

# **HOT IN THE CITY**

**Planning for climate change impacts in urban  
Australia**

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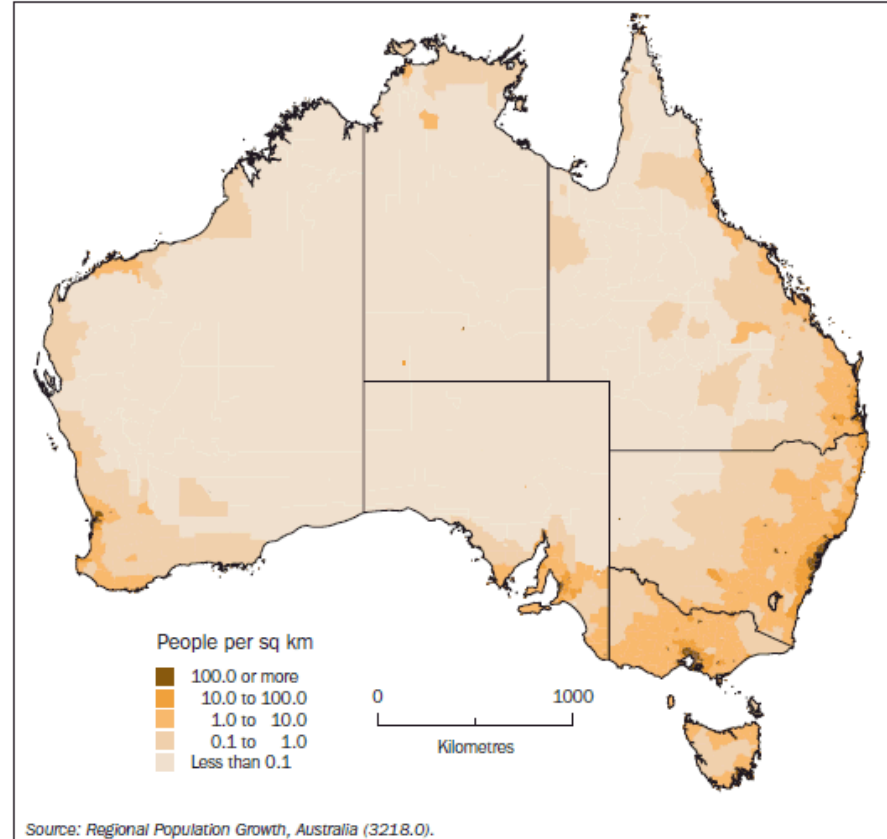
# KEY POINTS

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- 2degrees warming optimistic – adaptation critical
- Many CC impacts will be felt more severely in cities & towns
- Coastal hazards - Land use planning instruments have incorporated climate change impacts
- Bushfires - planning is in place, but doesn't formally address climate change
- Heatwave - dealt with poorly or not at all in planning
- 70% of Australia's population lives in just 6 cities, so progressing the development of city-based adaptation for these cities would provide concentrated benefits

# URBAN AUSTRALIA

- Australia highly urbanised
- >90% population in city/major regional centre
- 70% in 6 cities (Adelaide, Brisbane, Canberra, Melbourne, Perth, Sydney)
- >80% within 50 km of coast



# PLANNING FOR IMPACTS

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- Impact affected by range of factors, including location, design, construction of built environment and urban infrastructure
- Land use planning – key mechanism (+ building standards, public education and awareness, emergency management, etc)

# COASTAL HAZARDS

- Have dominated land use planning reforms
- Planning benchmarks for sea level rise in NSW, Qld, SA, Victoria, WA (under development in Tas)
- Guides building heights and set-backs, buffers
- Consider combined effect of storm surge and king tides
- Retreat discussed/promoted but not mandated



# COASTAL HAZARDS - PLANNING BENCHMARKS

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State	2050	2100 (on 1990 levels)
NSW	0.4m	0.9m
Qld	0.3m	0.8m
SA	0.3m	1.0m
Vic		0.8m
WA		0.9m

# BUSHFIRE

- 100-300% increase in fire days with 2.9°C
- Planning controls on development in bushfire prone areas
- Mapping of areas – local govt or state govt
- High variability in application of planning policies – too discretionary
- No mandate to consider exacerbating effects of CC
- Post-event recovery commitments may hinder long-term retreat options



