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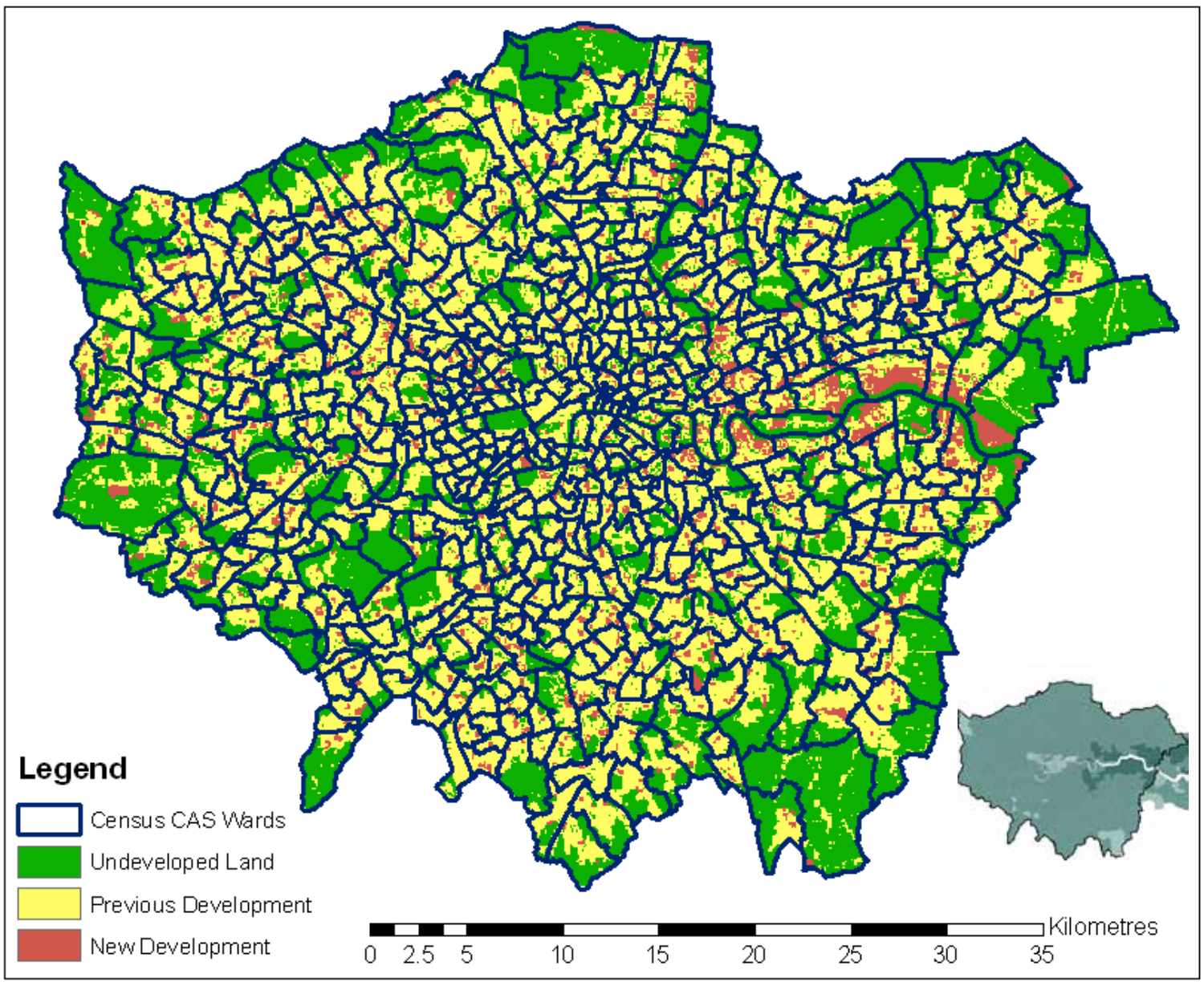
Planning Scenarios – Baseline Eastern



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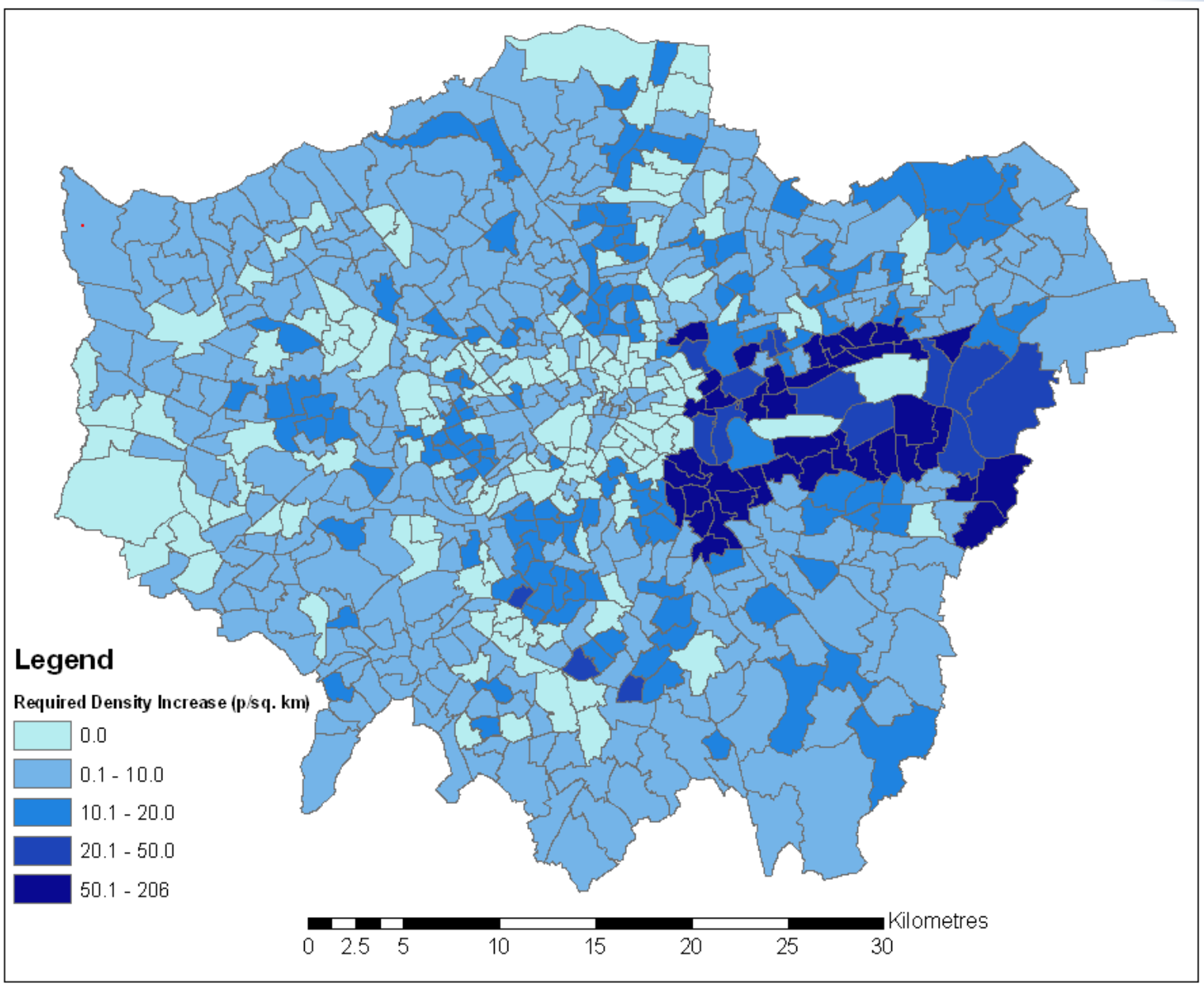
Planning Scenarios – Increasing density



