

# *Shifting Climate / Shifting Places*

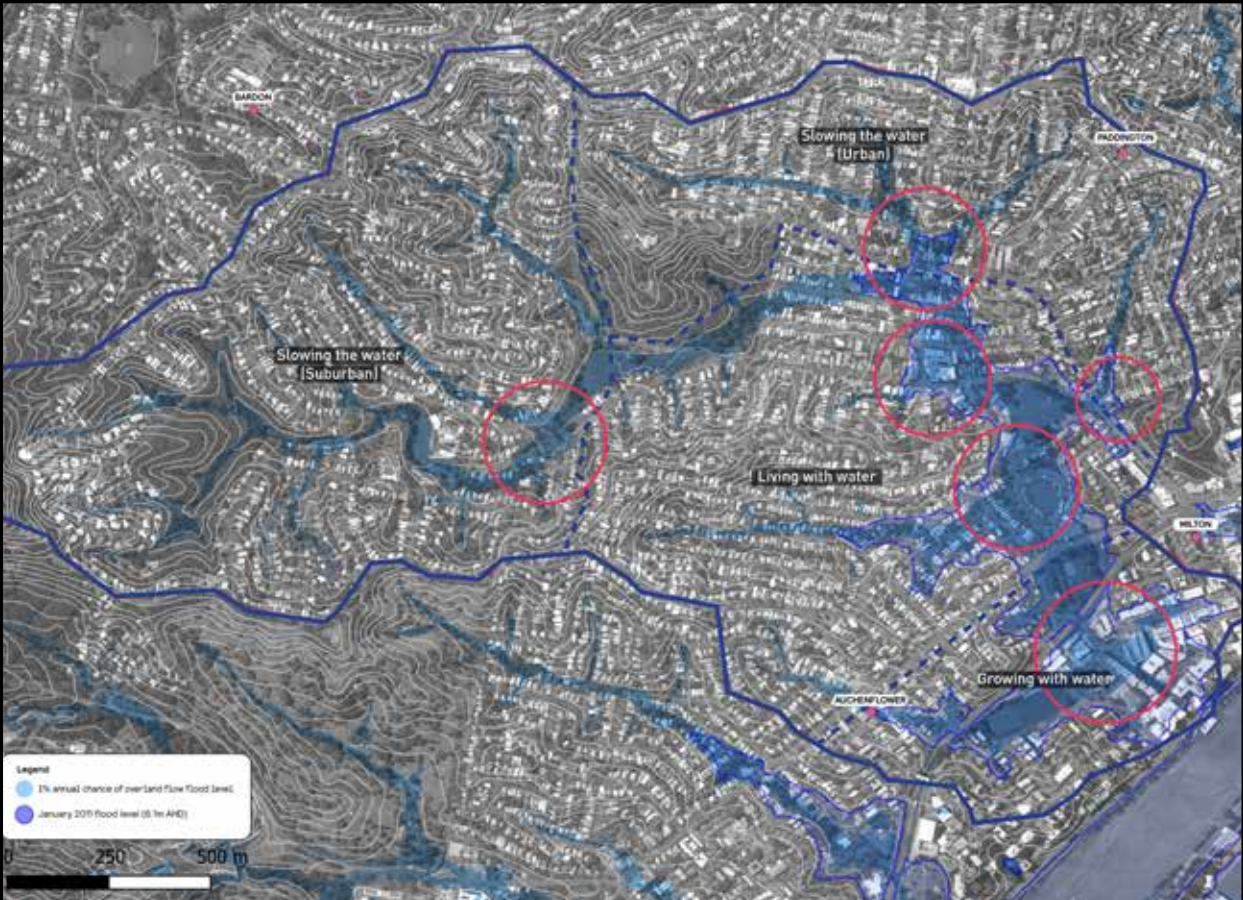


## **2° Degrees: Design for Climate Adaptation**

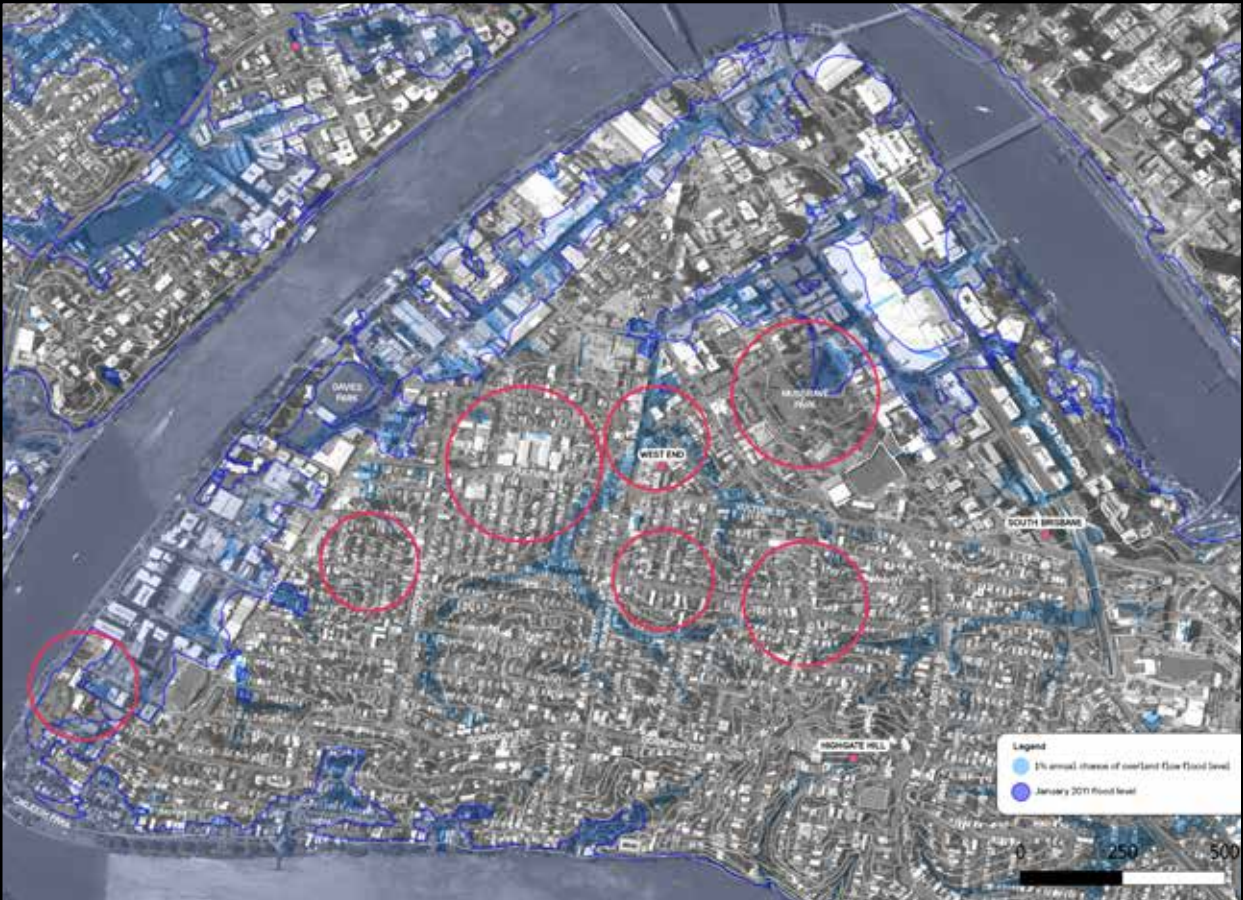
This climate adaptation co-design workshop has been prepared by John Mongard Landscape Architects and is intended to be able to be used by any group within their own neighbourhood. Grass roots action is likely to be the forerunner for governmental action. In many parts of Australia communities can prepare themselves for the shifting climate, in the coming years.



# Neighbourhood Climate Adaptation



Rosalie Neighbourhood



Kurilpa Neighbourhood



# Purpose of a neighbourhood climate strategy

In the increasingly complex and confusing world of climate change, we need shared, simple and sensible thinking about what helps us to respond effectively as a community. As we face decisions and advocate changes that affect our community, we can choose to embrace our diverse world views, engage our concerns about climate risks, and act to thrive as a community in our neighbourhood.

# A climate framework

Our climate strategy focuses on resilient adaptation: an approach to climate adaptation that understands and respects the world views and the shared needs of our community and which intentionally designs and develops the urban setting to respond to our shared applications.

For us this involves three community actions:

- **Resetting – Expectations**
- **Regaining – Knowledge, Skills & Assets**
- **Rebounding – From Setbacks**

For more detail about getting up a neighbourhood climate framework, refer to: The Kurilpa Climate Strategy (by John Mongard, Bob Spiers and Pam Burke, located at [www.mongard.com.au](http://www.mongard.com.au)).



# Workshop background

By the year 2030 it is projected that our climate will have altered by 2 degrees in temperature above pre-industrial times. Our cities and places will need to be adapted for this climate shift: within ten years.

Communities, planners and designers will need to strongly alter their patterns and practices to achieve this adaptation. This workshop aims to make people think about actions required to ramp up and prepare for this climate shift.

## Workshop scenario: planning for the summer of 2030 (+2°)

The climatic shift is most likely to be of impact in our summers. In Brisbane, we will see a shift to a more hotter style climate: longer summers with more extreme heat days, less rainfall and more frequent and strong storm events. Hot dry wind will reduce humidity and increase fire risks. Impacts from flooding and overland water will likely increase in many low and water prone neighbourhoods.

Urban heat stress will increase particularly in open and hard city areas. We will find it harder to move around or cool down in our neighbourhoods. Urban heat stress will increase particularly in open and hard city areas. We will find it harder to move around or cool down in our neighbourhoods, homes and streets.



