# Compact urban form and sustainability

## RUF research programme

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# Why a particular interest in urban form and resilience/sustainability?

Urban form matters for:

- Social reasons: meeting preferences / needs (for types of housing, neighbourhoods, travel)
- Socio-economic reasons:
  - Keeping housing affordable (including the infrastructure element)
  - allowing cities to function productively, effectively and resiliently
- Environmental reasons: meeting environmental goals, especially cutting $CO_2$ ex transport

# Urban form strand: main outputs relevant to Auckland

Demand side issues:

- Preferences for housing & neighbourhoods in Auckland, Hamilton  & Wellington

Supply side issues:

- Developer perspectives (Wellington region)
- Streamlining urban housing development: SHAs (Auck)
- Infrastructure costs & density across local authorities

# 1. Developer perspectives in Wgtn region: qualitative study

- ‘Ever increasing demand for city (and) city fringe units’
- ‘returns [currently] greatest in apartments’
- most dominant trend is ‘market shift toward higher density housing (apartments, townhouses) in the most central areas’

- a key market driver in outer suburban areas now is affordability
- also ‘a growing market for medium density townhouses in outer suburban areas around Wgtn’

# Perceptions of developers in Wellington region (2)

Pros and cons of relationships with local govt:

- ‘Wellington's been extremely successful in creating a cool inner city by not insisting on carparks’
- ‘They [neighbours] can get in the ear of the local politician or the local planner, and that is a really big challenge’
- Costs of resource consents, or the unforeseen costs associated with time lags in the consent process are significant constraint on some developers’ decisions to develop.

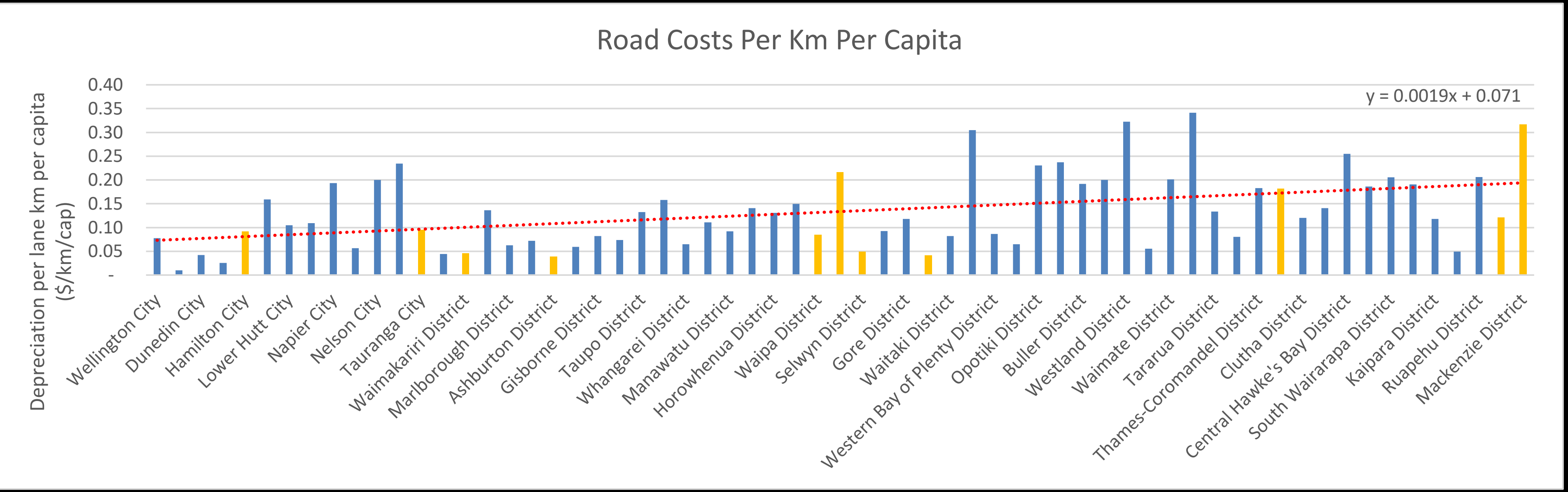
# 2: Relative infrastructure costs

(work with Matt Adams)

