

# Memorandum

<b>SUBJECT</b>	Waterfront planning – climate change assumptions
<b>DATE</b>	11 September 2017
<b>TO</b>	Planning Committee
<b>FROM</b>	Joanna Smith, Miranda James Panuku Development Auckland

At the 5 September Planning Committee, a question was asked about the assumptions made, and base figures used, for sea level rise in the city centre and waterfront planning.

As noted, development on the waterfront has been driven by vision and goals of the 2012 *Waterfront Plan*. The goal to deliver a '**blue green waterfront**' addresses sustainability:

*A resilient place, where integrated systems and innovative approaches are taken to enhance the marine and natural ecosystems, conserve natural resources, minimise environmental impacts, reduce waste, build sustainably and respond to climate change.*

To help deliver this goal, in 2013 Waterfront Auckland developed a Sustainable Development Framework (SDF), which Panuku has continued to implement. The SDF aims to mitigate the risk associated with climate change with a focus on reducing greenhouse gas emissions through low carbon development, passive design and renewable energy generation.

More recently, Panuku has developed a *Climate Change Adaptation Pathway* (2015). The first strand of that work is adaptation, focussing on understanding risks and impacts, and taking action to improve resilience. The next phase of planning and redevelopment reframes this challenge as a transformational opportunity. This is our chance to secure the delivery of high-value sustainable resilient urbanism. The coastal, exposed nature of Wynyard Point provides perhaps the best opportunity in Auckland to educate and inform Aucklanders about what the future holds in terms of a changing climate and what future urban development might conceivably look like in the future.

## **Current understanding of impacts of climate change**

The Auckland Plan and Waterfront Auckland Sustainable Development Framework (SDF) set out the impacts of climate change for Auckland as being:

*Based on current knowledge, and under moderate projections, it is likely over the next century that Auckland could experience:*

- *hotter average temperatures, increasing between: 0.2°C and 2.5°C by 2040, and 0.6°C and 5.8°C by 2090*
- *an additional 40-60 days per year where maximum temperatures exceed 25°C, and more evaporation*

- *lower average annual rainfall patterns (decreasing between -1% and -3% by 2040, to -3% and -5% by 2090)*
- *more drought conditions: by 2080, drought with a severity that is currently only encountered on average every 20 years, could occur as often as every five years*
- *more extreme weather events with more frequent heavy rainfall events, westerly winds and coastal storm inundation*
- *more frequent storm inundation and higher storm surge and waves*
- **sea-level rise – Auckland is presently tracking towards a rise in sea level of 80cm by the 2090s or 1 metre by 2115, but it could be lower or higher: 0.7m or 1.85m by 2115 – depending on ice-sheets**

The waterfront SDF then goes on to indicate that based on current knowledge, Auckland could experience more extreme variability in its local climate in the short, medium and long term, and is likely to see hotter average temperatures, changes in wind and rainfall patterns, more frequent extreme weather events such as droughts and floods, and rising sea levels, with higher storm surge and waves. This will create risks and uncertainties for the natural environment, biodiversity, the built environment, the economy, public health, and lifestyles.

### **Auckland Council – updated information about climate change impacts**

Additionally, the wider Council family has recently commissioned research from NIWA that will enhance our understanding of climate change impacts across the Auckland region. NIWA has already initiated the research, with the first report due at the end of October 2017.

The technical report will be resolved at state-of-the-art 5km<sup>2</sup> resolution, using the latest climate change scenarios. This will provide far more detailed and region-specific information on a range of aspects such as temperature change, rainfall, extreme rainfall events, climatic droughts, and growing degree days. The spatial resolution will assist Council, CCOs and other agencies in their use of climate change guidance for modelling and for undertaking investigations about future impacts on Auckland.

Panuku Development will be able to draw on this detailed research when planning and refining adaptation standards for future phases of development at the Waterfront as well as other regeneration areas.

For further information, please feel free to contact Miranda James, Head of Corporate Sustainability, Panuku Development Auckland (email: [miranda.james@panuku.co.nz](mailto:miranda.james@panuku.co.nz)).