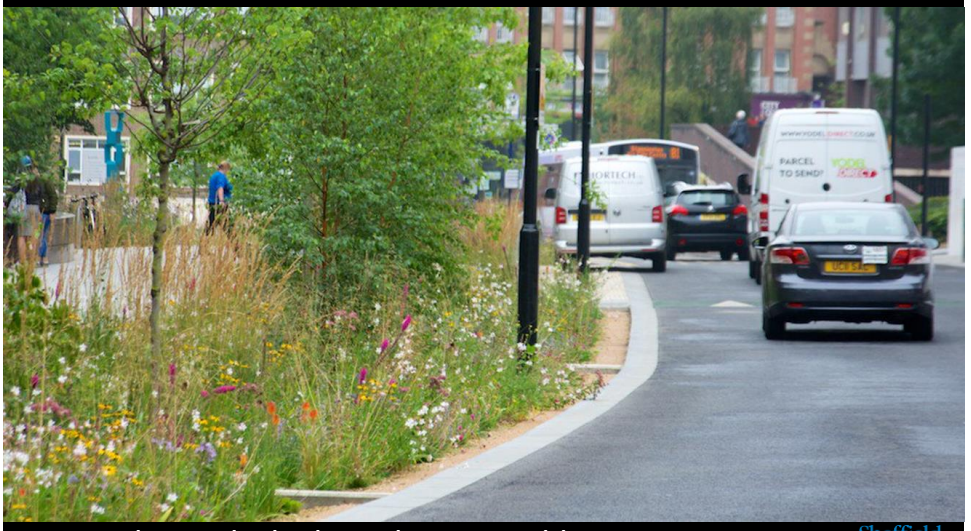
Grey to Green

Retrofitting SUDS into multifunctional streets and spaces



Zac Tudor - Principal Landscape Architect
Sheffield City Council ©

The Area's Context

CONSTRAINTS

Redundant highway capacity & severance

2007 Flood Legacy

OPPORTUNITIES

Developing Riverside character

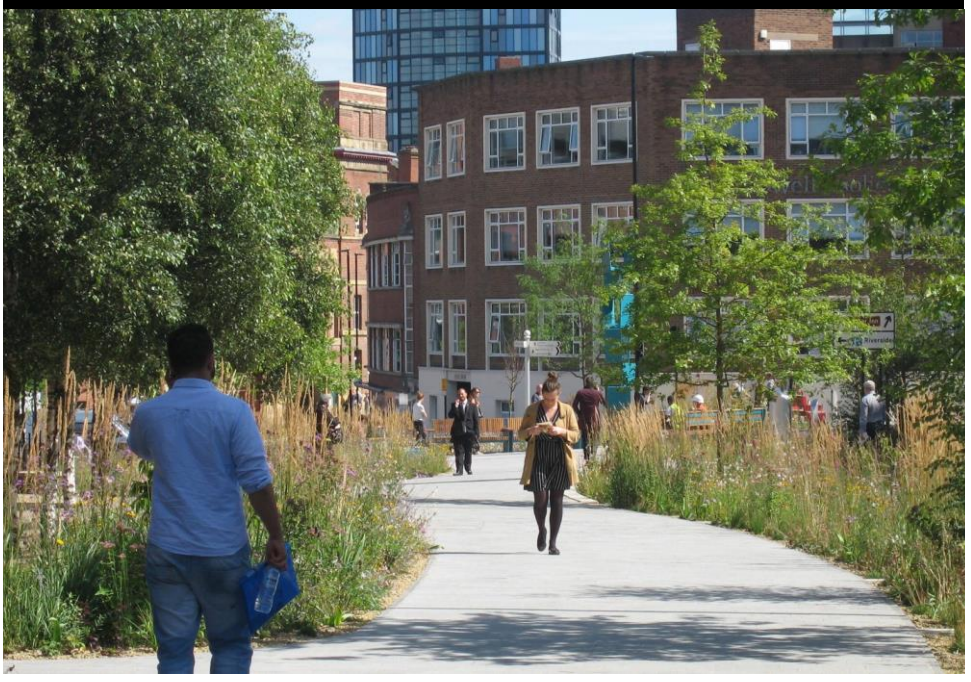
Large Scale development opportunities (West Bar)

