



City shaping & solutions platforms – case studies

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Scenario Tool Case Studies

1. Townsville Development Area

- Large Scale
- Visual Communication
- Informing Policy and Planning

2. Ellen Grove Medium Density

- Smaller Scale
- Scenario Testing
- Informing Strategy

Models

TARGET Urban Heat Island assessment

Catchment Runoff

Water Cycle Model

Land Surface Temperature



Case Study: Townsville Development Area

1. Baseline (current)
2. Business as Usual Development
3. WSC Interventions



Street Trees (passively watered)



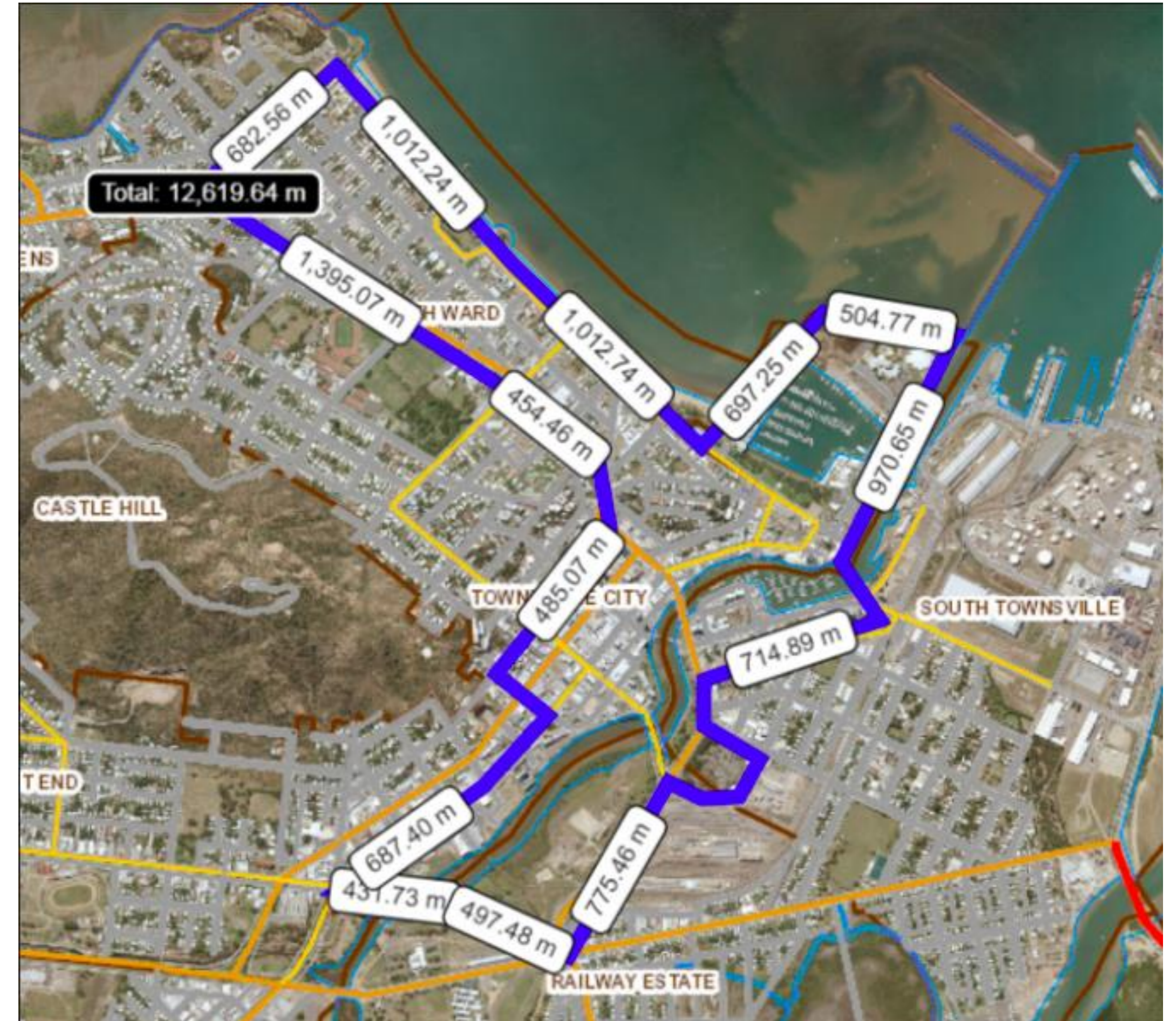
Green Roof



Rainwater Harvesting Tanks





Irrigated Open Space






Townsville Scenarios

Scenario 1: Baseline (current)






