

Urban sea level rise responses



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Outline

The issue
Response options
Engagement and collaboration
Discussion

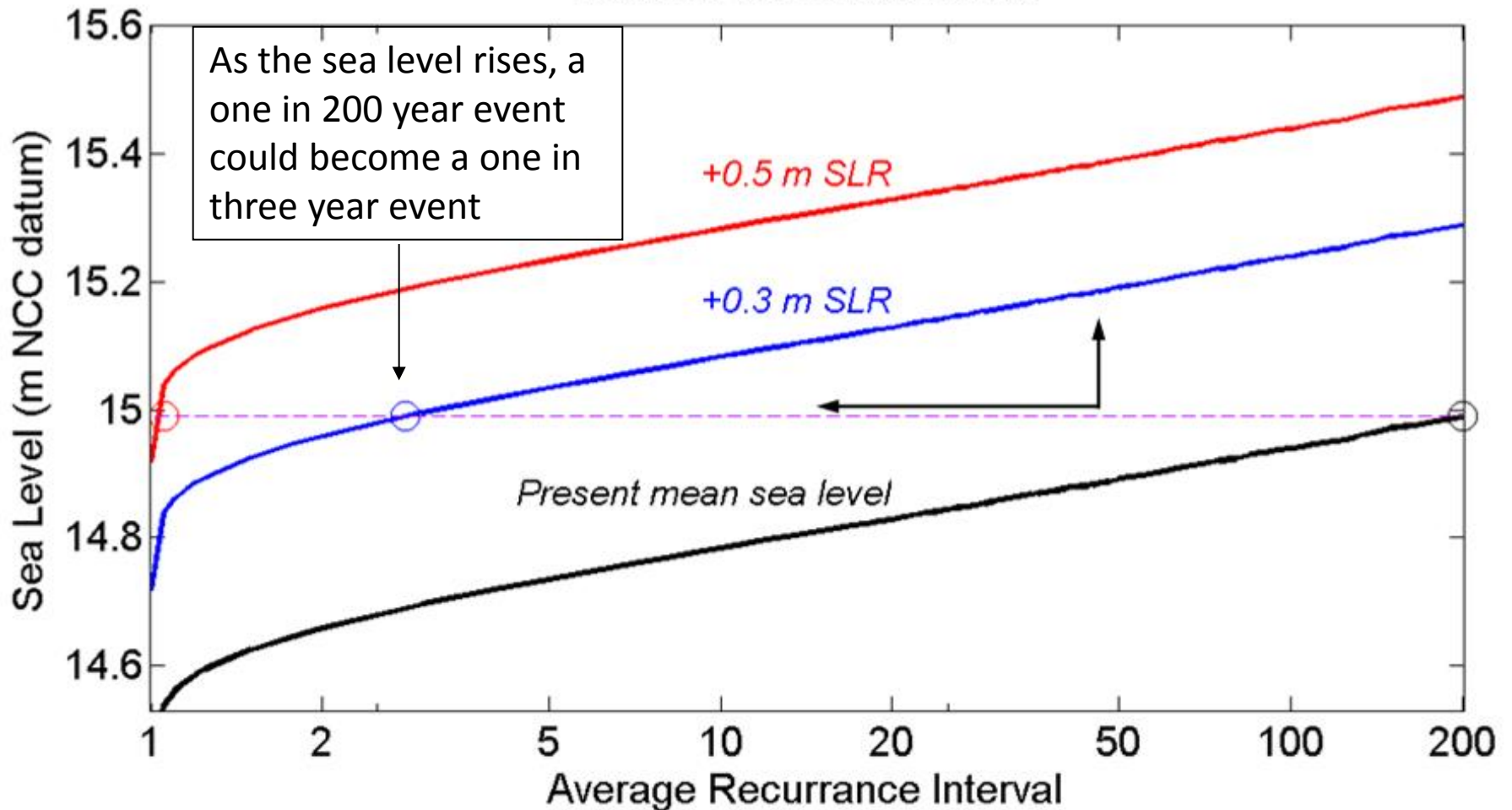


The issues

- Government advice – but no national adaptation framework
- Complexity and uncertainty
- Significant economic / social / environmental impacts
- Resourcing, collaboration and partnerships
- Community engagement – understanding and action
- Time-frames
 - Short-term: Asset Management, Urban Plans, etc
 - Strategic: Beyond existing planning horizons (eg 100 years+)

Changing state: Storm-tides

Extreme storm-tide levels



Drainage issues with more frequent storm-tide levels or inundation events



Viewpoint: 41°15'35" 174°47'7" 424.4m [Heading: 184.3°]