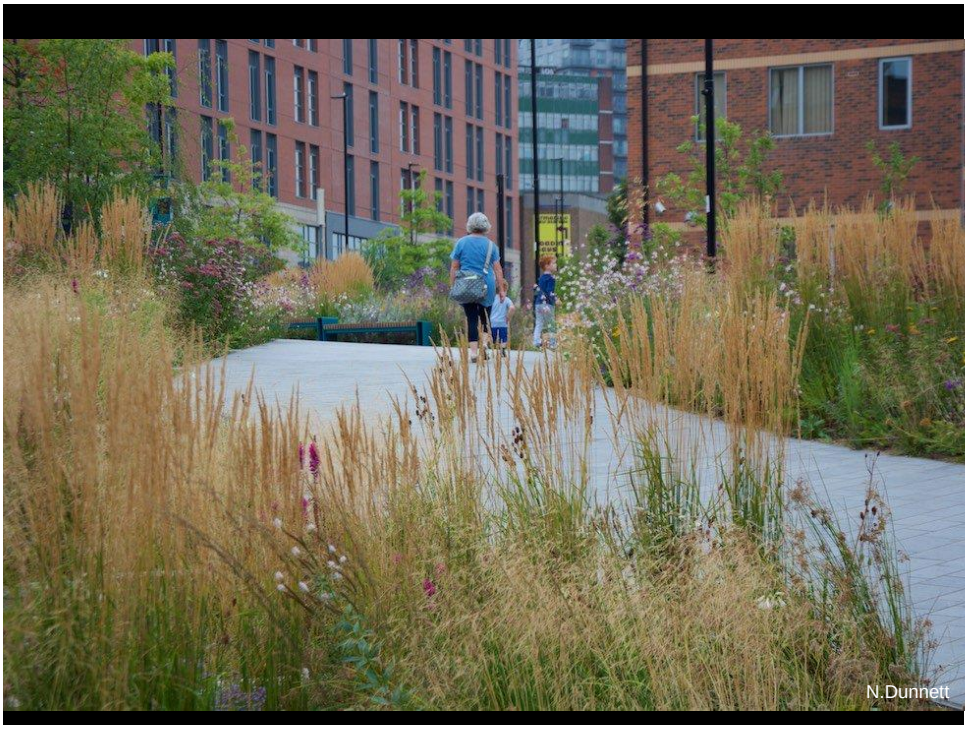
2014

PRINCIPAL CONCEPTS

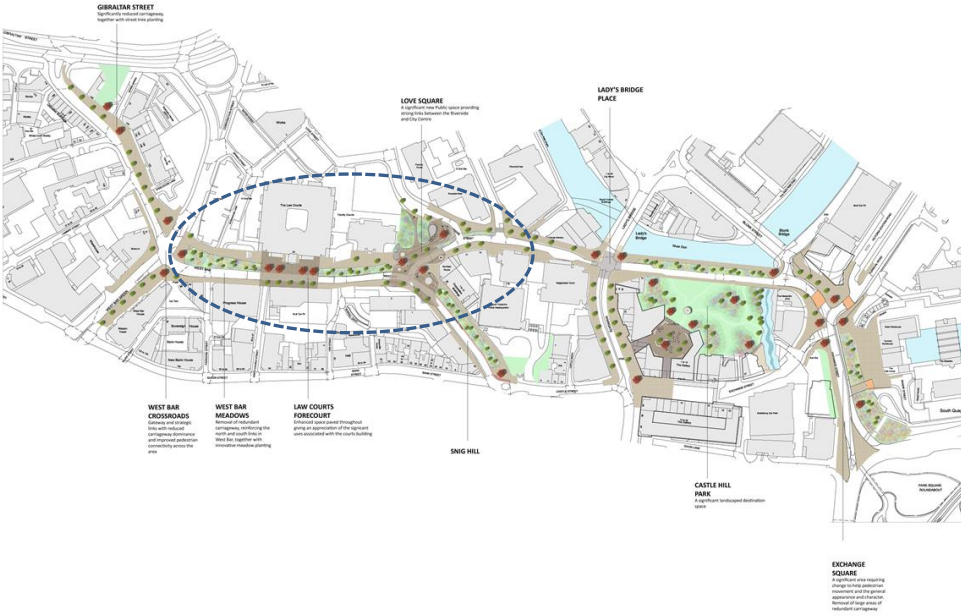
Create a safe and attractive setting that draws people and investments within a green and sustainable framework

- Creating a setting for **investment**
- **SUDS** climate resilience managing rainwater discharge to the river
- **Sustainable transport** and connectivity to the wider city
- Innovative **Meadow** planting and developing the green linear route theme (Environmental benefits)
- **Reclaiming the highways**, activating urban spaces that better reflect the surrounding areas opportunities
- **The City Garden** building on Sheffield's city centre horticultural excellence.