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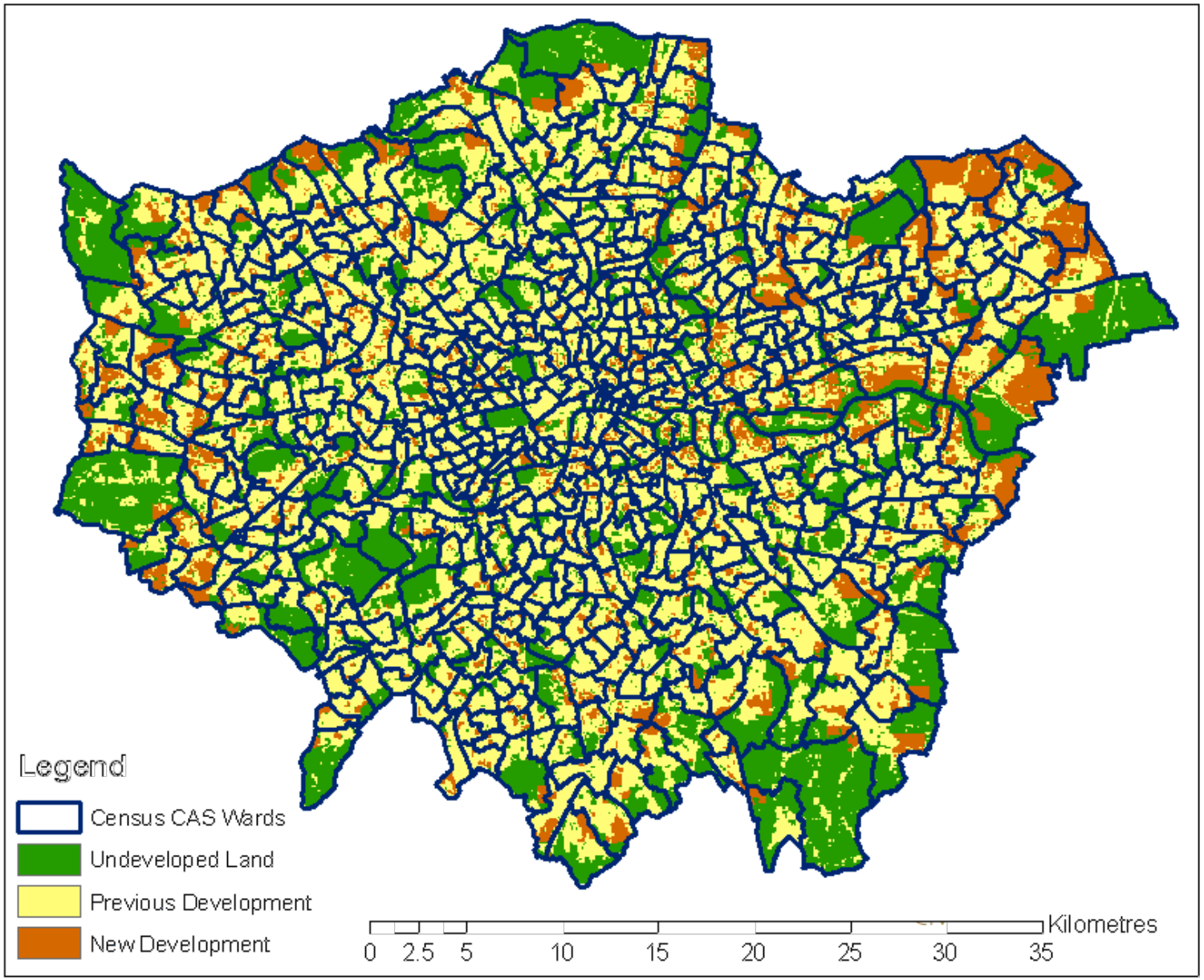
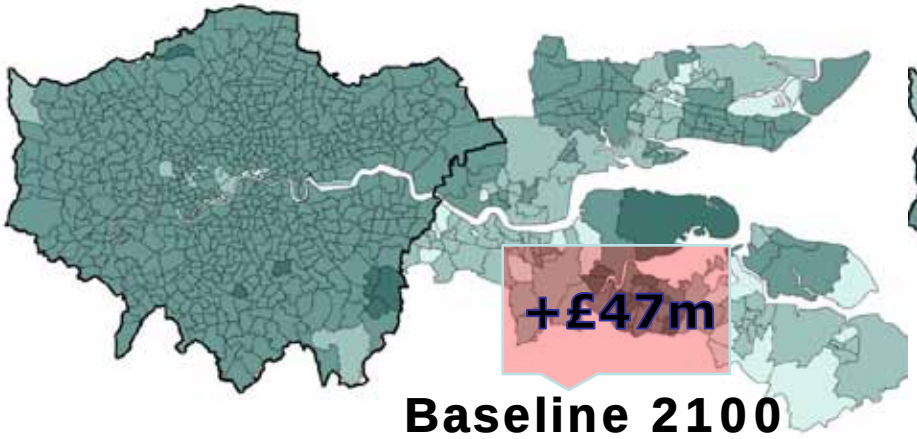
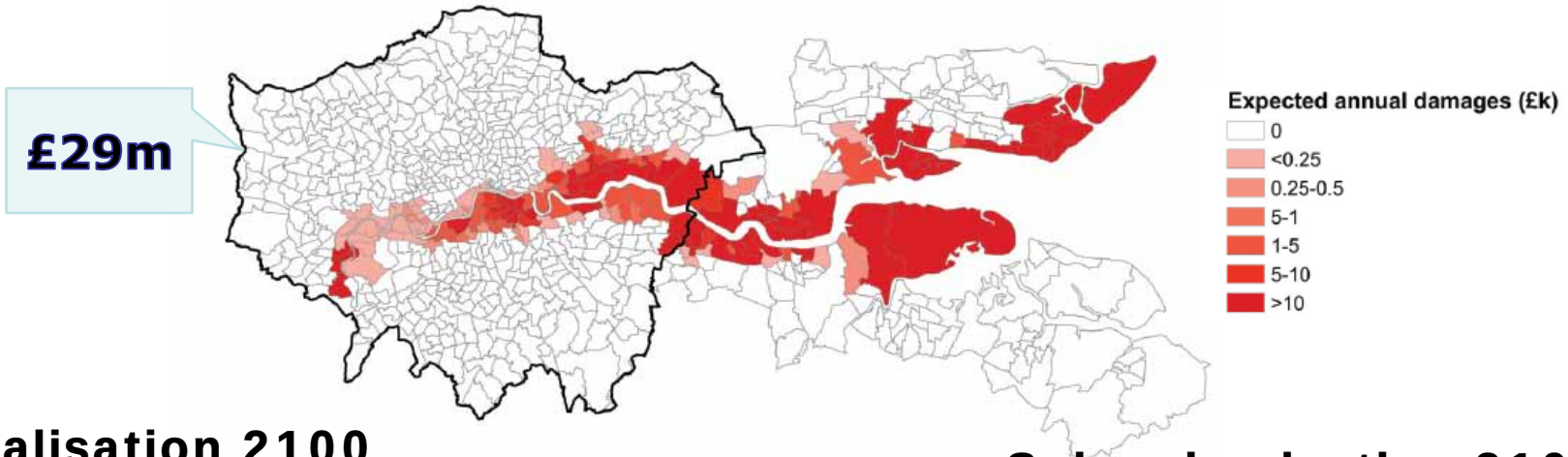
Planning Scenarios – Relaxed Greenbelt