Scenario 2: Business as Usual

-  Medium density residential development with some trees
-  High density residential development parameters

Scenario 3: WSC Interventions

-  Green roof, rainwater harvesting tank
-  Open space, 100% irrigated grass cover
-  Street trees via “increase in tree fraction”

LEGEND

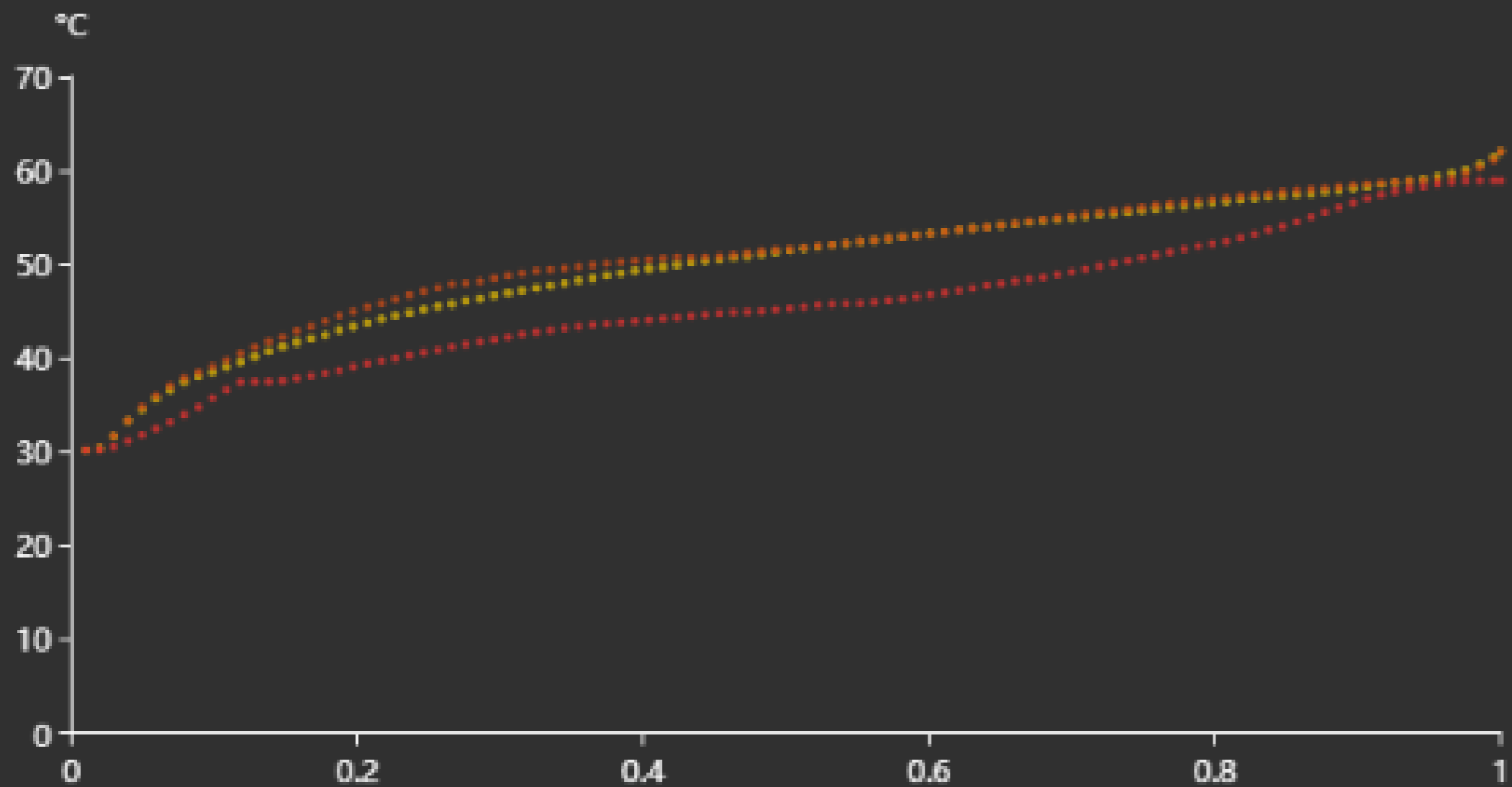
-  Public open space
-  Street trees
-  High density buildings
-  Case study Boundary
-  Medium density buildings



