuiomata Marae Trust and public housing providers

Partnerships with

- Kāinga Ora – homes & communities
- Ngāti Toa Eastern Porirua
Regeneration Project
- Tamaki Regeneration Programme
- Wainuiomata Marae Trust
- Wellington City Council
- Ōtautahi Community Housing Trust
- Salvation Army

Tāone Tupu Ora

Indigenous knowledge
and sustainable urban design

Edited by
Keriatu Stuart &
Michelle Thompson-Fawcett

GROWTH MISCONDUCT?

*Avoiding sprawl and improving
urban intensification in New Zealand*

Edited by Karen Witten, Wokje Abrahamse & Keriatu Stuart

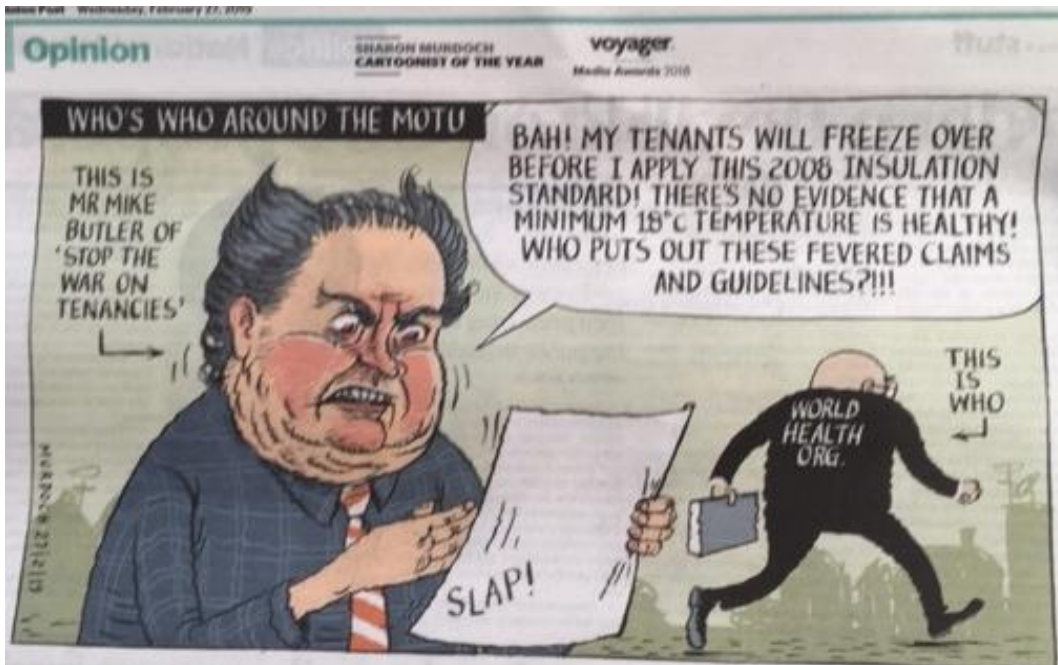
Research methods

- Policy research of natural experiments
- Comparison of current public housing providers
- Surveys, models, observations
- Integrated data infrastructure enables comparisons before, afterwards and between

Governance

- Institutional structure e.g. Crown company, charitable trust
- Board strategies & policies e.g. Kāinga Ora
 - Customer Strategy
 - Sustaining Tenancies
 - Accessibility Policy
 - Landscape Design Guide
- Implementation
 - Monitoring & reporting

Housing standards




International Journal of
Environmental Research
and Public Health



Article

Setting Housing Standards to Improve Global Health

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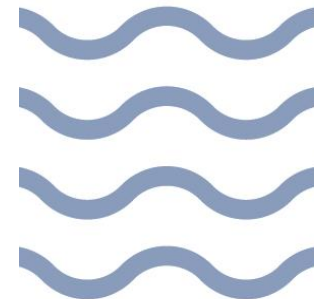
² WHO, Department of Public Health, Environmental and Social Determinants of Health, 1202 Geneva, Switzerland; roebbeln@who.int

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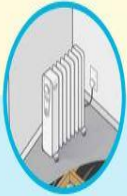
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WHO
HOUSING
AND HEALTH
GUIDELINES



Healthy Housing Standards



Heating

A large proportion of rental homes have no heating in living rooms and bedrooms, or the heating is inadequate, inefficient, or unhealthy, and below recommended indoor temperatures.