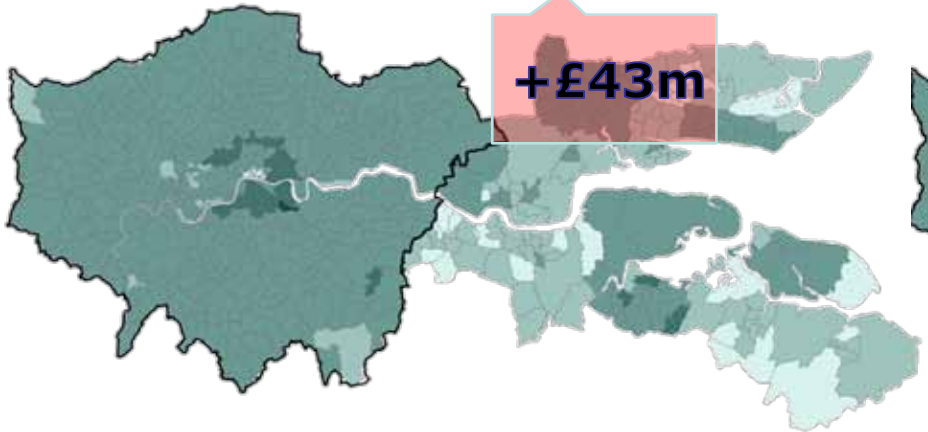


Baseline 2100

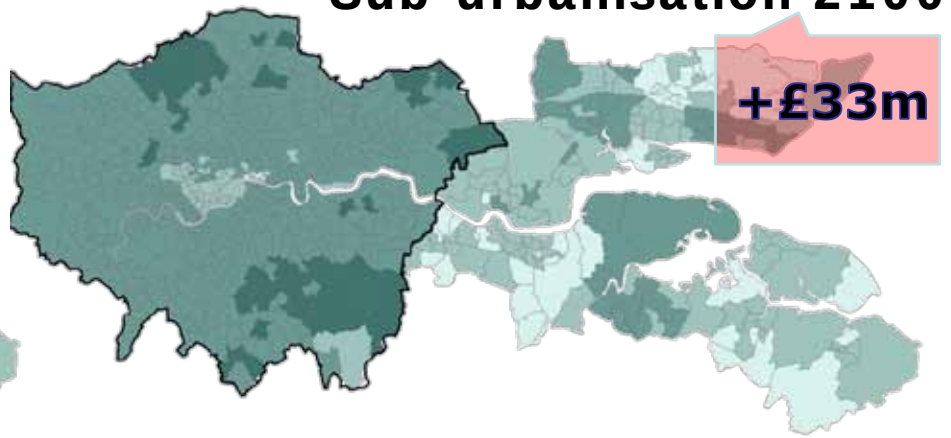
Eastern axis 2100



Centralisation 2100



Sub-urbanisation 2100



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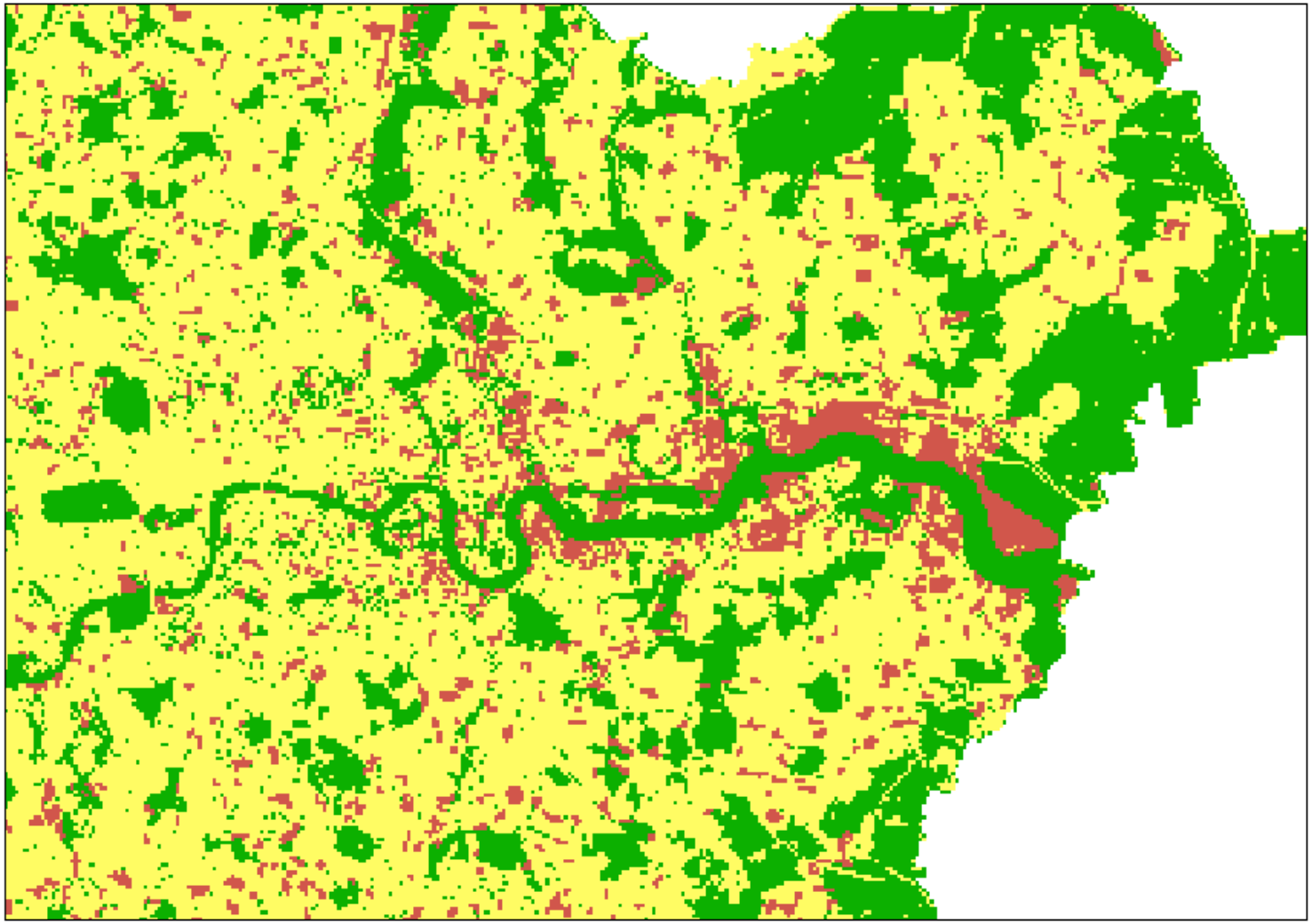
Planning Policy – Baseline Thames Estuary