# HEATWAVE

Days > 35 C

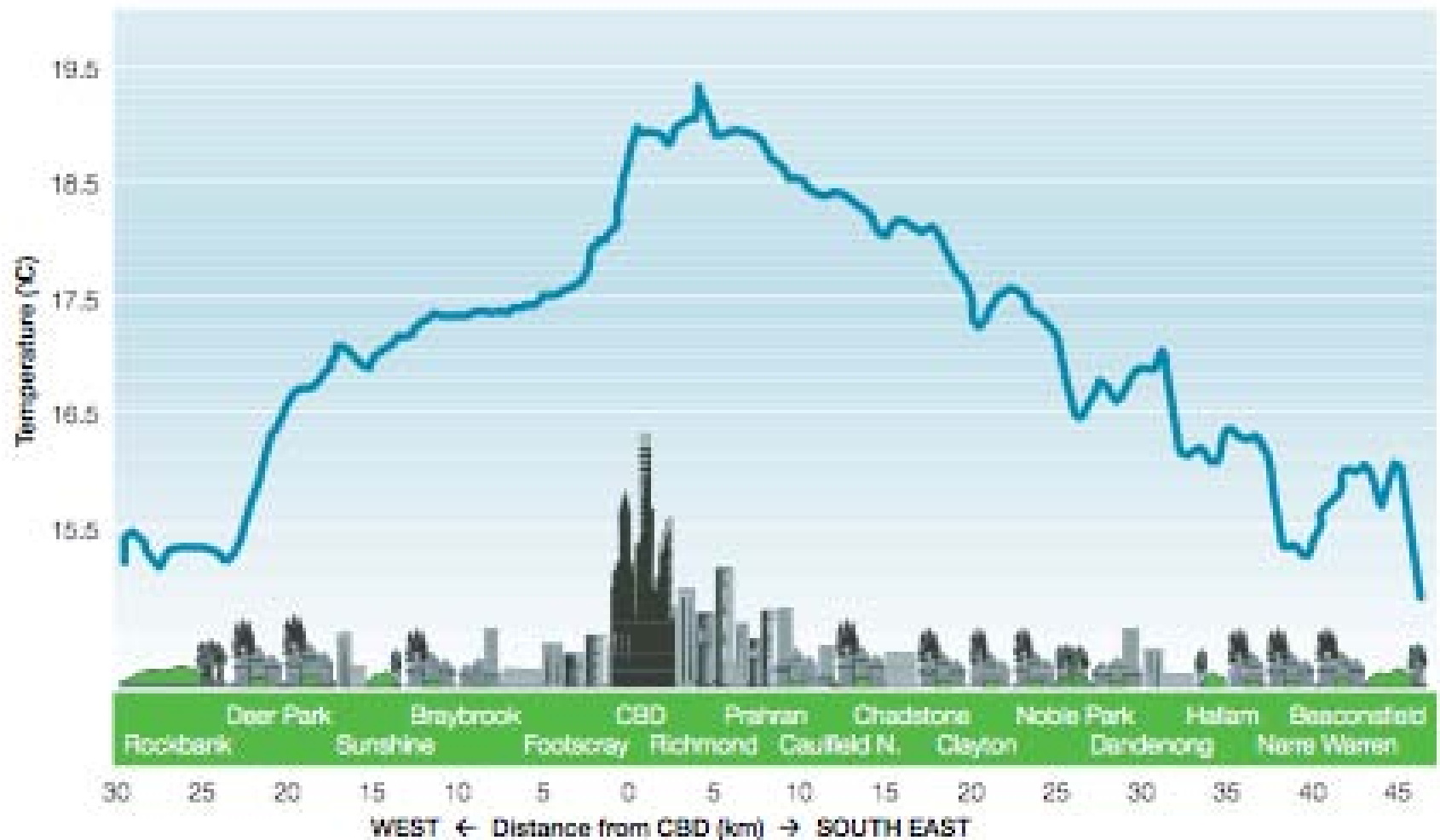
	Present	2070
Adelaide	17	47
Brisbane	1	21
Canberra	5	26
Darwin	11	308
Melbourne	9	26
Perth	28	67
Sydney	3.5	12