Stuff.co.nz

- Question: are infrastructure costs lower for more compact development?
- Method: data ~70 territorial authorities
- Infrastructure capital depreciation: proxy for cost of infrastructure

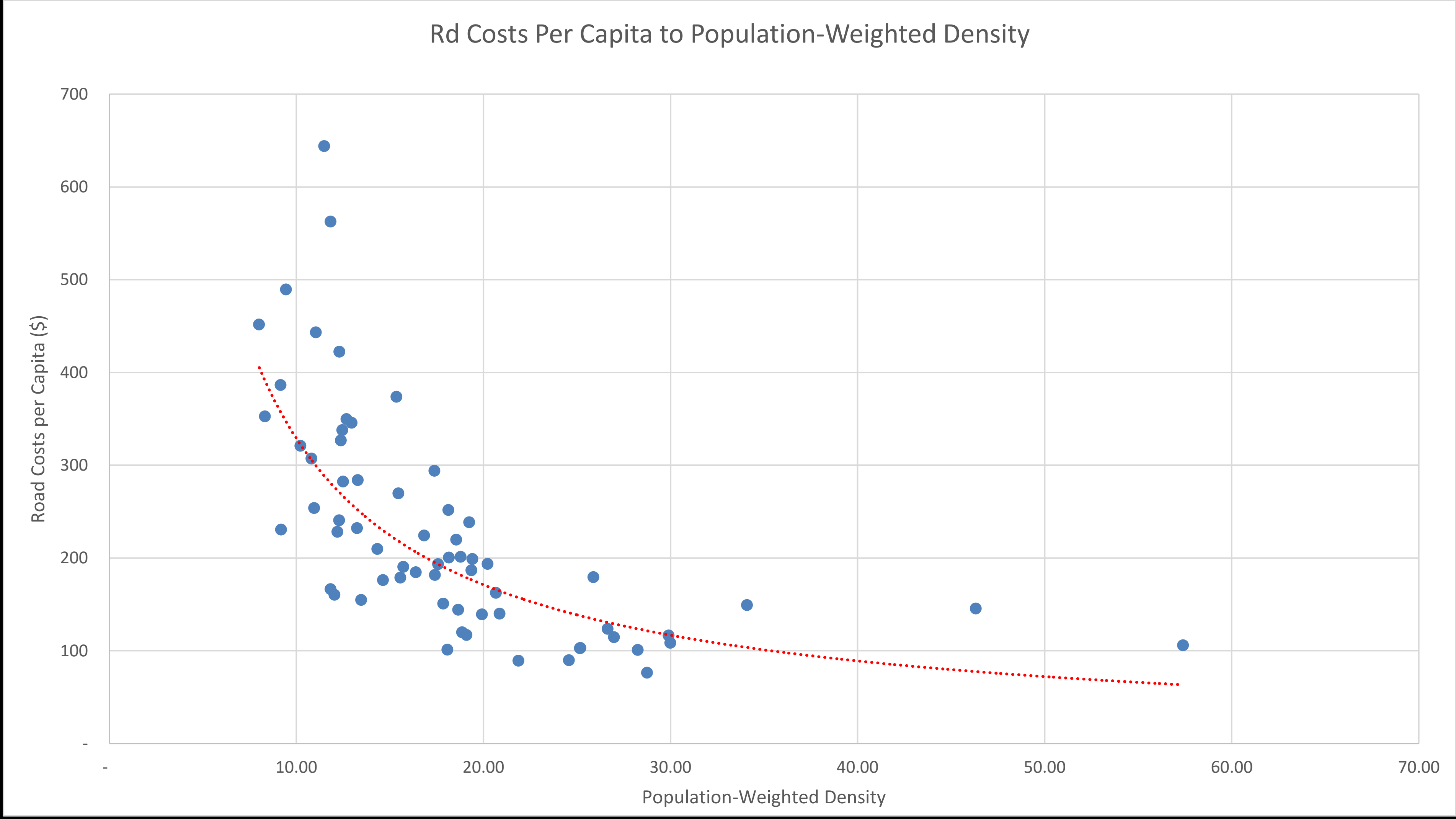
# Road costs per capita increase as territorial authority weighted population density falls (to right)