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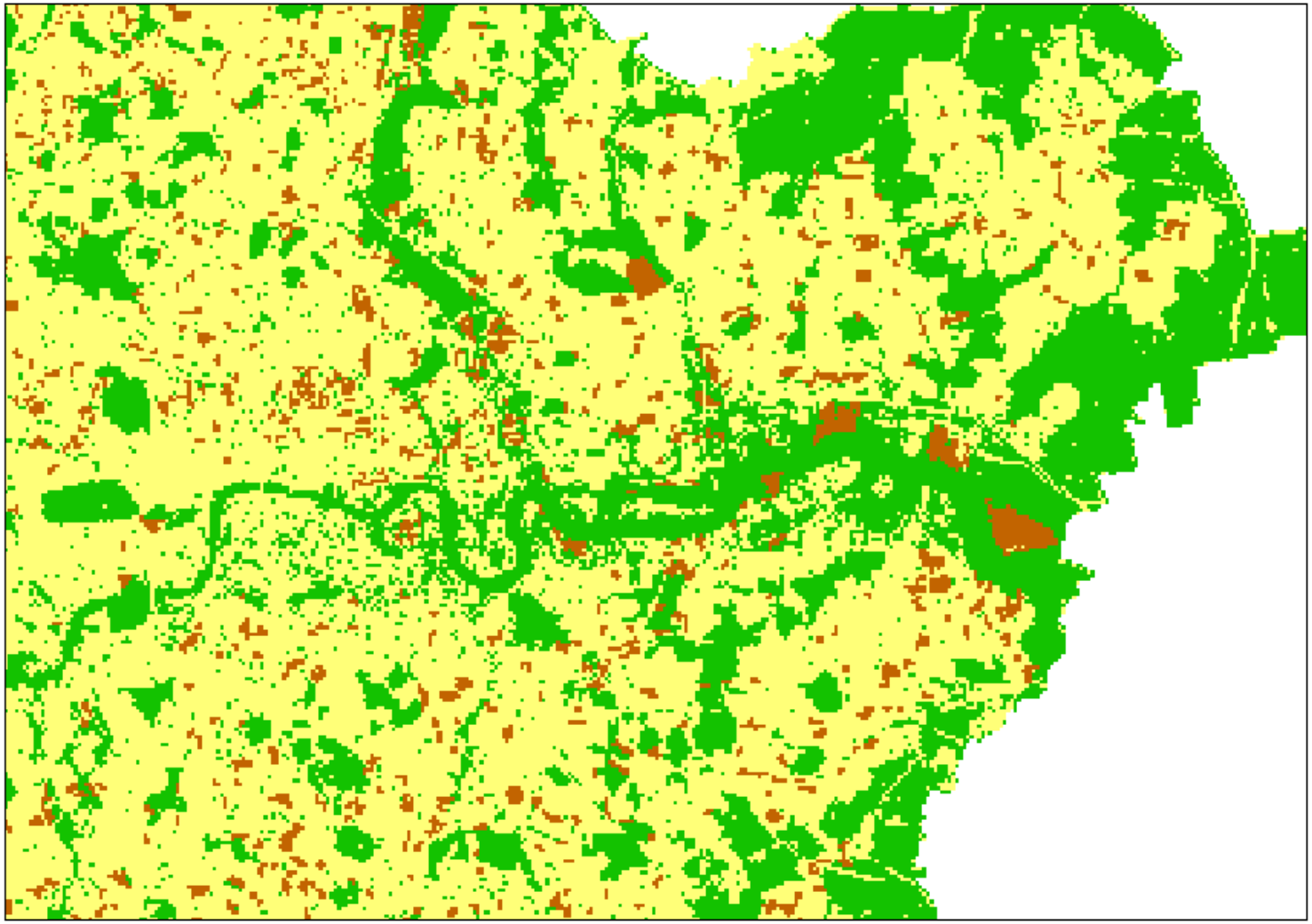
Planning Policy – No Floodplain Development



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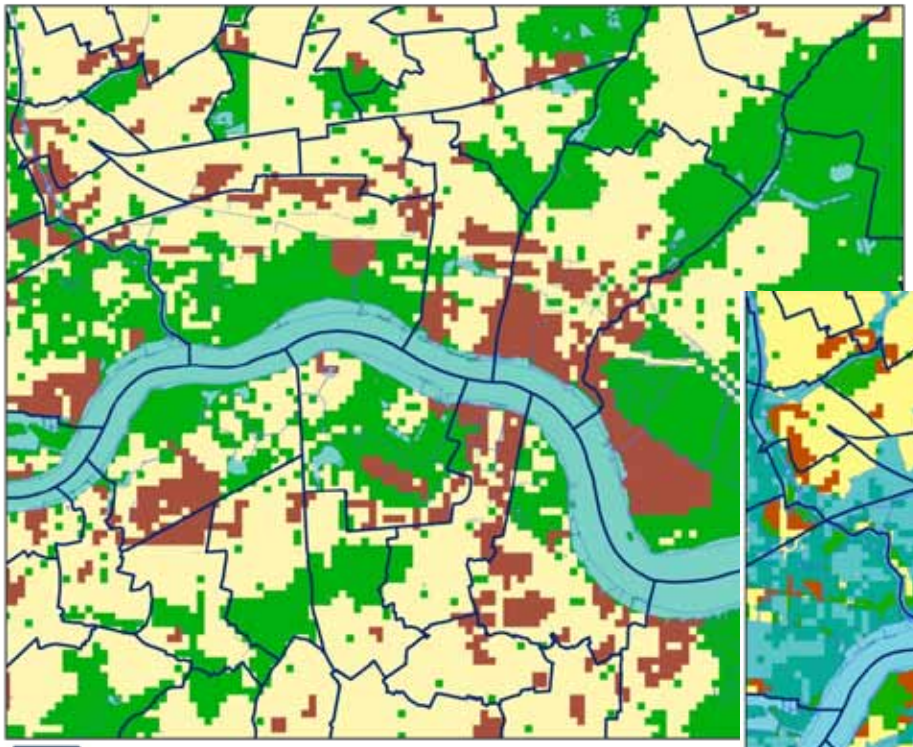
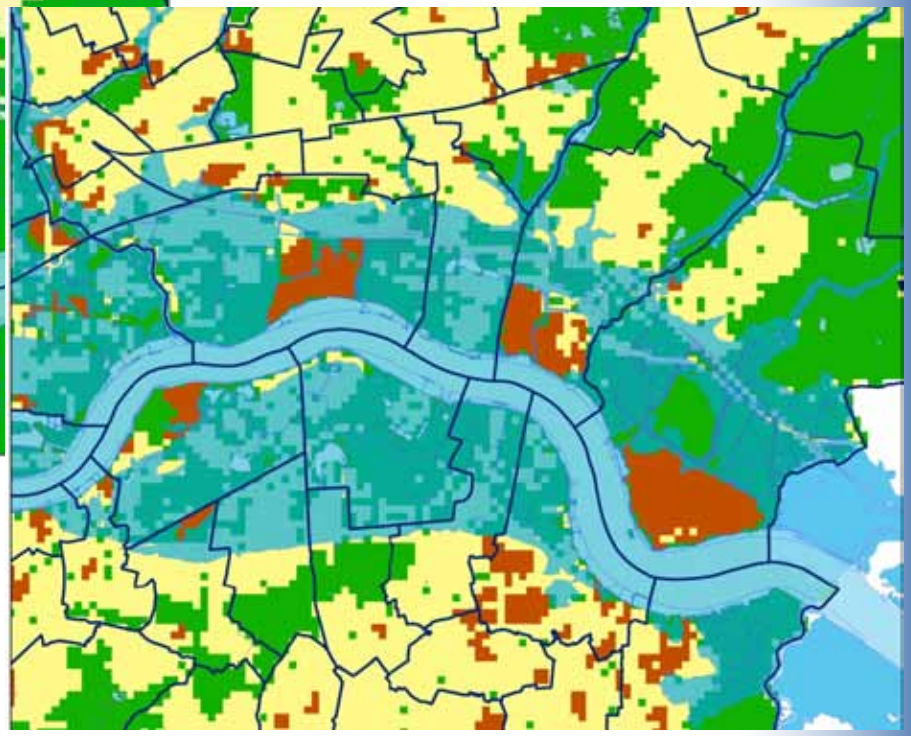
UDM & Future Spatial Planning