Insulation

Rental homes may not have a sufficient level of insulation in the ceiling and under the floor, and the insulation may not be in a reasonable condition.



Ventilation

Many rental homes do not have enough ventilation, particularly in moisture-prone areas such as the kitchen or bathroom, so mould may form.



Moisture entry and drainage

Many rental homes are not sufficiently protected from moisture rising from under the floor or through leaks in drains.



Draught stopping

Many rental homes, particularly older ones, are draughty, making them cold, and more difficult and costly to heat.



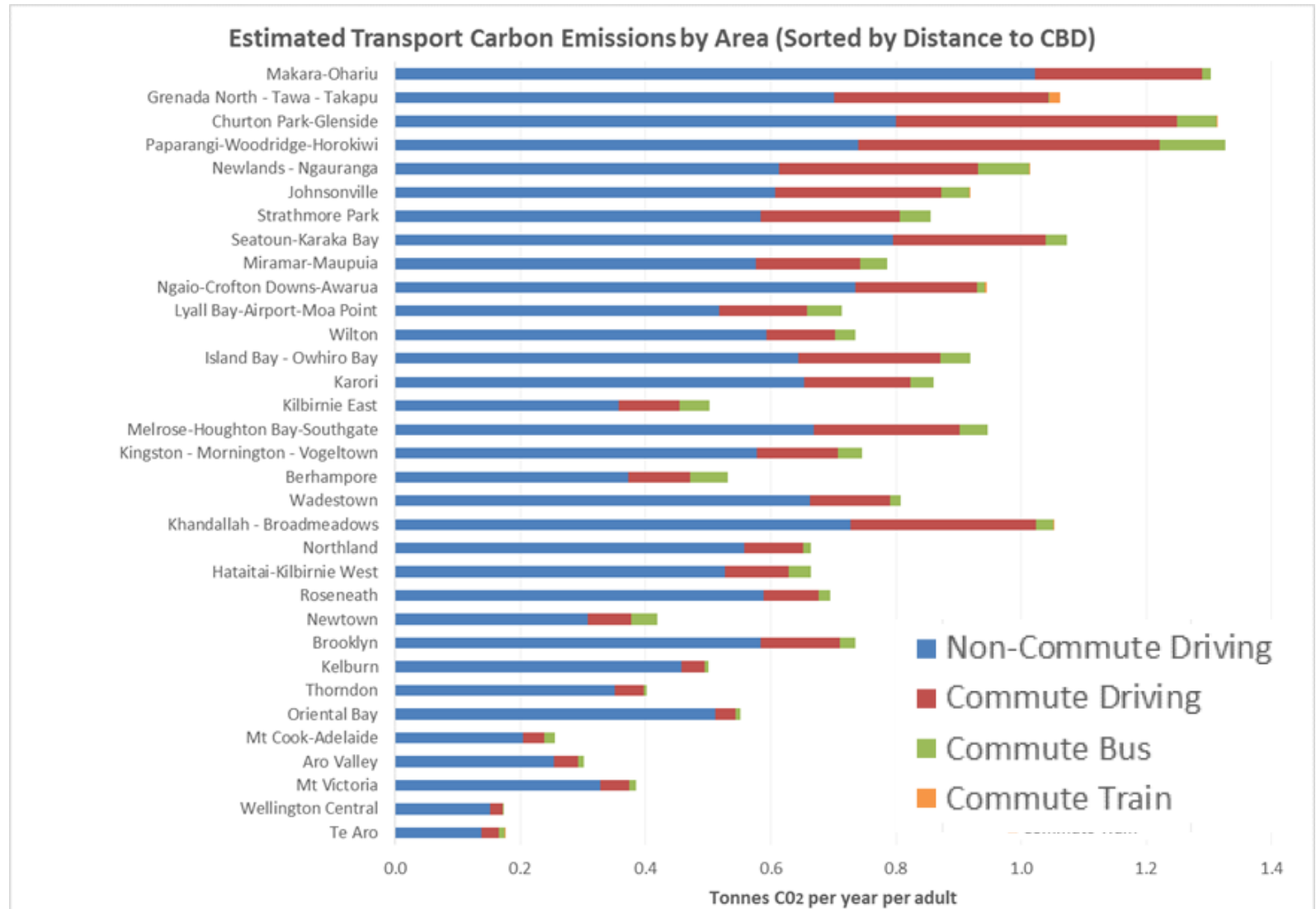
Why is standard for reducing home hazards excluded?