Average number of days per year above 35°C for current climate and at 2070 on A1F1 scenario, based on 90<sup>th</sup> percentile of 23 GCMs (Sources:CSIRO/BoM 2007, Braganza et al 2011)

# IMPACTS ON URBAN AUSTRALIA

Figure 2: Spatial variability of the Melbourne urban heat island (1 am, 23 March 2006)



Source: Coutts, Berringer & Tapper 2010

# EXTREME HEAT EVENTS

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- No planning documents relating to heatwave
- Qld, Victoria and SA heat wave response plans – emergency management/public health frameworks
- Initiatives at the city level – e.g. Brisbane, City of Melbourne, review of Basix as part of Metro Sydney adaptation plan

# CITY-BASED ADAPTATION PLANNING

- Adaptation plans for 6 cities could support adaptation for 70% population

- Only City of Melbourne has undertaken comprehensive adaptation planning



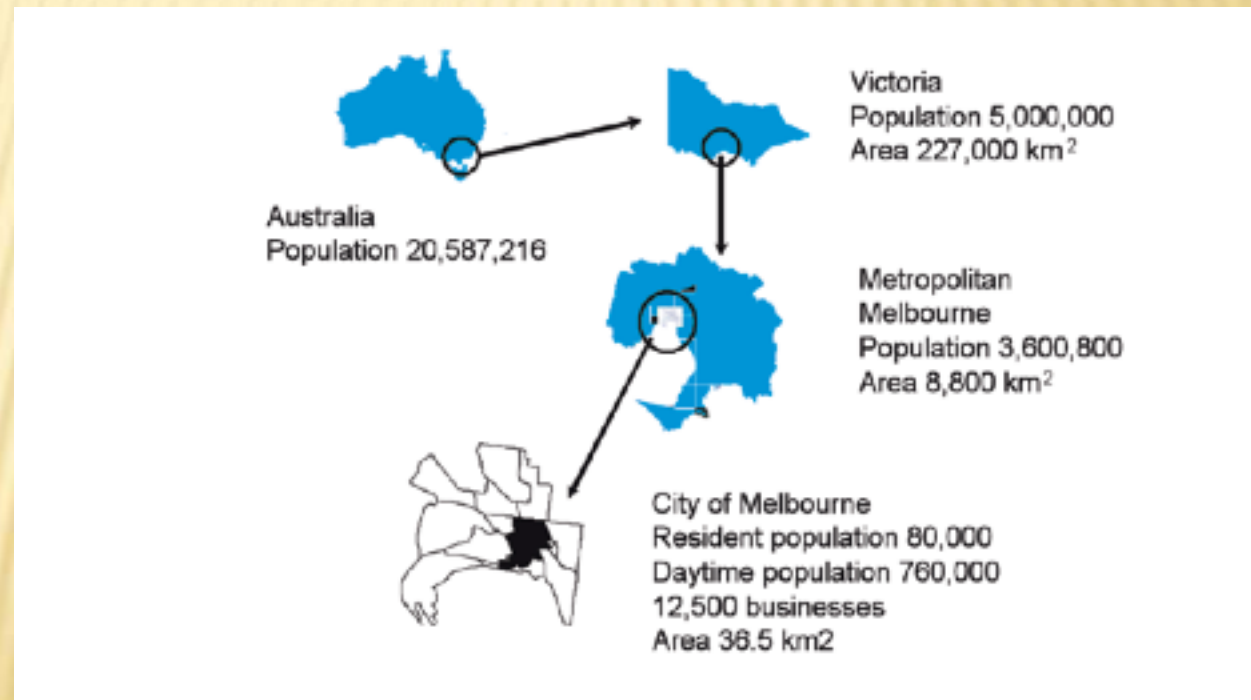
## City of Melbourne Climate Change Adaptation Strategy