Census CAS Wards
Water
Indicative Flood Plain
Undeveloped Land
Current Development
Future Development

Unconstrained development

Floodplain Constrained



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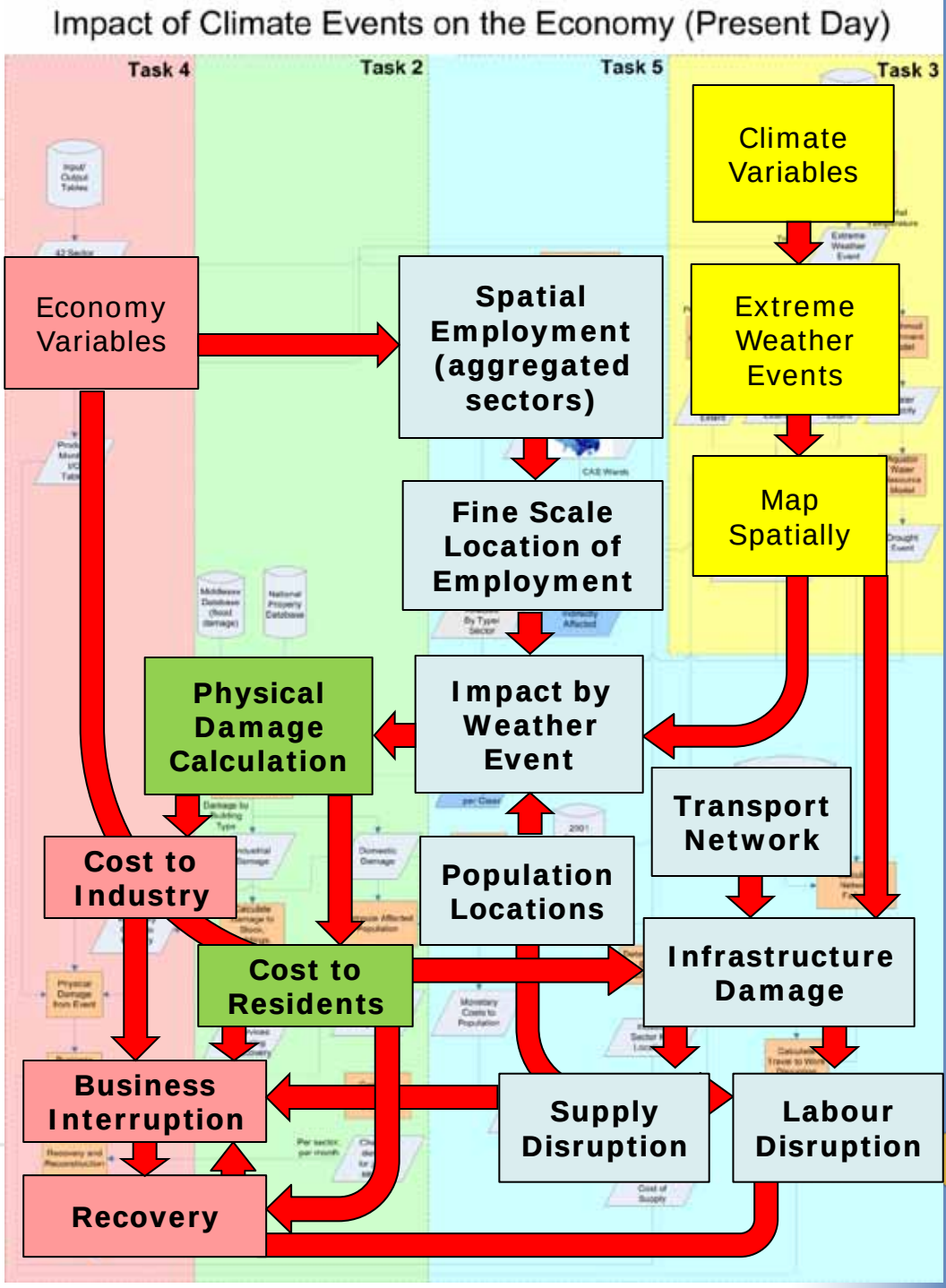
ARCADIA

- Integrated networks.
- Modal interchanges.
- Capacity and congestion.
- Network disruption.
- Delays as costs to business.



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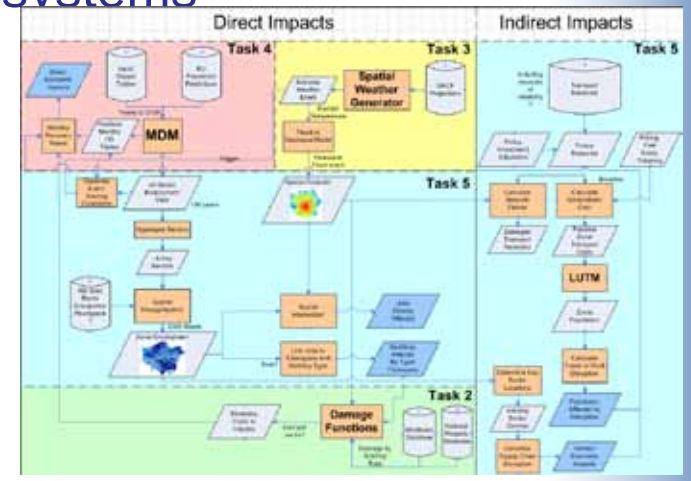
Modelling the Human Impacts of Climate Change

- Climate change impacts on human systems
  - Directly or indirectly
- Direct impacts on people
  - Heat waves
  - Floods
  - Water shortages
- Indirect impacts via other systems
  - Infrastructure
  - Economy