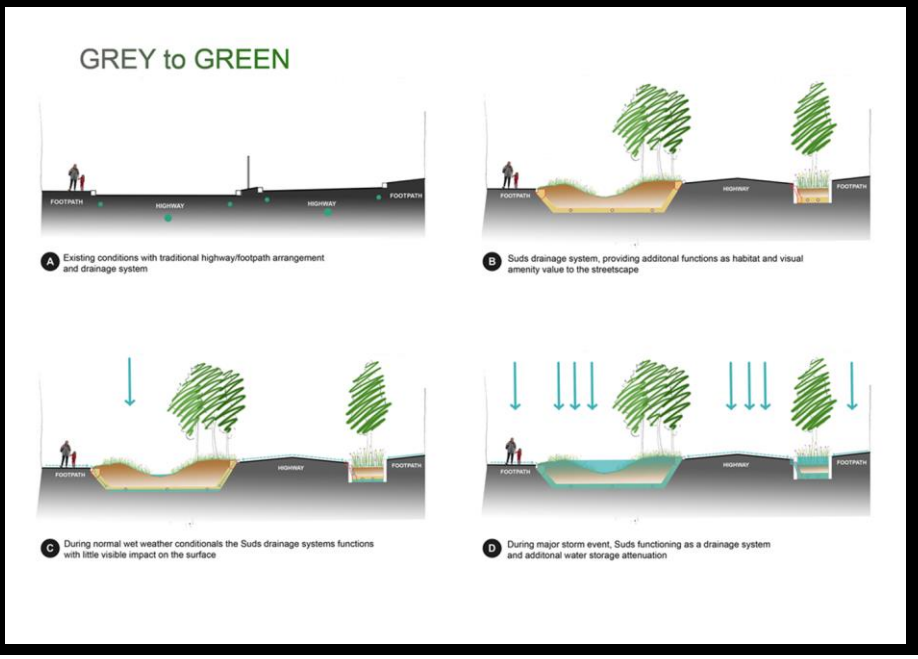




CONCEPT MASTERPLAN



Sustainable Urban Drainage



SuDS Design

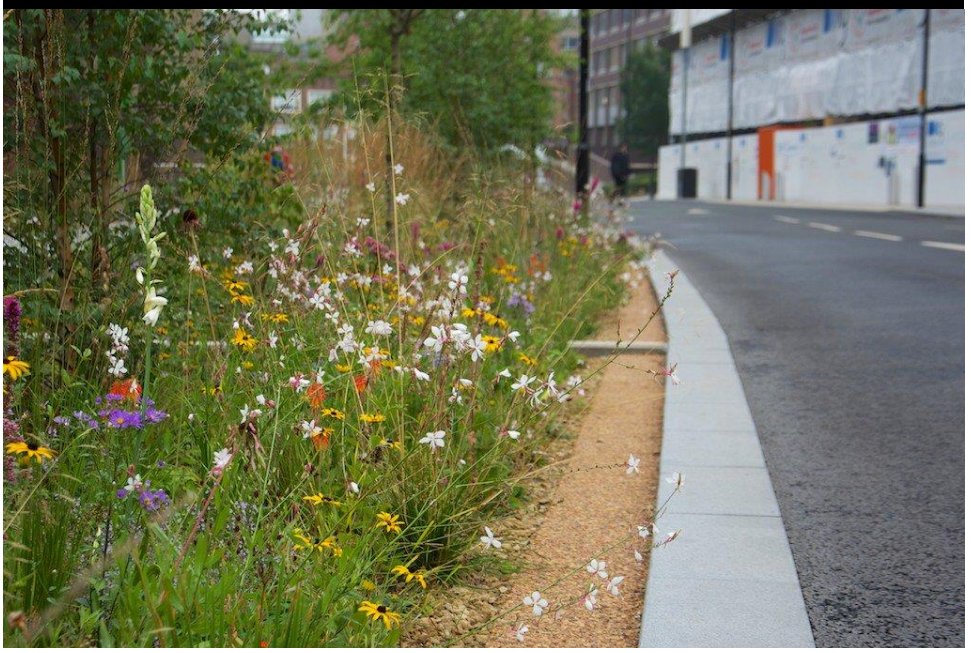
- Retrofit SuDS for climate resilience
- Water becoming an asset to new landscapes and education of water management
- Future proofing increased rainfall events
- Removing flow from combined sewers and rivers
- Mimicking nature – keeping water on or near surface in rain gardens and green streets
- Capture, detention and treatment of pollutants
- Surface capture avoiding pushing water underground through conventional gulley/piped systems