# Scenario 1: adapting to water / storms / drought

## Water and storms

Imagine we are planning for a 2030 summer in Brisbane which anticipates cyclonic storms moving southward into South-East Queensland, bringing much heavier rainfall, very strong winds and flash flooding. Looking at the flooding mapping projected for a major event such as the 2011 flood, we see impacts and changes which might be required in this neighbourhood.

- What actions can we take now in this neighbourhood, to adapt to this shift in storm and water events?
- How can development modify to reduce storm risk?
- What should we do with homes in high risk, flood prone land?

## Water and drought

Imagine we have no rain for six months:

- Long hot summers will bring drought. How do we adapt for this?
- How do we create local water resilience?
- How do we store and hold water better?

# Scenario 2: adapting to landscape & vegetation

Imagine we are planning for a 2030 summer with all the changes described earlier. Our landscapes, ecologies and vegetation will alter toward a warmer climate. This will impact fauna and biodiversity.

- What actions can we take now in this neighbourhood to adapt to this shift in our landscapes and vegetation?
- How can we build food resilience into our cities and places?
- How do we retain our native flora and fauna in the growing city?
- What actions can we do to increase landscape in the urban landscape?



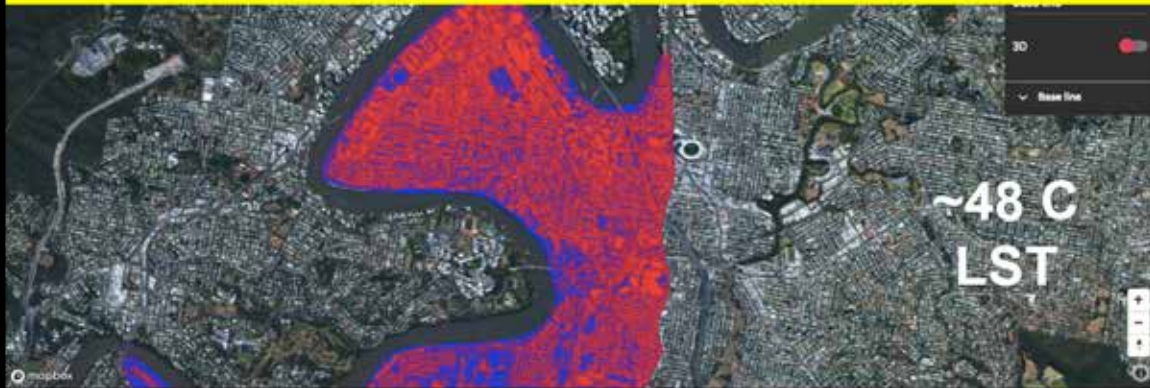
# Scenario 3: adapting to heat

Imagine we are planning for a 2030 summer which anticipates 3 weeks of very hot days of 40°C+, with evenings of 30°C+.

- What actions can we take now, in this neighbourhood, to adapt to this shift in heat?
- How can we plan around increasing fire events?
- How can we reduce heat in buildings without air-conditioning?
- What materials and surfaces should we use to reduce urban heat stress in the city?
- How do we cool the city as it grows further?
- How do we adapt the rhythm of our daily life around heat?



## Baseline



## Business as Usual



## Scenario 2 Interventions water sensitive city approach



The basic output is Land Surface Temperature for an extreme heat day, for the South Brisbane, West End, Highgate Hill area. This is driven by research of the 'heat signatures' of typical materials e.g. on a extreme hot day, forest has a surface temperature of about 20 C, green grass about 25 C, bitumen, concrete and brown grass about 50 C, and rooves about 55 C.

The CRC Water Sensitive Cities, using their research and software, has analysed the heat signature for the existing/current built environment, for how this changes if development proceeds as Business As usual, i.e. in line with the current BCC City Plan, and then how that can be mitigated by using water sensitive city approaches i.e. using rain tanks for irrigation to street verges, increased green space / smaller footprint buildings, increased shade trees etc

What this shows is that BAU will significantly increase the heat signature, but that this can be mitigated with a water sensitive city approach, or call it green and blue infrastructure. The significance of this is that research also shows that for every degree above about 30 C, the mortality of over 60 year olds increases exponentially. Heat is the biggest natural hazard killer in Australia, higher than floods or bushfires, so managing urban heat is a really important aspect of city development, particularly with the spectre of climate change.

Reference: CRC for Water Sensitive Cities, [Watersensitivecities.org.au](http://Watersensitivecities.org.au)



## Scenario 4: adapting our community

Imagine in the summer of 2030 there is a major climate event such as the 2011 flood or a major cyclone. What actions can we take now in this neighbourhood to manage such events within the community?

Who are people most vulnerable and where might they go in such an event?

What safe access and escape routes can be anticipated?

What infrastructure needs protection?

What do we do about waste and hazardous materials likely in the neighbourhood (paints, pesticides)?

How do we tell people or engage them about future climate risks?