Land Surface Temperature

Land Surface Temperature SHOW

LST Distribution



Parameter	Base line	WSC Scenario 3	BAU Scenario 2	Base line
Land Surface ...	49.83	45.67	50.42	49.83

Baseline



Scenario 2 Business as Usual



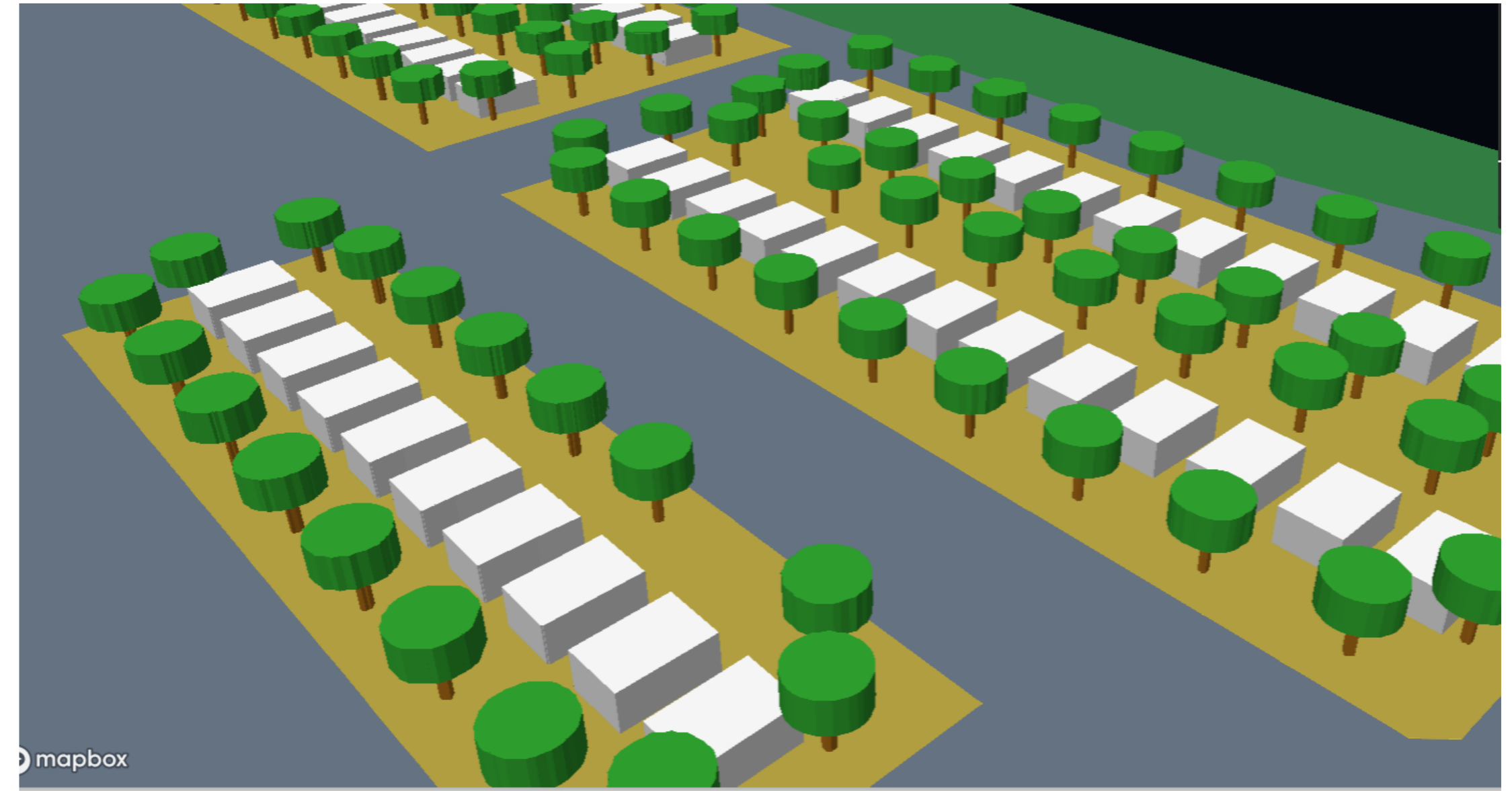
Scenario 3 Interventions water sensitive city approach