Impacts

- Rising ground-water and water-tables
- Degradation of the storm-water system
- Coastal margin: natural vs modified environments
- Interactions and interdependencies
- Multiple hazards co-located
- Need for early response decision-making
- Consistent approach between assets and localities

Identify thresholds and work backwards

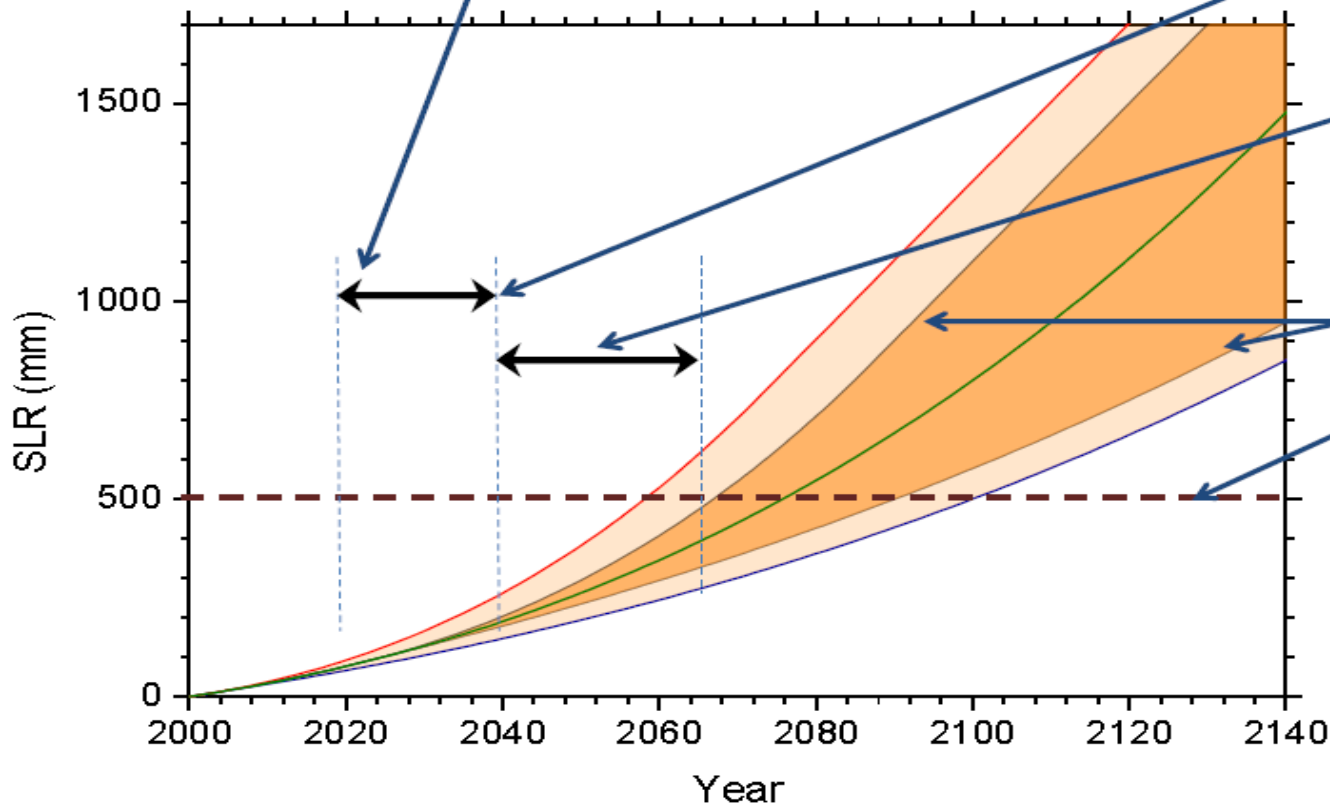
5 - And careful analysis of options has to start first.

