

Sustainable Roadworks: Tolworth Roundabout

TfL Lane rental Industry Publication



Introduction

Roadworks are an essential part of daily life in the Capital, providing vital services, through which, we run our lives. The process for their undertaking has largely stayed the same over the last century, but with the Mayor of London's commitment to reach net zero emissions by 2030, a new approach is required.

To establish the effectiveness of different green credential products in reducing emissions, Transport for London (TfL) set out to test different carbon reduction measures during construction of the healthy streets improvement scheme at Tolworth roundabout, Kingston.

Healthy Streets schemes use an approach which focuses on creating streets that are pleasant, safe and attractive, where noise, air pollution, accessibility and lack of seating and shelter are not barriers that prevent people, particularly vulnerable people, from getting out and about.

The project commenced in 2023.



The Project

The scheme works included changes to the footway and carriageway to reduce congestion, improve journey times for buses and expand on facilities for walking and cycling throughout the area. This included a series of environmental benefits, such as sustainable drainage systems (SuDS) and landscaping features, providing eight extra trees and additional green infrastructure, to increase the water catchment area by 6300m².

The project team worked with contractor, FM Conway, during the design phase to provide carbon reduction measures including:

- Use Solar PODs for welfare/site office
- Use of concrete kerbs instead of granite (locally sourced and lighter in weight so less CO₂ to transport)
- Lower production temperatures of Warm Mix Asphalt to help reduce the associated emissions with asphalt production by up to 15%
- Hydrogenated Vegetable Oil (HVO) fuel in replacement of diesel
- 98% of waste recycled and reused as various aggregates through FM Conway's Integrated Management System, demonstrating compliance with the Environment Agency's Quality Protocol (Waste & Resources Action Programme) and industry standards, such as the Specification for Highway Works.'
- Traffi LXT TGI240 Microdex Nitrile Gloves (certified as carbon neutral)
- Installation of SuDS throughout the scheme in the form of 1321m² of Piora paving



Outcomes






The project was completed in 56 weeks, delayed slightly by utility diversion works required for implementation.

However, the project successfully included carbon reduction measures as part of construction, saving the following in carbon dioxide equivalents:

Item	CO2 Savings (tCO2e)
Solar Pod Average	11.78
Kerbs	17.57
Warm Mix Asphalt	45.05
HVO Fuel	22.10
PPE Gloves	0.20
Total Saving:	96.70T CO2e

96.7 tonnes of CO2e emissions are equivalent to:

- 35,000 car journeys 
- 240 train journeys 
- 4 short-haul flights 

Conclusion/ Recommendations

The project successfully delivered significant benefits including: reduced congestion, improved cycling and walking facilities, and increased water catchment area.

Incorporating SuDS into the design at a late stage and delivery of them was a learning curve for the project team, so these have been documented for future reference.

Due to the benefits and carbon savings identified It is recommended that other measures be trialled in different situations and combinations, to assess the most effective ways to incorporate into business as usual activities.



TfL Lane Rental Scheme

Optimising customer journeys through the delivery of safer, innovative and sustainable roadworks



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