Using trees to reduce heat stress and surface water flooding

Southend London Road

Summary

- **Location:** A main public access point to enter Southend High Street, with a taxi rank next to the Victoria Plaza
- **Problem:** a busy main road with little to no shading element. The running taxis waiting at the taxi rank were also a contributing factor to the increased temperature in the area.
- **Result:** Through the town improvement project, the taxi rank has been removed from the original spot. The area was transformed with an enhanced footway with new block paving, street furniture and green cycle parking shed. Additionally, a row of trees with sustainable urban drainage system measures were implemented.

Before intervention	After intervention
	

Location

Southend is located 40 miles east of London on the north side of the Thames Estuary. It is one of the most densely populated urban areas in East of England with a population of 180,000 and is one of the 'driest place in the UK'. As a seaside resort with over 6 million visitors/year, Southend must identify how it can reduce exposure to heat stress and implement solutions to benefit public health for residents and visitors.

Site Description

The project location is in the main High Street shopping area, which is fully paved with little green and have high footfall of approximated 28,000 daily users accessing the area. A taxi rank was located directly next to the town square with running engines contributing to the increased temperature and air pollution. Our greening intervention was delivered at the top of the High Street as a means of cooling and other co-benefits, such as air quality and mental health improvement.

The decision-making journey

The potential to enhance design by introducing more greening elements in existing regeneration projects made it easier to gain approval from senior management and stakeholders than delivering a standalone project using Cool Towns budget alone. The Highways and Transport engineers and manager were closely involved in finalising the design of this public space. The internal approval process, carried out by senior management, to agree the final design and all the interventions, was completed and approval granted mid-2020.

Implementation

The implementation phase of the project has encountered little problem as project funding/procurement/planning permission were all approved in advance as part of the Southend Central Area Transport Scheme (S-CATS). There were some constraints posed by underground utilities, but these were overcome by choosing a variety of green infrastructure. Due to the impact of coronavirus, there has been delays in completing the final stage of the paving process as a shortage of construction materials continues into 2021/2022. We are expecting to complete the project by the end of June 2022.

Indicative costs: please note that costs have been rounded and, while accurate at the time of implementation, can only be used as an indication of cost.

Capital Cost		€	£ = 1.15 €
e.g Green roof installation			
GreenBlue Urban – 7 tree pits with associated supplies		42,338	36,740
Supply of Ice Blue shingle for plant beds in London Road		4,266	3,702
Supply and installation of 7No. Trees by Civic Trees		8,950	7,770
Supply of plants		4,308	3,740
Grounds maintenance for planting, spreading mulch and watering		3,744	3,250
London Road Tree Planting preperation		6,774	5,880
London Road Tree Grille supply only		11,953	10,377
Additional Top Soil		138	120
Planting costs		2,742	2,381
	Total	85,174	73,960
Civil works for phase 2 of town regeneration project (approximation)	Total	1,608,930	1,400,000

Maintainence Costs	€	£ = 1.15 €
Cost of planting maintainence is part of the town centre maintainence budget – 5% of total budget		

Suggestions raised during the public consultation:	Reactions after completion
• More greening in town • Not enough benches to sit and rest – street furniture • Better use of public space – change of current layout, reallocation/reduction of road space, increase pedestrian space • Wayfinding – improve signage and wayfinding in Town Centre	• Love the new trees and plants in town • Pleased to see the taxi rank has been moved further away from the pedestrian pavements

• Walking and cycling – improving walking and cycling facilities • Improving public safety	• The new benches with planters are great for resting after a long shopping spree

Reflection:

- The stakeholder engagement exercise was extremely useful as it has helped us to identify issues in the project area as well as ideas and potential solutions for addressing these issues.
- The introduction of greenery in the project was very well received by the local stakeholders, which has given us confidence in using this pilot project as an exemplar for future planning on climate adaptation in Southend
- One negative observation made after the pilot implementation was the gathering of rough sleepers in the area due to the additionally seating placed next to the plants. The council is aware of the nuisance caused by these individuals and have been working closely with CCTV, Community Safety team, Police and BID Rangers to patrol the area regularly, and has provided businesses in the area additional help when conflicts occur.

MEASURE OF SUCCESS	EVIDENCE
reduction of PET value (baseline vs result values, comparison with reference point)	Honey locust tree -11.14°C
size of the area (m2) with improved heat resilience (the **total area that benefits from the measures approximate this by using the same approach used for the initial estimation in the application form)**	+/- 10,000m^2
number of daily users benefitting from the intervention (if relevant/available: are there specific times of day or the year when there is heavy use?)	28,000
co-benefits achieved (e.g. biodiversity, pollution reduction, economic benefits, influence on property value, long-term savings, aesthetic improvement, psychological impact etc.)	Biodiversity, air quality, economic benefits for eatery and restaurants, aesthetic improvement
other results observed	

Supporting evidence:

- Economic benefits for eatery and restaurants: *Restaurant manager from Brickouse, Southend welcomed the greening improvements made outside their restaurant, saying: "it definitely made the outside more pleasing for customers…"*
- Aesthetic improvement: *Silvia Wildish, 70, of Leigh, said: "I think what the council has done here is lovely and well worth the investment… and the greenery give more interest to the area."* (Southend: High Street gateway improvements praised | Echo (echo-news.co.uk))

Technical and financial specifications

Green Blue Urban ArborFlow SuDS tree pit systems: https://greenblue.com/gb/solutions/stormwater-management/

Planters with Seating: https://www.streetlife.nl/en/products/roughready-hug-tub

References

Southend TRIP project: https://www.southend.gov.uk/better-southend/town-centre-redevelopment-improvement-project-trip