2016

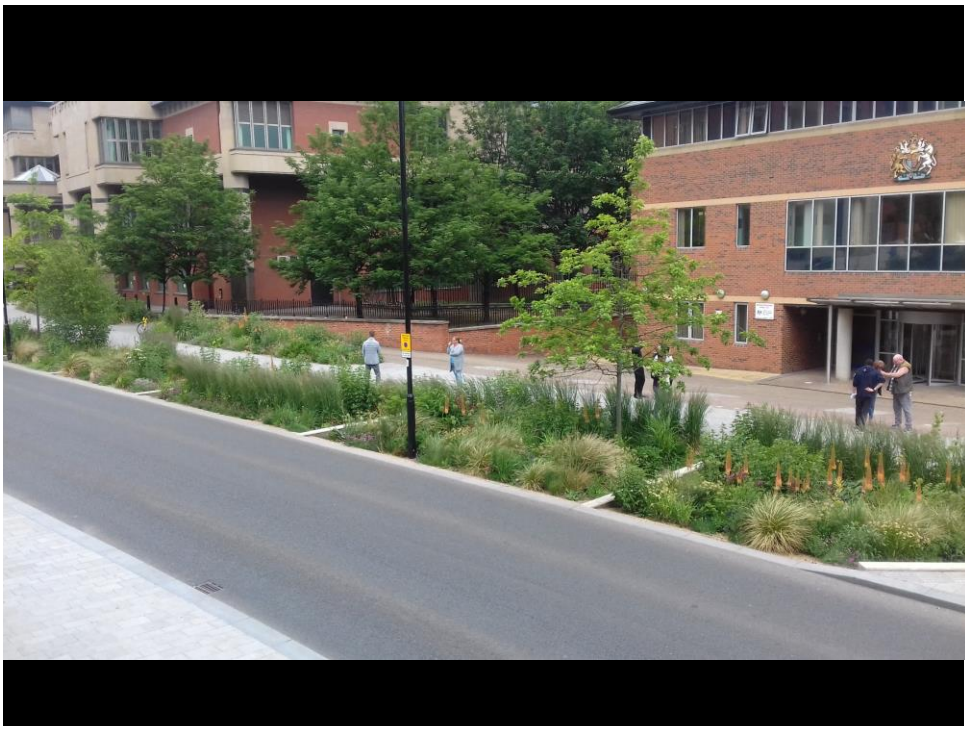
As built model results

- Peak inflow for the 1 in 30 year 60 minute rainfall event is reduced from 47.3l/s to 6.3l/s
- Peak inflow for the 1 in 100 year 60 minute rainfall event is reduced from 69.6l/s to 9.2l/s
- Peak inflow for the 1 in 100 year (+30% CC) 60 minute rainfall event is reduced from 92l/s to 12.1l/s