Nitrogen Pollution Generation



Results



BAU



WSC

Models

TARGET Urban Heat Island assessment

Catchment Runoff

Water Cycle Model

Land Surface Temperature

- 5C land surface temp

- 1,630 kg/TN/yr

- 285 ML/yr runoff



CRC for
Water Sensitive Cities



4th water sensitive cities conference

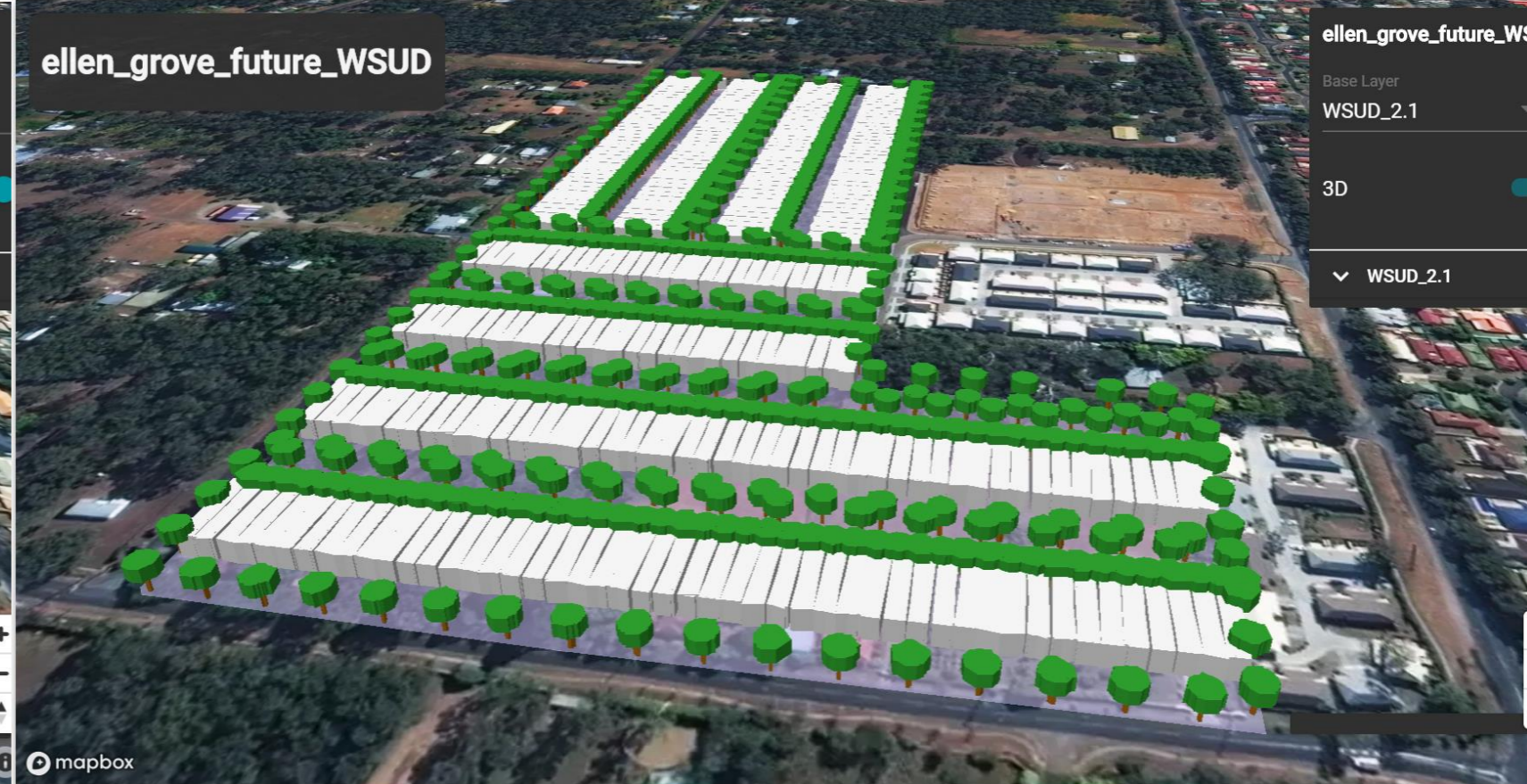
watersensitivecities.org.au

Case Study: Ellen Grove

1. Baseline (current)
2. Business as Usual Development
3. WSC Interventions