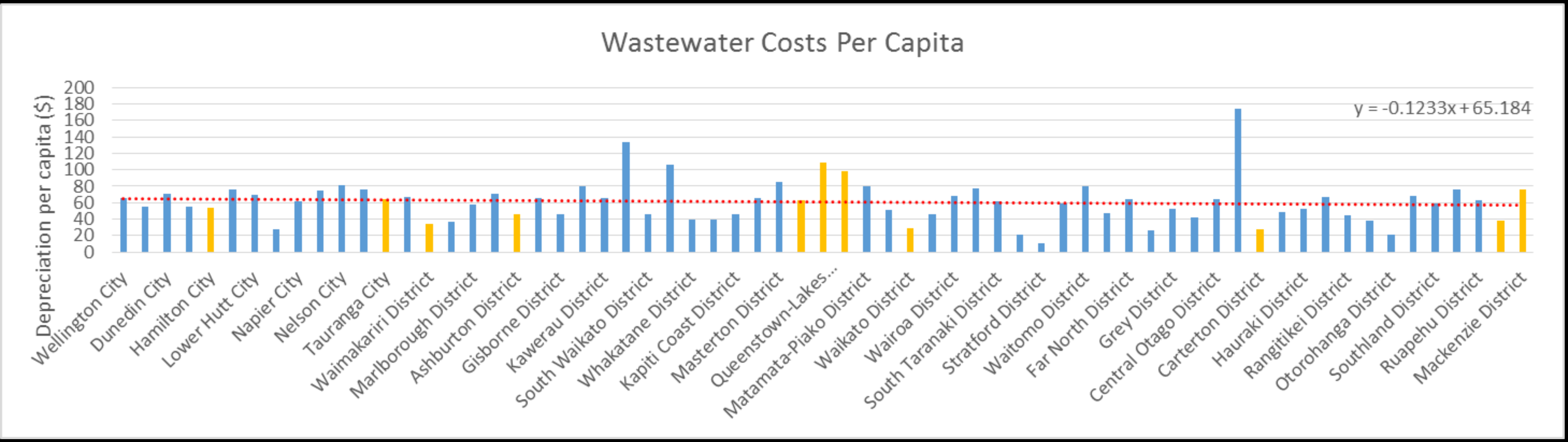

Yellow TAs' populations have grown > 9% since 2006 census: group does not stand out.

Auckland city second to highest density, and v. low road costs.