4 - Time for the decision, taking account of uncertainty

3 - Lead time for planning and construction of responses

2 - Updated SLR estimates and uncertainties

1 - Threshold when intervention is required



This is based on:

Reeder, T., and Ranger, N., 2011: *How do you adapt in an uncertain world? Lessons from the Thames Estuary 2100 project.* http://www.worldresourcesreport.org/files/wrr/papers/wrr_reeder_and_ranger_uncertainty.pdf

Web-based impacts tool

WCC Water Model

Sea Level Rise: 2.3 m

Inundation Impact Social Impact

Infrastructure	Length	Cost
Rail (m)	3.13m	10.76k
Road (m)	10.74m	25.16k
Council SW pipes (m)	12.08m	51.16k
Private SW pipes (m)	8.76m	37.08k
Council SS pipes (m)	3.60k	49.68k
Private SS pipes (m)	124.91k	1.72
Council WN pipes (m)	18.48k	255.05k
Private S pipes (m)	8.30m	194.45k
Council S pipes (m)	8.30m	376.46k
Total cost	0.00m	695.41

Property	Count	Value
Prop cnt	2,179	0.00
Capital Value	0	26,362.38m
Land Value	0	10,167.54m
Total cost		36,529.91m

Grand Total **37,225.33m**

Suburb:

Parameter:

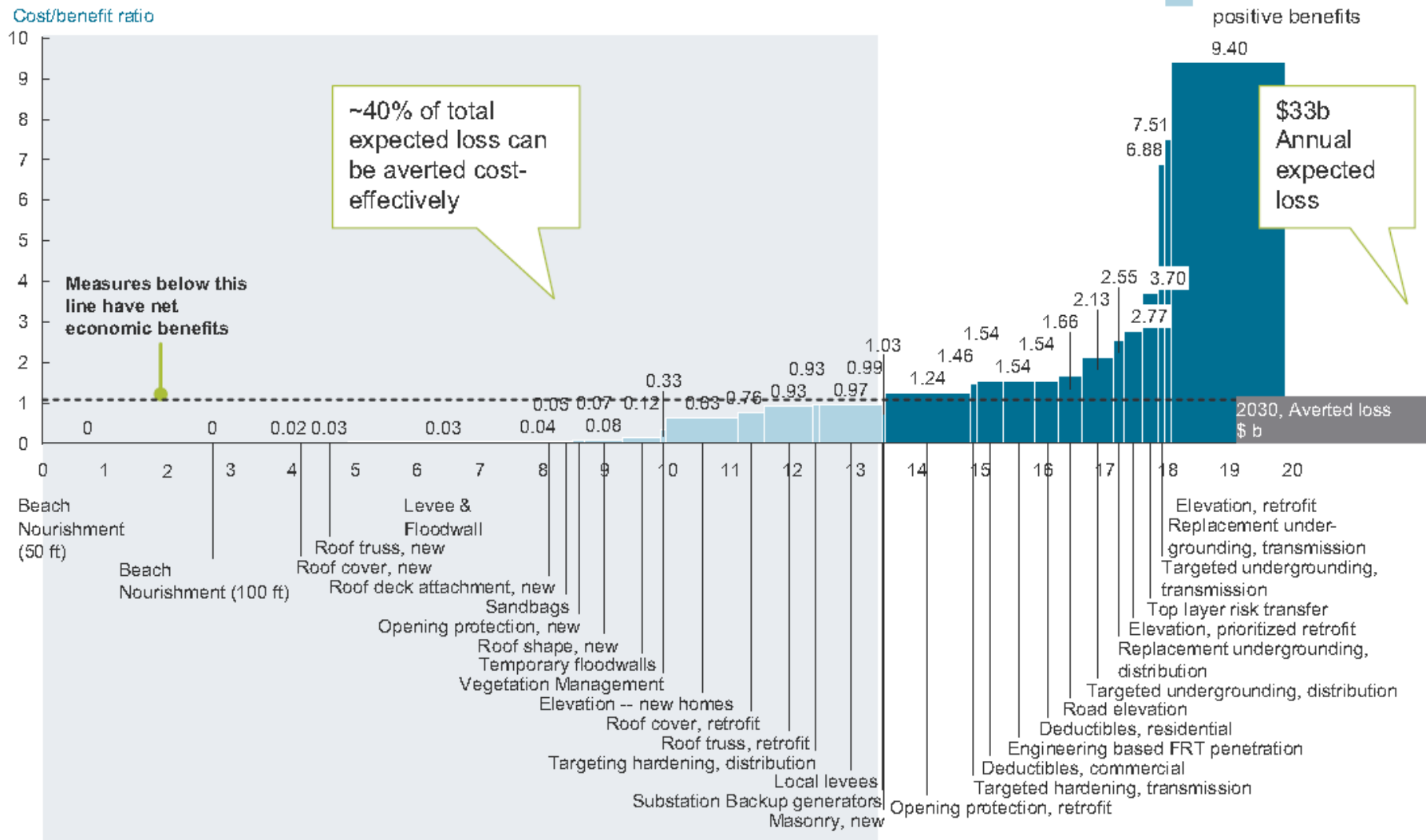


Responses

- What options are available? Timing?
- Becoming increasingly urgent
- Starting early allows for best outcomes
- Guidance on responding is needed
- Risk management approach using scenarios to evaluate impacts and prioritise response options
- Crucial to inform and involve the community
- Involves all levels of government, infrastructure, property owners, industry, citizens, etc
- An opportunity for city leadership

