

Miriam Leonardo Fernandez

Principal Transport Modeller



Bio

Miriam is a Chartered Engineer with over ten years' experience working in the United Kingdom, Australia and Spain. She graduated from the Technical University of Madrid with a MEng in Civil Engineering and from the Technical University of Denmark with a MSc in Transport and Logistics.

Miriam has worked on a wide range of transport modelling projects for both public and private sector clients. She specialises in the development of traffic and pedestrian models and is experienced in transport network optimisation, multi-modal accessibility studies, infrastructure capacity assessments, public transport improvements, transport policies and best practice.

Presentation

Multi-modal scenario testing with microsimulation

This presentation will primarily cover the development of an integrated multi-modal model using PTV Vissim/Viswalk to support a mix-used development located in close proximity to an underground train station.

The modelling process for such comprised the development of an AM and PM peak hour Base, Reference Case and With-Development scenarios. The Base model was calibrated and validated for both traffic and pedestrians following Transport for London's 'Model Auditing Process' (MAP) and Mott MacDonald's recently externally published 'Pedestrian microsimulation modelling UK good practice guide'.

The modelling outputs included traffic and pedestrian journey times, traffic queue lengths, intersection Level of Service (LOS), pedestrian comfort levels and Fruin LOS density heatmaps, and 3D videos.

The study is a good example of how useful modelling of the interaction between pedestrians, private vehicles and public transport together can be in helping to understand the overall performance of the infrastructure network and associated service capacity. The model was used to iteratively assess multiple scenarios and sensitivities including development size and layout design.

The model was developed with a particular focus on the 3D details to support the client and stakeholders. Some stakeholders were non-technical and therefore the holistic visual outputs enabled easy understanding of the scheme proposals.

In addition, this presentation will include an example of an enhanced visualisation of a microsimulation transport model developed in Vissim/Viswalk using Unreal Engine gaming technology. We call our tool the Integrated Design and Engagement Application (IDEA). This example was part of a recent public consultation in Newport where a suite of visualisations, including high quality images, a flythrough video and an interactive 3D viewer app, were delivered. It enabled stakeholders to experience the design together with the Vissim/Viswalk simulations from any perspective either on-screen or in Virtual Reality.

