Climate Change: Where we live, how we live, and how we plan for it

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Sep 2019
History Matters...

• In 1905 only 500 vehicles in NZ.
• 1924 there were 58 per 1000 population
• 1955, 177 per 1000...
• 2018, one of the highest rates of light vehicle ownership (Cars, vans, SUVs and utility vehicles) in the world, with 792 per 1000, up 23% in the last decade (Ministry of Transport, 2018).
• The places we create have a long legacy... So what legacy can we leave?

1932 Road Map of NZ by... Atlantic Union Oil Company (merged with Mobil in 1980)
Carbon footprint and Space footprint

- **Average Victorian car**: 243.8 grams of CO₂ per person kilometre travelled
- **Top Range EV (Victorian grid)**: 209.1 grams
- **Dual occupancy car**: 121.9 grams
- **Motorcycle**: 119.6 grams
- **Train**: 28.6 grams
- **Tram**: 20.2 grams
- **Bus**: 17.7 grams
- **Top Range EV (Green power)**: Dirty
- **Bike**: Dirty
- **Walking**: Dirty

- **Footprints** represent space in square metres required per occupant
First Class?
Carbon footprint and Space footprint

- Average Victorian car: 243.8 grams of CO₂ per person kilometre travelled
- Top Range EV (Victorian grid): 209.1 grams of CO₂ per person kilometre travelled
- Dual occupancy car: 121.9 grams of CO₂ per person kilometre travelled
- Motorcycle: 119.6 grams of CO₂ per person kilometre travelled
- Train: 28.6 grams of CO₂ per person kilometre travelled
- Tram: 20.2 grams of CO₂ per person kilometre travelled
- Bus: 17.7 grams of CO₂ per person kilometre travelled
- Top Range EV (Green power): 16.3 grams of CO₂ per person kilometre travelled
- Bike: 1.5 grams of CO₂ per person kilometre travelled
- Walking: 1.5 grams of CO₂ per person kilometre travelled

Footprint size indicates space in square metres required per occupant.
Planning in NZ

Image: Future Proof 2017

Image: City of Hamilton district plan map, 1963. Collection of Hamilton City Libraries 832.141 EDC
Infrastructure is key to urban form and GHG emissions

Mass transit?

- Different spatial scale of planning
- Different timescales (50+ years)
- Different people involved
- Different ways of working
- Links land use with transport
- Low emissions plus liveability
- Potential mass transit network developed using outputs from emerging metro form work
- Long term vision
- Cross boundary
Linking spatial structure, urban form, housing, transport, biodiversity, etc

Key is ‘Transit Oriented Development’

- Densify around nodes to make mass transit feasible
- Densification linked to mixed use planning to reduce need to travel
- A mixture of city densification and nodal development, underpinned by a mass transit network
- Use space more efficiently to protect valuable soils, habitats, etc
- Create places that naturally are more climate friendly
1) Much climate action is politically risky. We don’t have certainty over what will happen, where, the damage, the distribution of long/short term costs,

2) Power of stability and the status quo. **Innovation is a political risk**

3) Politics is competitive and has multiple crises and **attention is a scarce political resource**

4) Need to consider this not as a climatic risk but as a political, institutional and professional risk. **How do we ‘de-risk’ the right decisions?**