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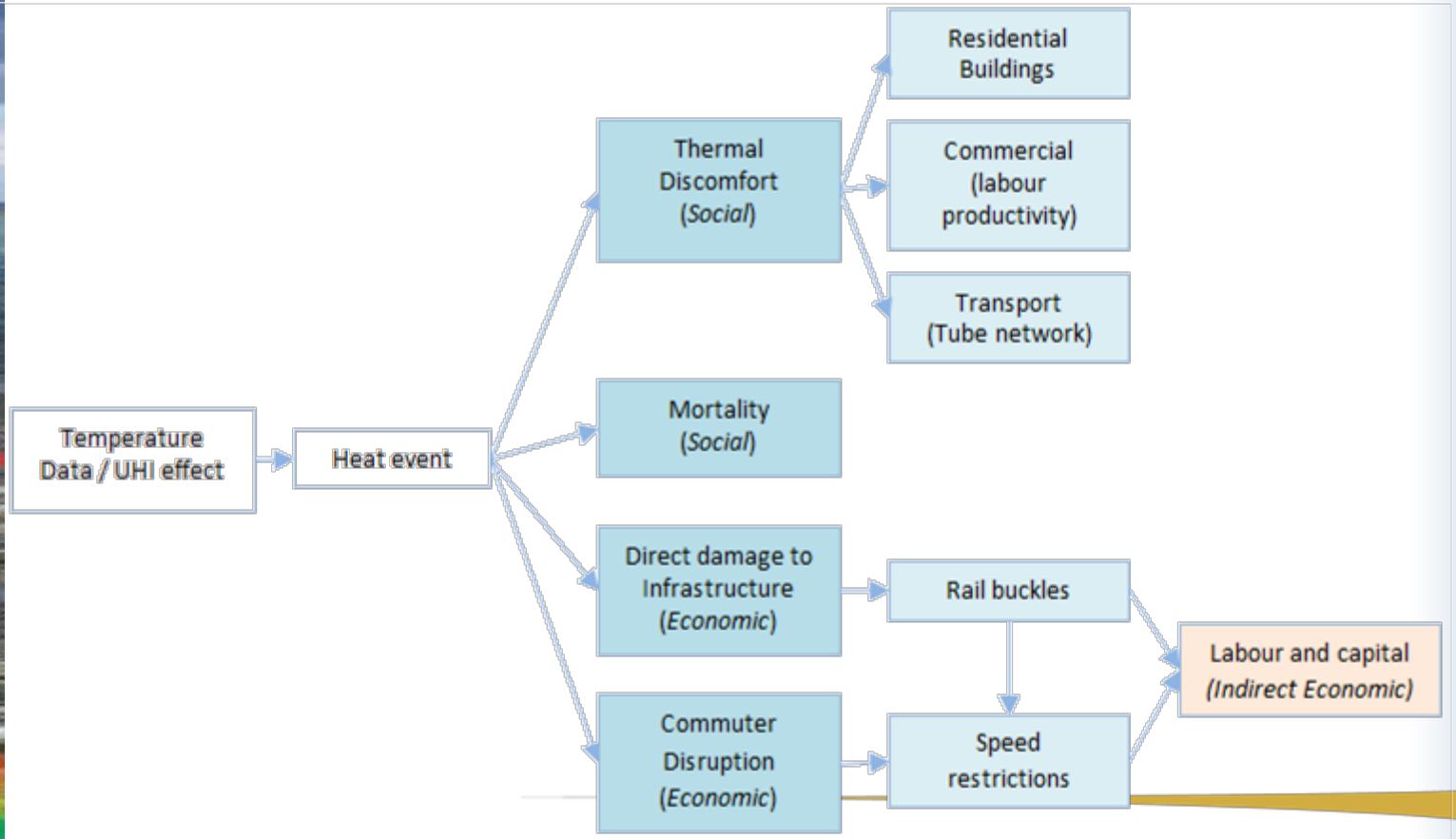
Indirect Impacts of Climate Change (Heat)

- **Large impact on society**
- **Urban areas are particularly vulnerable**



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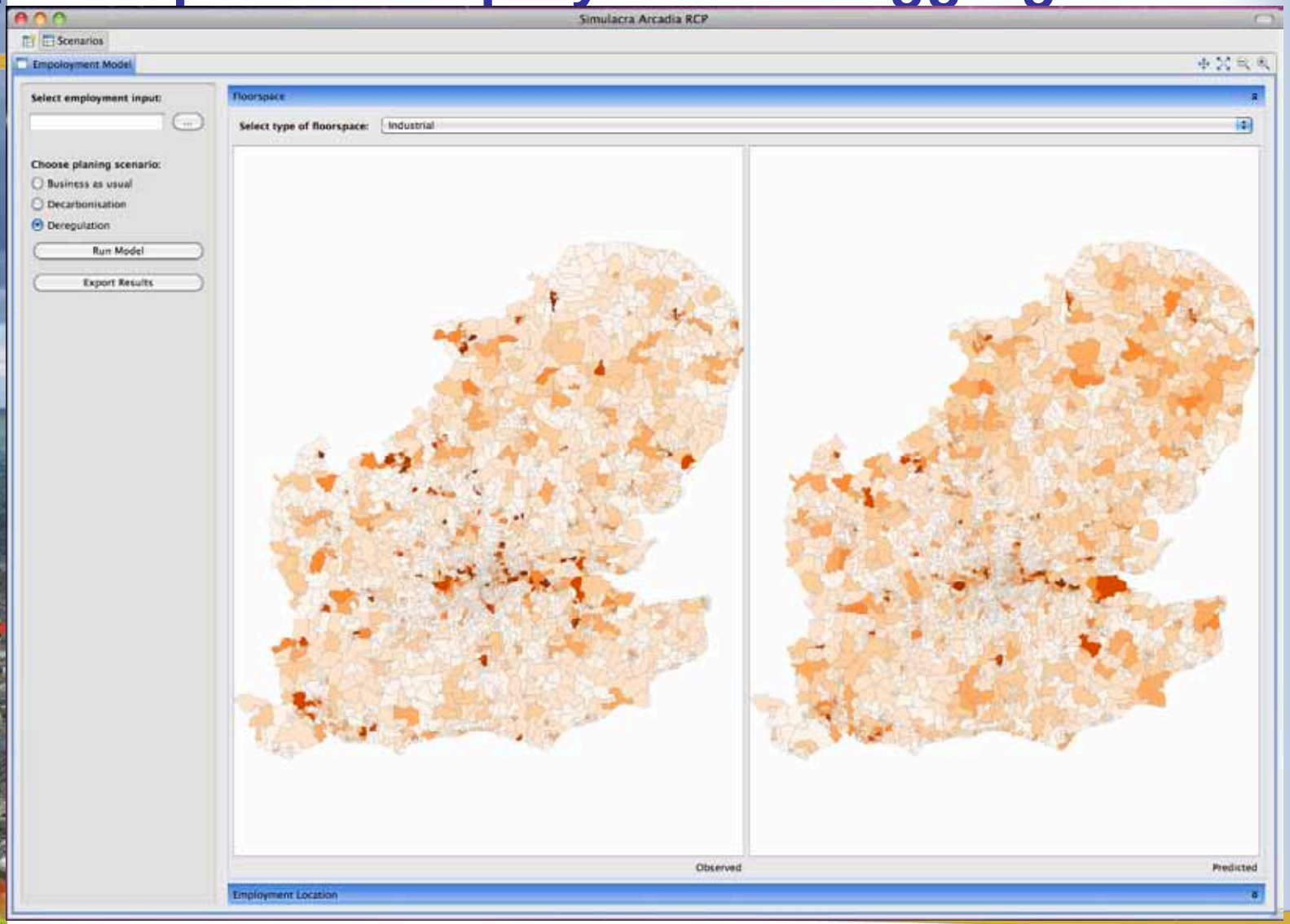
Improved employment disaggregation