June 2009



# CITY-BASED ADAPTATION PLANNING

- City governance fragmented
  - + E.g. Melbourne, 31 councils

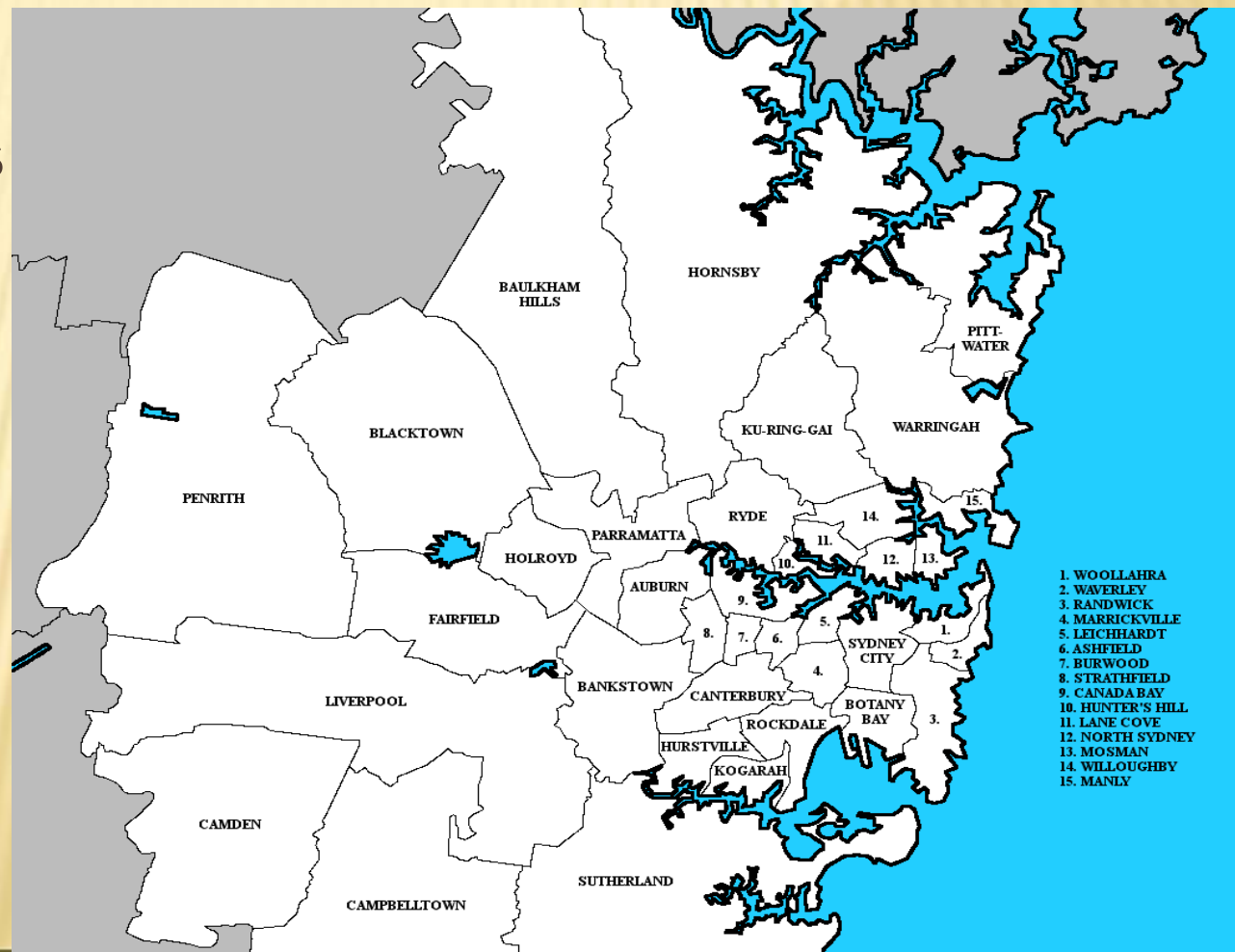


# CITY-BASED ADAPTATION PLANNING

- City governance fragmented

+ E.g. Sydney

+ 38 councils



# EXPERIENCE FROM GLOBAL CITIES

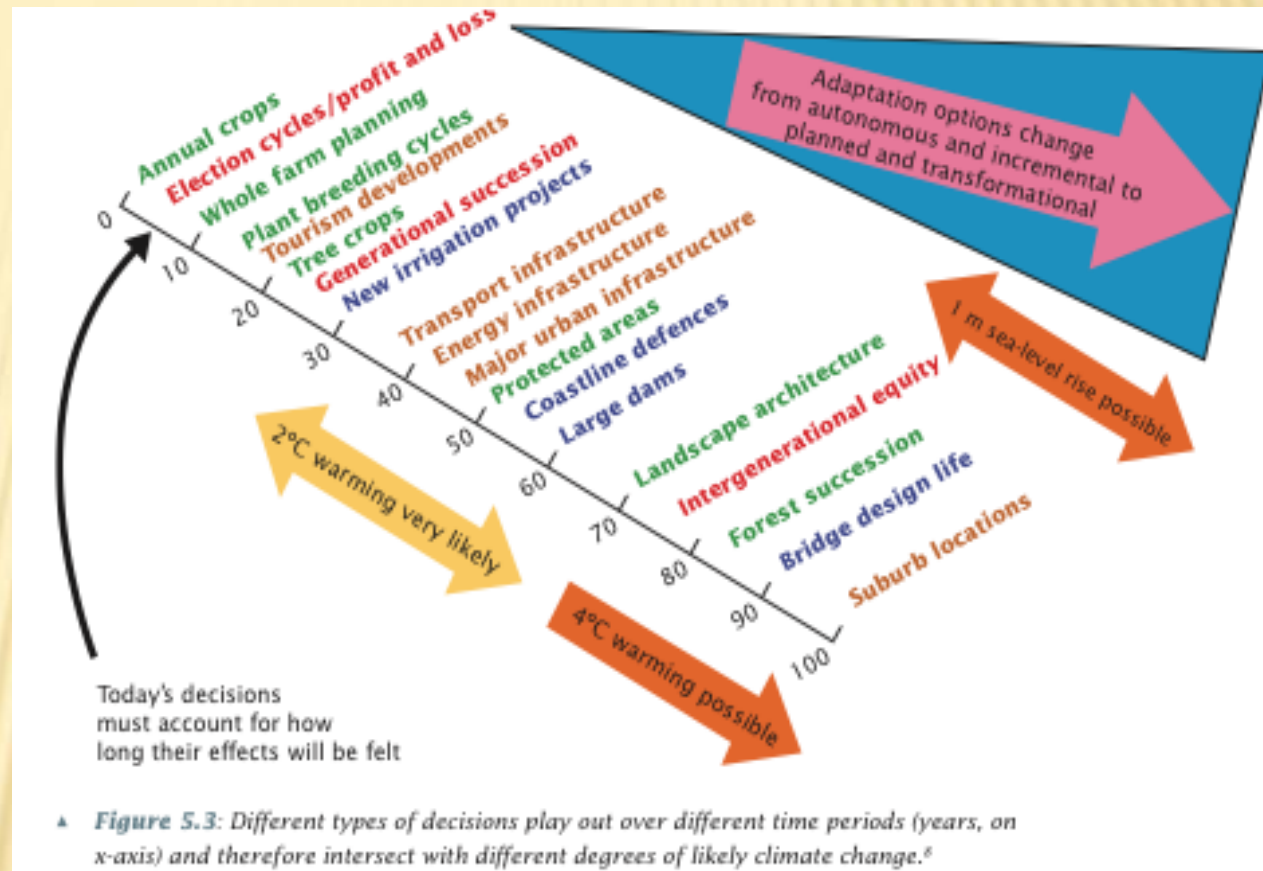
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- Vancouver, Boston, London, New York
- Process for developing plans is critical
- Public education and engagement
- Costing of inaction vs adaptation options
- Options that build on existing projects or combine with other policy goals
- Development of adaptation strategy
- Implementation

# DRIVERS AND BARRIERS TO ADAPTATION

Incremental approach to planning reform

- + Currently based on <4degrees
- + Problematic for long-life decisions (major infrastructure)
- + Planning techniques to shorten timeframe



Source: Stafford Smith M & Ash A, 2011, adapted from Stafford Smith et al 2011

# DRIVERS AND BARRIERS TO ADAPTATION

- Infrastructure legacy
- Under-resourcing, especially at local govt level
- Statutory constraints on local government powers
- Institutional leadership and culture – where adaptation sits in organisation's planning?
- Litigation and legal liability
- Trade-offs – public support for private adaptation, conservation vs biodiversity

# LESSONS FROM RECENT EVENTS

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- Learn from experience of others
  - + Good and bad
  - + Queensland Reconstruction Authority
  - + Queensland Floods Royal Commission
  - + Victoria Bushfires Royal Commission
- Plan for the best, prepare for the worst – pursue parallel paths