 - Rainwater Harvesting Tanks
 - Passively Watered Street Trees
 - Irrigated Open Space

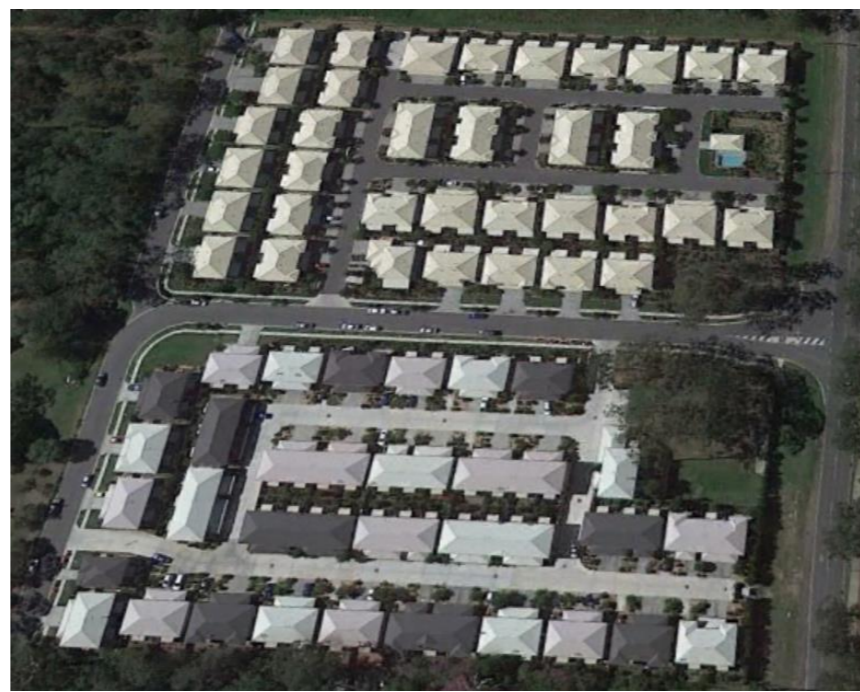


Scenarios



- Models**
- Water Cycle Model
 - Land Surface Temperature
 - TARGET Urban Heat Island assessment
 - Catchment Runoff

Business as Usual



Water Sensitive Cities Approach

- Rainwater Tanks (30% uptake)
- Lots with Trees (100%)
- Passively Watered Street Tree Pits (30% of trees)
- Increase Irrigated Open Space to 15%