# Roading infra costs fall as pop weighted density increases (to right)

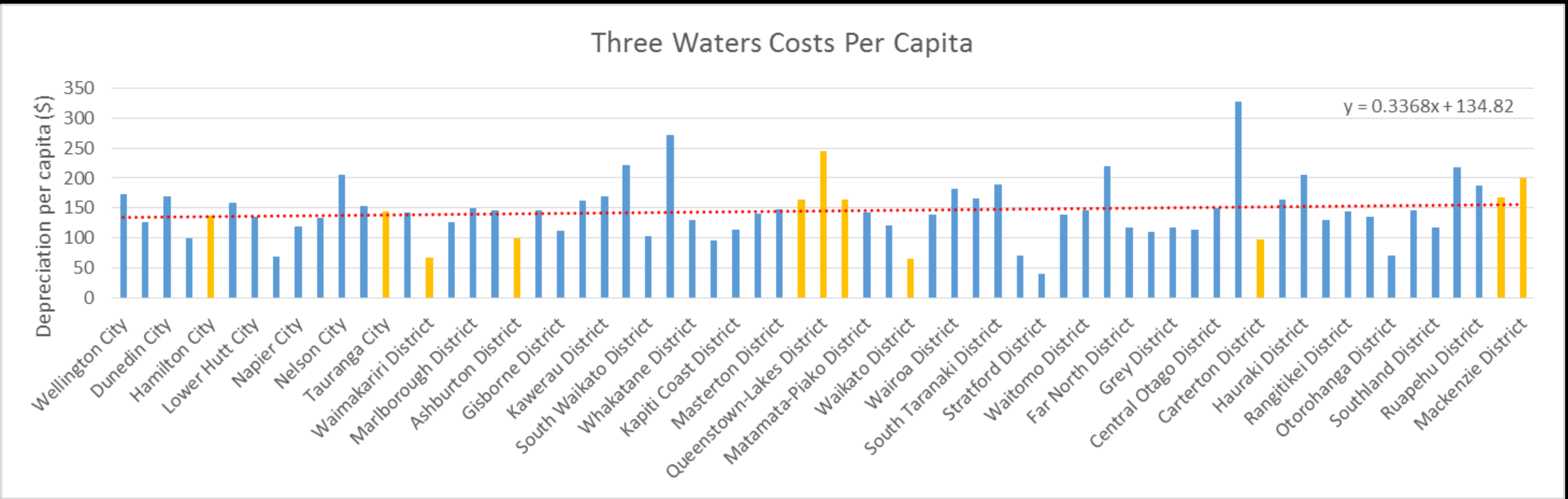


# Wastewater costs per capita fall v slightly as density falls (to right)




As in the US, likely explanation is that more dispersed TAs have more septic tank systems which lower costs.

# Taking the 3 waters together, overall costs increase marginally as density falls (towards right)




## Message:

Taking the big infrastructure assets (roads & the 3 waters), costs are approx stable or increasing as density falls.

# 3. Auckland household survey on housing, neighbourhoods, travel

- People's Panel
- Late Nov - early Dec 2015. n=3,285

- Findings on:
  - Important housing and neighbourhood features
  - Stated choices: attribute preferences
  - Travel preferences
  - Barriers to walking, cycling, public transport
  - Current dwelling characteristics
  - Dwelling and neighbourhood problems

# Auckland survey (2): taster results

- Most important housing and ngbd features
  - 'affordability' (94% extremely imp., v. imp., or imp.)
  - warm and dry (92%)
  - safe neighbourhood (88%)
  - outdoor space (80%)
  - parking space (80%)
  - attractive neighbourhood (75%)
  - a quiet street (73%)
  - having a standalone home (70%).

# Stated choice survey trade-offs

| Standalone house | Townhouse | Apartment |
|---|---|---|
|  |  |  |
| Small section | Large section | Porch / balcony |
| 30 min **walk** to local town centre<br>30 min **drive** to CBD<br>60 min **bus** to CBD | 5 min **walk** to local town centre<br>5 min **drive** to CBD<br>15 min **bus** to CBD | No centres in **walking** distance<br>45 min **drive** to CBD<br>1 hr 15 min **bus** to CBD |
| Mix of apartments / townhouses and standalone houses | Primarily standalone houses | Mix of apartments / townhouses and standalone houses |
| Off street | On street | On street |
| $400 | $400 | $300 |

*Example of choice set (No. 9) and 1-bedroom dwelling options (attributes: outdoor space, distance to CBD/town centre, neighbourhood dwellings, parking, and market rent).*

# Auckland survey (4)

## 12 choice sets presented. Preferences for:

- Standalone houses for 8 of the 12.
  Townhouses chosen in 3 sets. Apartment once.
- Very close transport access – 5 min walk to town centre and 5 min drive/15 min bus to CBD; or fairly close
- Parking (on street or off street)
- No clear preference regarding neighbourhood type and preferred housing prices/rents.

# Some conclusions of 'strand'

- Advantages of compact development increasingly recognised by both planners & market

- Preferences changing for housing and neighbourhood, often driven by affordability & access

  - Still demand by some for suburban living -- townhouses increasingly cater to this ….

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# Some ‘strand’ conclusions (2)

- Main infrastructure costs lower in TAs with greater density
- Urban transport and development planners gradually adapting their views… but slower than necessary given accelerating climate change
- Hopeful signs that urban form becoming more sustainable and resilient.

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# Thanks


- Partners include:
  - Auckland Council (Regan Solomon and others)
  - WCC
  - GWRC
  - Porirua Council
  - Hamilton Council….

- and numerous interviewees / respondents among the business sector and the public

- and to our funder, MBIE.