

Brad Entwistle

Senior Consultant

Katy Thorpe

Associate Director

AECOM



Bio

Brad

Brad joined the AECOM Streets team in 2017 and has worked on a wide variety of microsimulation modelling projects in the last 6 years. He specialises in bespoke Vissim modelling solutions using Vissim COM as well as emissions modelling, historically using the EnViVer Instantaneous Emissions Modelling (IEM) software and more recently the Bosch Vissim add-on.

Katy

Katy is an Associate Director with 19 years of experience in the field of Traffic Engineering and Transport Planning. She has worked across the Transport Planning and Streets teams on various transport projects, specialising in traffic signals and traffic modelling.

Presentation

Emissions Modelling

As carbon targets and emissions reduction goals become more important, so does modelling the impact of road schemes on emissions and air quality. Road-based emissions dominate regional CO₂ emissions targets, whilst mandatory local air quality objectives are driving forwards schemes such as Clean Air Zones to protect the public health.



the mind of movement



PTV teamed up with Bosch to create the Bosch Instantaneous Emissions Modelling add-on for Vissim. This provides configurable emissions outputs from Vissim models, creating an additional metric by which to appraise road schemes.

Here we present a case study in which the Bosch emissions add-on played a critical role in appraising the effects and viability of altering speed restrictions on a complex road. Since emissions spike in stop-start conditions, this

method provided more reliable results than contemporary link-based emissions tools that are commonly used for local air quality assessment.

The microsimulation method provided a means to quantify the short-term emission impacts and subtle changes in traffic behaviour. It was specifically ideal to represent emissions from queuing and congested traffic by consideration of individual vehicle drive cycles and micro-trips through the network, including stopping events and very low speeds.

The emissions data, presented in a variety of forms ranging from heat maps to charts showing source apportionment by road section, complemented the more customary performance measures to allow a balanced scheme assessment. Vissim modelling and Air Quality specialists worked collaboratively to interpret and communicate the outputs to Public Health and Transport client teams.