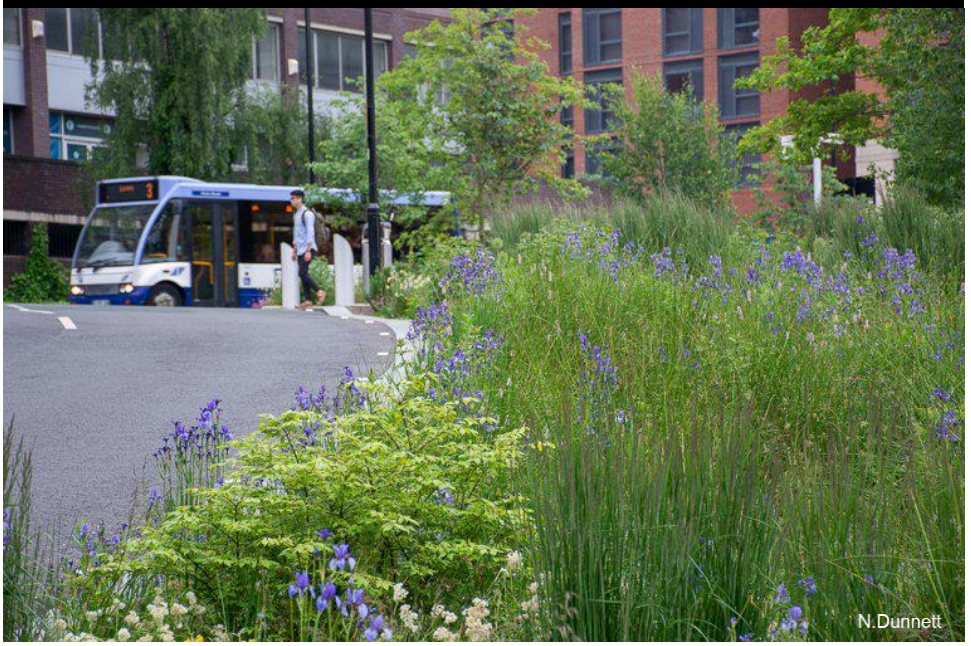
INFLOW

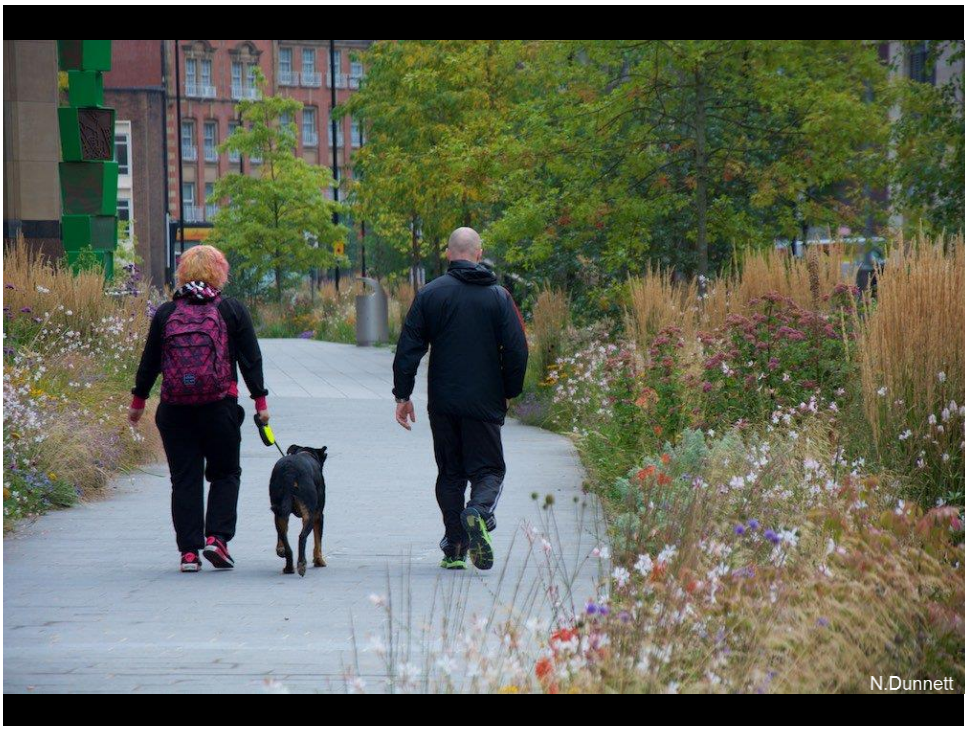


CONTROL

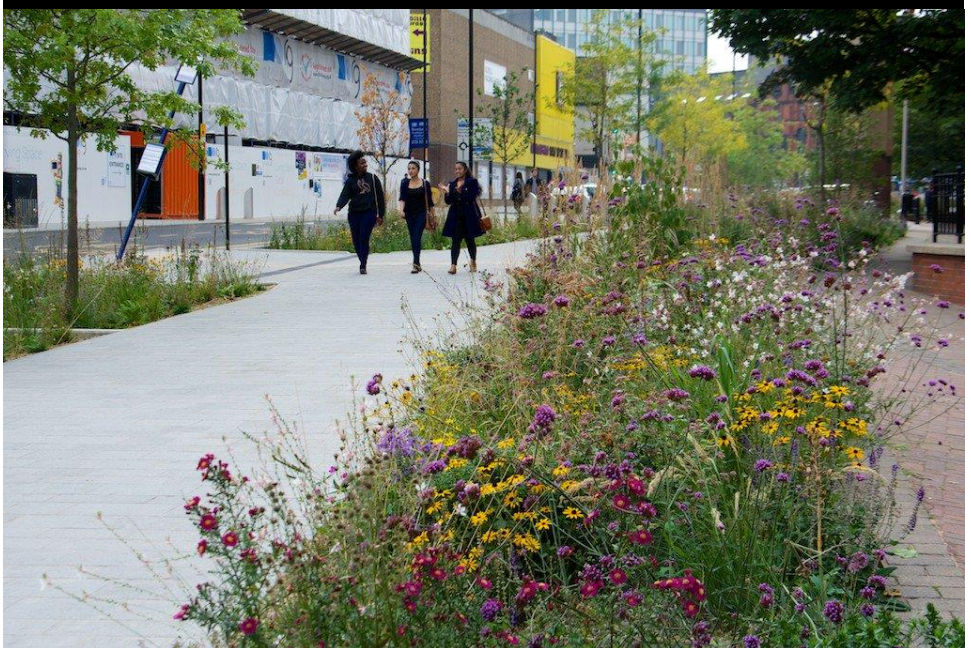


Planting & ‘Meadow like’ habitats

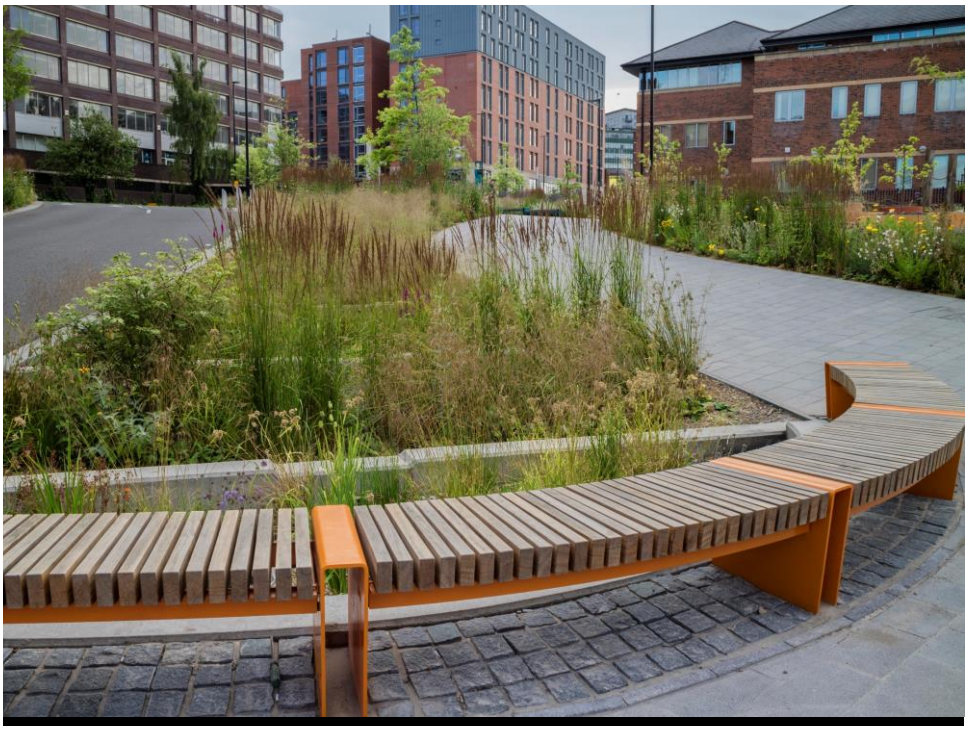




October



PLACE MAKING



Management / Maintenance

- Scheme has seen an overall reduction in management resource needs for the area
- It's cheaper than hard construction
- Simplified maintenance is part of the new thinking for the project
- Initial 3 years of experimental maintenance to refine the optimal regime to take forward in the future

CONCLUSIONS

- Is it Working? YES both Function and form
- Has it changed the environment?– YES (Heat Island effects)
- Has it changed peoples perceptions? – YES
- Do people need this in their lives? – YES
- Have developers responded? - YES