

26 April 2023

## CCC Plan Change #14: Housing and Business Choice.

Thank you for the opportunity to submit to this process. Please accept this letter as a submission into the IHP process from The Observatory.

At the outset, it is worth noting that the disbenefits of living in a sprawling city like Christchurch are already considerable. These negative impacts include transport, energy, housing (location, quality and costs), social-equity and health. Hence, we are not ‘starting from zero’, but are already in a negative situation where significant slices of our communities are already accruing disbenefits disproportionately.

Generally, the benefits of intensification, particularly to a sprawling city like Christchurch include:

- increase the attractiveness and accessibility of our Garden City
- helping to solve the housing crisis by increasing housing affordability, hence provide part of solution to social inequity in our city.
- reducing road transport emissions (the largest component of the CHC GHG emissions profile), as more people live closer to active/public transport routes and work places
- reducing the health and wellbeing/isolation impact of living in our city
- decrease climate impact of the city (energy and transport emissions)
- decrease the impact of the city on the environment including ecology and habitats.
- increase the economic viability and vibrancy of the city: greater population density closer to amenities and services
- potentially increase safety in the community
- likely reduction of rates

For these and other reasons around how we adapt to climate change, we wish to indicate strong support for *smart intensification*. For Christchurch this would look like intensification in the central city, and much less in the outer suburbs. A city that is no longer growing its territorial footprint but nonetheless increasing its population.

Typically, this could allow:

- increase the attractiveness and accessibility of our Garden City by for example increasing tree cover and local character (*e.g.* Woolston Village)
- Getting people out of cars onto public transport, freeing up central city land (currently car parks) for more beneficial development.
- Getting people further from traffic, wider pavements, local gardens and parks, off-road cycleways
- *etc...*

The alternative to allowing intensification is building more sprawling subdivisions which destroy our high value soils, and/or situated as currently on unsuitable floodplain sites, or wetlands, increasing the risk of catastrophic floods in the future.

Our comments on the PC #14 proposal largely on the qualifying matters (QM, particularly:

- Sunlight Access QM
- Inclusion of Tsunami risk in the Natural Hazards QM

### Sunlight Access QM

Local government has amongst its responsibilities implementation of national guidance and regulations into local systems and plans. Clearly this will often be nuanced to reflect local character and conditions. If Sunlight Access is included as a QM then this is likely to:

- a. significantly delay the intensification process: it would allow retention of current or similar height/stories restrictions on new builds which would stall construction of higher buildings over the whole city.
- b. Further restrict the planting of trees which apart from their positive effect on biodiversity, Carbon draw-down, well-being and land stabilization, would lower the heat island effect of the city, hence reduce the impact on residents of the more intense and frequent heatwaves predicted by climate change.

Both of these implications are exactly counter to the direction of travel implied by good and timely adaptation to climate change, as well as that implied by central government in the recent NPS on highly productive land. We estimate resolution of the underlying issue (including Sunlight Access as a QM) pushes back intensification by at least a further two years plus planning time (*i.e.* it is not possible to construct the business plan for these types of development when extant regulation effectively does not permit them).

“Many other cities in the Northern Hemisphere with latitudes equivalent or further from the equator than Christchurch have very liveable cities with high density living, therefore sunshine is not an issue if we use these cities as example to develop towards.<sup>1</sup>”

It seems to us that this QM has the same effect as a Trojan Horse to prevent the intensification process in Christchurch.

### Inclusion of Tsunami Risk Area in Natural Hazards QM

It is obvious that the planning system should be used to reduce development in areas that are exposed to well quantitated very high risks of significant damage from natural hazards on short timescales. However, unless there is a reasonably good understanding of the scale and timescale of the hazard, and that timescale is short (typically, less than a human lifetime),

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<sup>1</sup> [https://www.generationzero.org/ccc\\_pc14](https://www.generationzero.org/ccc_pc14)

heavy regulation can have the effect of causing social and economic damage for no good reason, e.g. moving communities out of areas too soon, when in reality those communities could have stayed for another 50-100 years.

The issue with including tsunamis in the definition of the coastal hazard zone, is the zone is stretched unrealistically. This bloated coastal hazard zone is then based not on our knowledge, but rather our lack of it. For example the mapping of the zone includes about a 1m sea level rise (by 2100) plus the effect of a major tsunami (we estimate 5-10m), that affects the NZ South Island eastern seaboard. This series of sequential over-estimations produce a practically impossible scenario and an unrealistic estimation of the zone:

- the tsunami must occur after the 1m of sea-level rise (CCC posited as 2100). The IPCC (the world consensus of scientific and social knowledge about climate change) now consider sea-level rise of 1m by 2100 a large over-estimate, or in their own words, ‘not realistic’.
- the vast majority of tsunamis arriving here are small enough not to be noticed, and only two seismic sources (Cook Strait and South American seaboard) realistically would affect the Christchurch coastline.
- the data (see below) produces a very weak prediction and does not support the assessment of this hazard to be likely enough or large enough to be included in definition of the coastal hazard zone.

Although both tsunamis and earthquakes are natural hazards, the occurrence of neither is particularly predictable. Whereas deaths in our (NZ) recorded history from earthquakes is about 500, only 1 death has been recorded from tsunamis. Clearly prior to that history there have been significant earthquakes and tsunamis that have potentially caused deaths and devastation. However, principally due to our lack of understanding of the detail of processes that cause earthquakes and/or tsunamis at a particular time and place, we use frequencies of event occurrence in the past as a proxy for prediction. Typically this leads to what can be very weak estimates, for example:

*“...A total of 24 tidal waves classified as a tsunami since 1855...The strongest tidal wave registered in New Zealand reached a height of 15 meters (02/02/1931)...The biggest impact in terms of lives and the economy has been a tsunami on 08/13/1868. A tidal wave of up to 4.5 meters killed 1 person and destroyed vast areas<sup>2</sup>.”*

Even strong predictions of these hazards carry with them many assumptions, incomplete records, and statistical uncertainty, for example...

*“...The NZ Alpine fault fails in a magnitude 8 earthquake about every 330 years<sup>3</sup>...”*

... does not rule out two magnitude 8 earthquakes from the Alpine fault 100 years apart or one in 600 years.

<sup>2</sup> <https://www.worlddata.info/australia/new-zealand/tsunamis.php#:~:text=A%20total%20of%2024%20tidal,a%20height%20of%2015%20meters.>

<sup>3</sup> <https://www.gns.cri.nz/our-science/land-and-marine-geoscience/our-plate-boundary/alpine-fault/>

Our current state of knowledge does not allow for any reasonable forecast of the timescale of a large tsunami that would justify the size of the proposed coastal hazard zone.

Ngā mihi,

Simon Watts.