Results



Models

Water Cycle Model

Land Surface Temperature

TARGET Urban Heat Island assessment

Catchment Runoff

323 Dwellings
+ 16C land surface temp
+ 260 kg/TN/yr
+ 45 ML/yr runoff

323 Dwellings
- 6C land surface temp
- 73 kg/TN/yr
- 26 ML/yr runoff



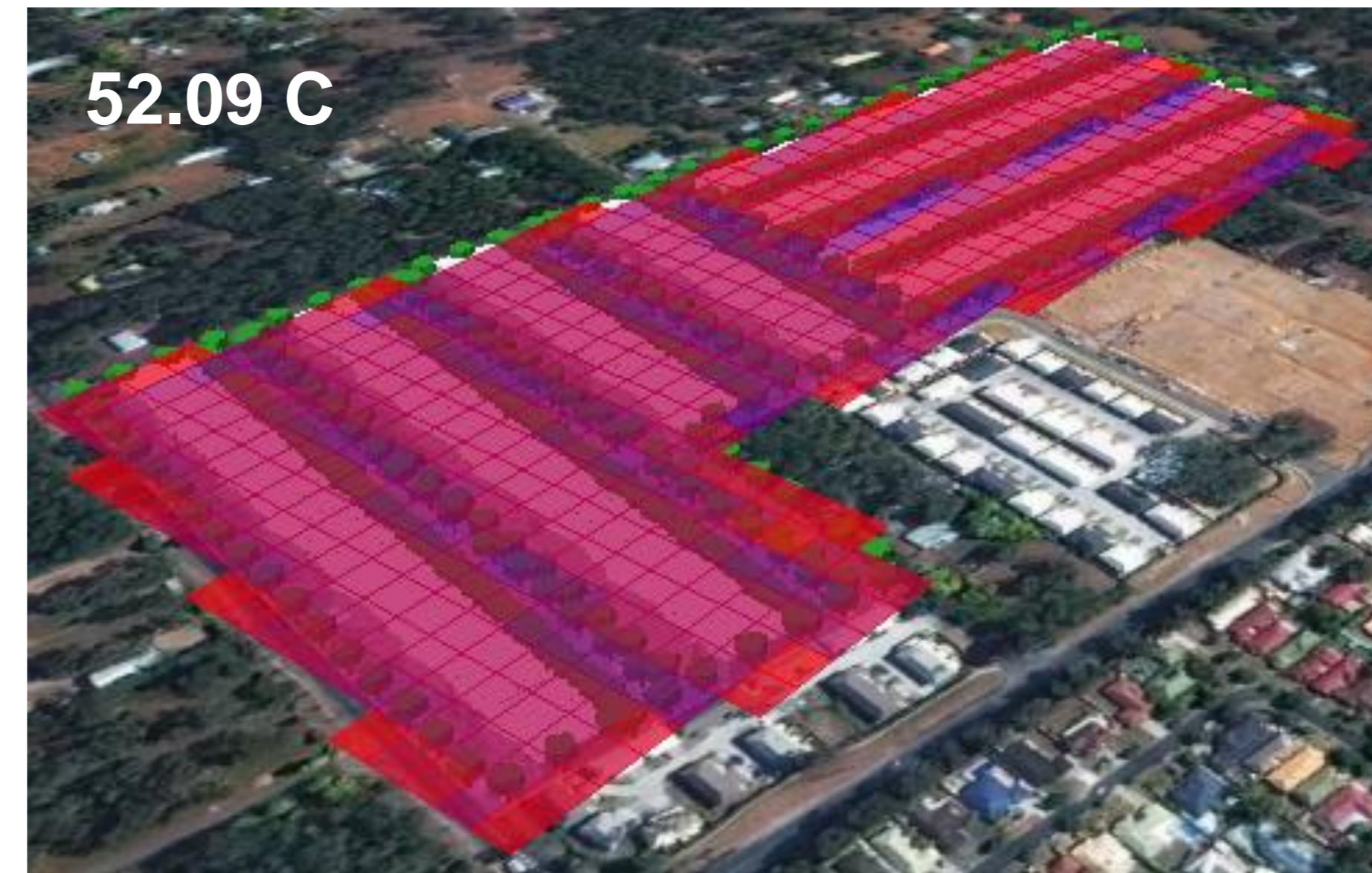
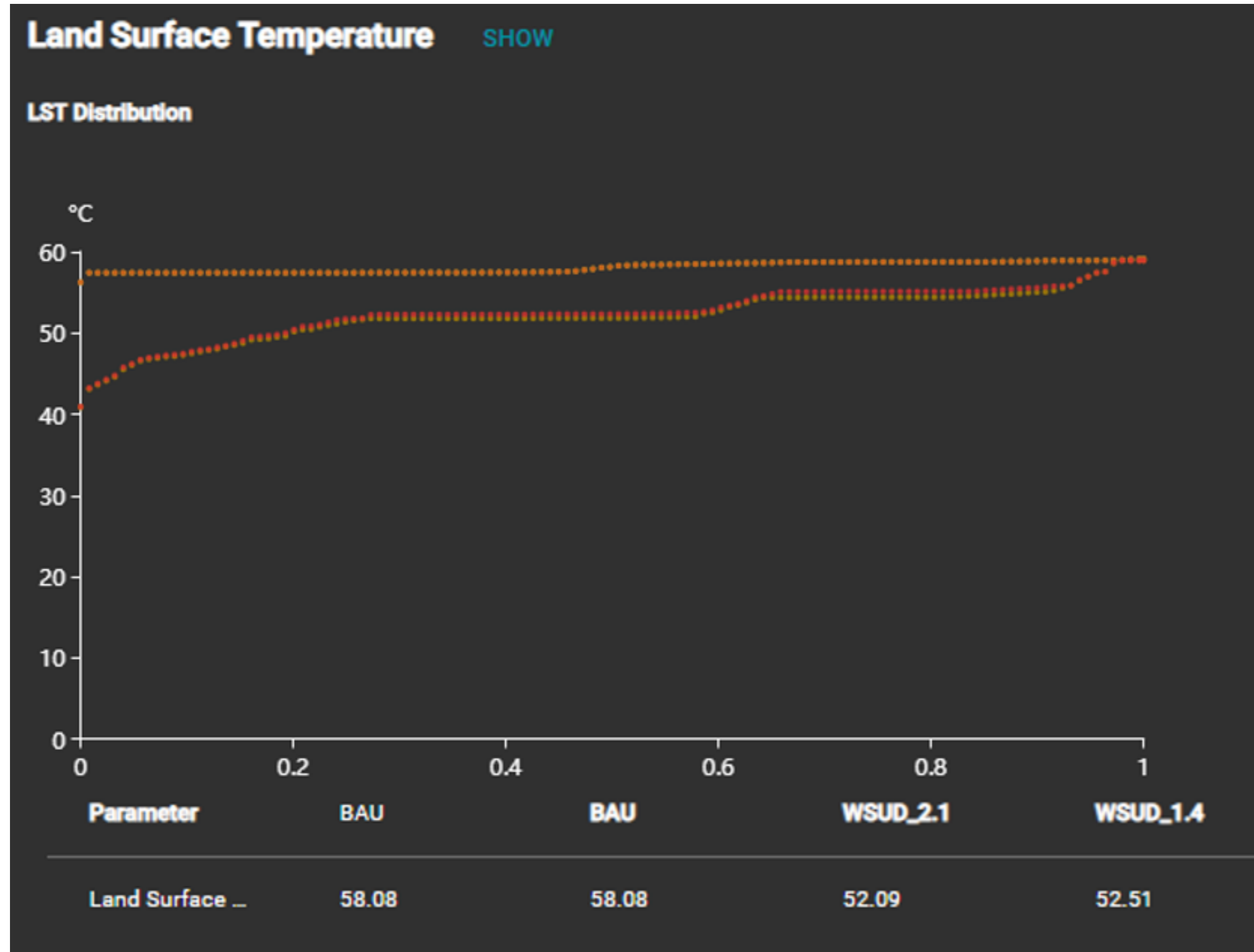
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Urban Heat



Scenario Tool Summary

- 1. Guide Strategic Actions** – test impact of planning and policy positions
- 2. Inform Integrated-Decision Making** – water balance, pollutant and urban heat modelling
- 3. Support Stakeholder Collaboration** – joint scenario testing
- 4. Facilitate Learning** – visual communication tool





Thank you

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