- Keall, M., Pierse, N., Howden-Chapman, P., Cunningham, C., Cunningham, M., Guria, J., & Baker, M. 2015. Home Modifications to Reduce Injuries from Falls in the Home Injury Prevention Intervention (HIPI) Study: A Cluster-Randomised Controlled Trial. *The Lancet* 385 (9964): 231–238. doi:10.1016/S0140-6736(14)61006-0.
- Werna, E., Tan, D., Howden-Chapman, P., Siri, J. As safe as houses? Why standards for urban development matter. *Cities and Health*, 2020, DOI:10.1080/23748834.2020.1747826.

Quality, typology & scale

- Indoor environment (temperature, relative humidity, mould, hazards for trips and falls)
- Location to amenities and public transport
- Stand-alone houses, townhouses or apartments
- Sprawl or urban density?
- Mixed-tenure

Why more central housing helps: Carbon emissions and distance to the CBD (Wgtn)



Outcomes & co-benefits

- Length & security of tenure
- Increase in residential stability
- Progressive home-ownership
- Effects on equity
- Amount of urban green and public space
- Increase in walking and cycling and public transport
- Effect on health & wellbeing
- Reduced carbon emissions





Urban form, design and travel

- Density is not everything in urban form
- Density helps with other factors -- city design, land use mix, connectivity, etc.
- These all influence housing choices & travel behaviour & quality of life
- Policies can alter urban form over time
- Co-benefits for health, community quality of life, and climate change



Critical Building Challenges

- Need deep residential retrofits, current scenarios risk significant lock-in of energy inefficient buildings
- Our current best efforts are not good enough to achieve best possible reductions in energy use.
- Need state-of-the art policies & technologies mainstreamed asap e.g. cross-laminated timber
- Building codes require best possible performance levels possible for climate-zone
- New buildings need to be near zero energy with integrated renewable energy



IMPROVING BUILDINGS, CUTTING CARBON

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Link to Sustainable Development Goals

SDG 3 Good health &
wellbeing

SDG 7 Affordable green
energy

SDG 11 Sustainable
cities and communities

SDG Climate action



Impact of unexpected events

COVID CONSEQUENCES

- Periodic sudden shift to working at home, **but** extra heating/cooling lighting expenditure
- Zoom fatigue, & diminishing sharing of ideas
whereas
- Cities are hubs of creativity, possible partnerships
- Increasingly where people live as well as work
- Urban public housing enables social cohesion
- Preferences **cannot** be separated from climate consequences
- Need policies to effectively integrate, regulate, incentivise strategies to achieve, clear, measureable goals for reducing carbon emissions

Conclusions

- Current housing shortage, climate change and COVID require innovative thinking and systemic responses
- People's preferences are also changing; we need to think ahead to resilient future systems
- Public housing research programme with serious government funding provides major opportunity to improve environmental standards and demonstrate long-term intergenerational wellbeing benefits
- Huge potential for more sustainable living with coordinated policy changes to support compact urban form, more affordable housing and sustainable transport