The initial portfolio of responses cost-effectively averts much of the expected losses

HIGH CLIMATE CHANGE

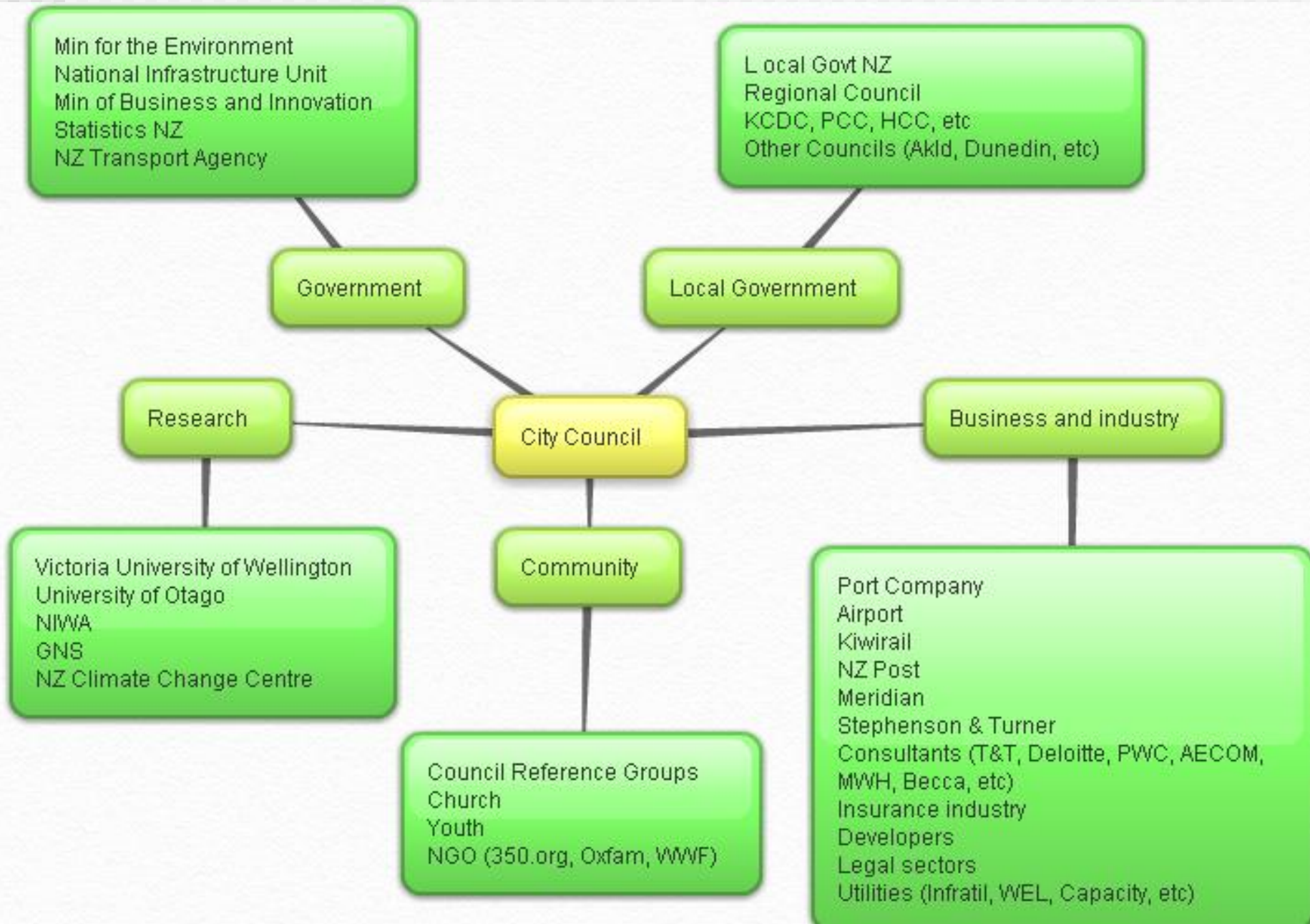


Engagement and collaboration

- Council leadership and partnershis
- Awareness raising and community participation
- Comprehensive engagement both internally and externally



Mapping stakeholders



Thank you