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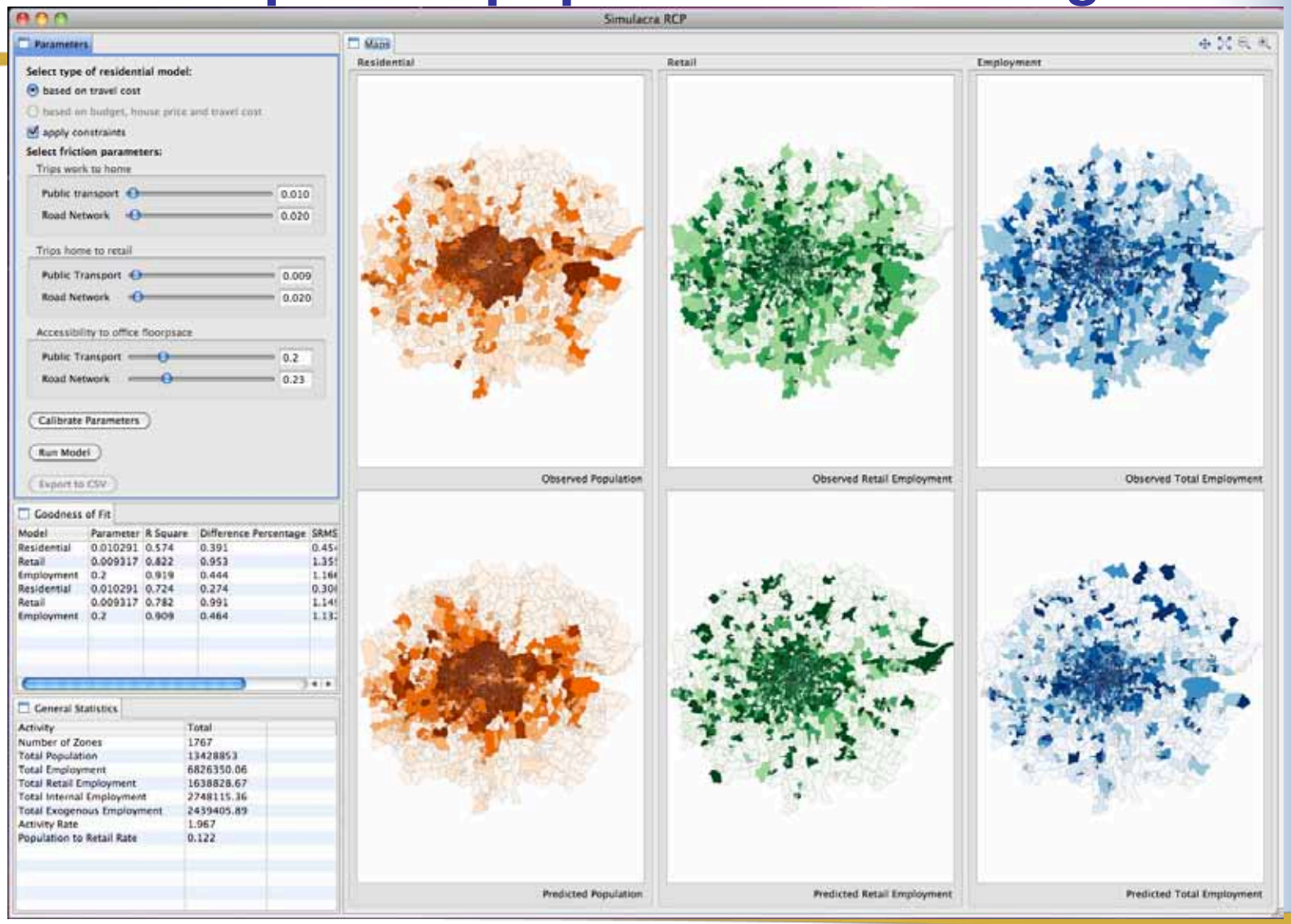
Improved population modelling



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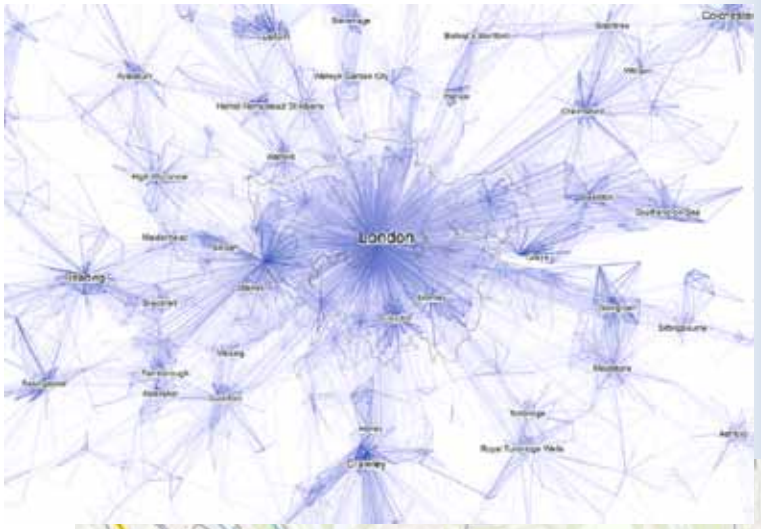
Transport Network Modelling

- Include journeys across the wider region
- Consider multi-modal public transport trips with interchanges
- Include congestion and capacity
- Allow modelling of impacts of network disruption on the commuting population



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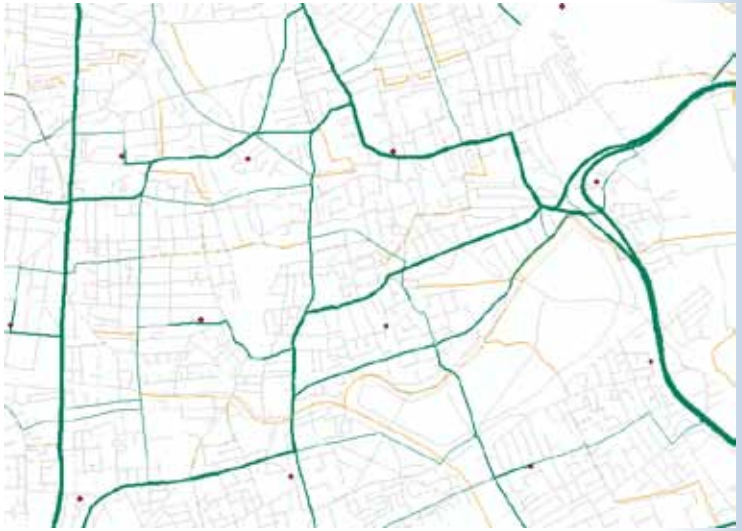
Modelling Current Day Flows

- Travel to work from Census information
- Mapped to current transport network
- Most probable travel routes
- Equilibrium sought
  - To ensure spread of journeys
  - To meet capacity constraints
- Allows analysis of disruption



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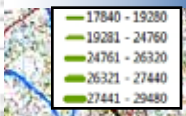
Capacities and congestion



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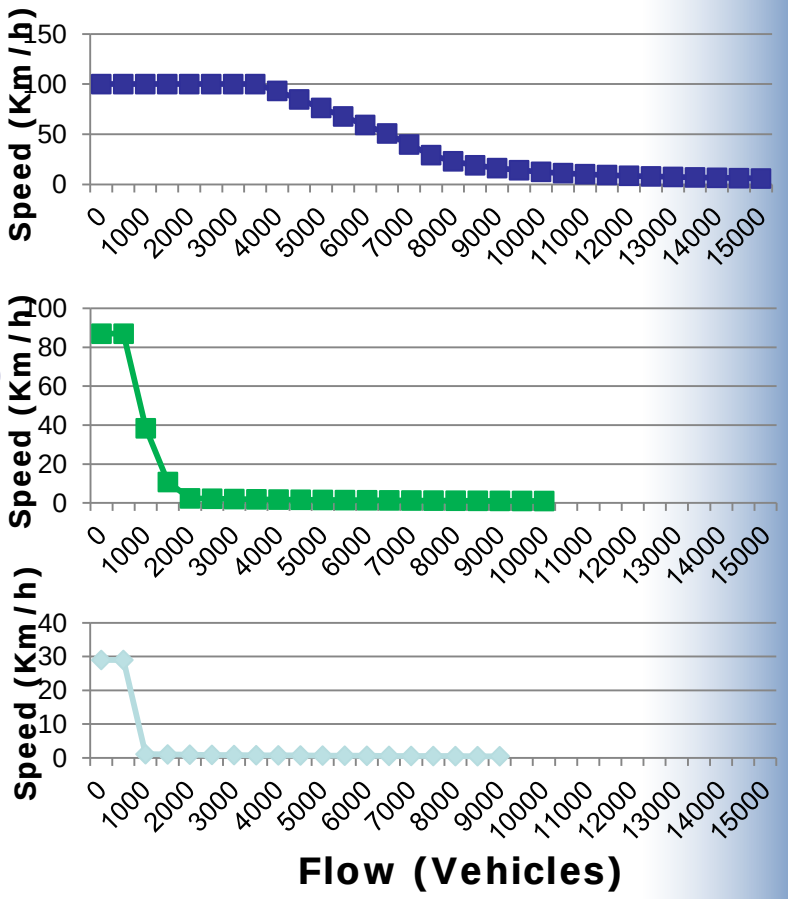
Capacities on Road Networks

- Data from DfT's COBA model
- Mapped to OS ITN Network
  - Type of road and number of lanes inferred
  - Speed flow curves assigned to each link
  - Gives decreasing speed as flow on the link increases



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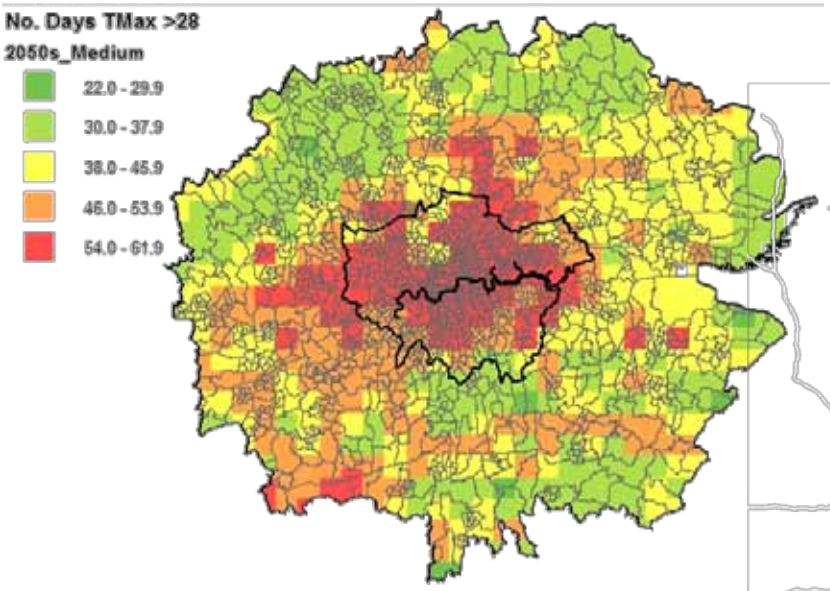
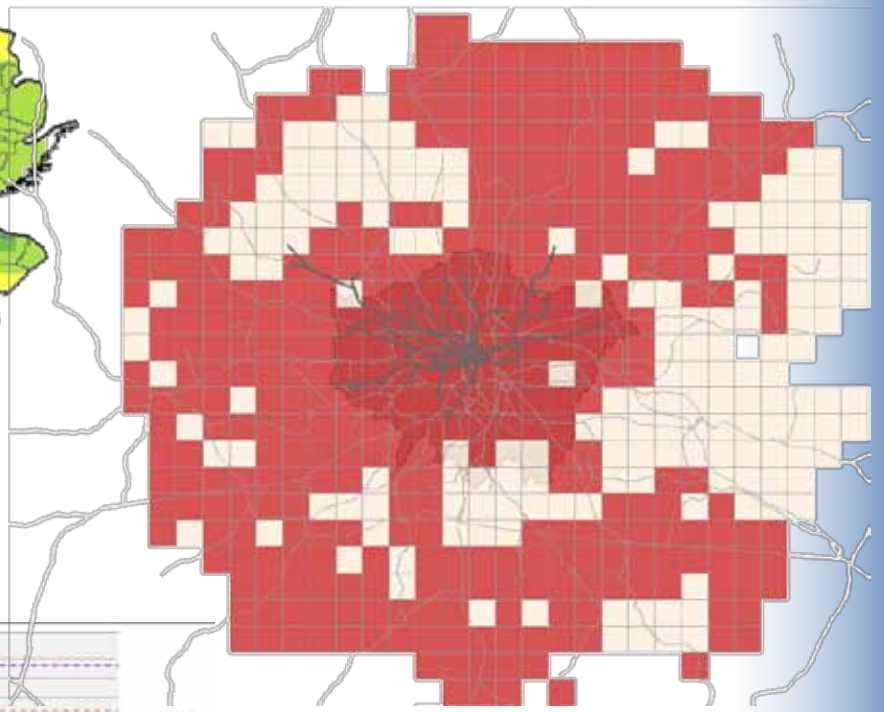
Transport Disruption





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Summary

- The UIAF allows the integrated assessment of climate change impacts in cities using modular spatial simulation.
- Downscaling climate change impacts and socio-economic changes to a fine scale allows an understanding of the patterns of vulnerability.
- Linking simulations of global economics, spatial interaction modelling, cellular automata development prediction and impact assessment allows the exploration of the implications of planning decisions and an understanding of the relative merits of different strategies.
- ARCADIA extending integrated impact assessment modelling capabilities and investigating questions of the fragility and adaptation options of London in relation to economics, land use development and transport options.

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