



Pedestrian Modelling

Simulating movements to effectively manage flows

As developers of one of the first dynamic pedestrian planning simulation tools our team can add value to your projects by highlighting issues early on in the design process, saving valuable time and money.

Pedestrian modelling has the unique capability to provide individuals such as developers and station managers with the ability to visualise how people will move around, and use, their facilities.

Our skills in both dynamic and static modelling help you to

- identify weaknesses in designs
- confirm minimum standards are adhered to
- simulate evacuation scenarios
- test solutions to mitigate congestion
- provide advice on optimising flows
- validate designs for public space
- stress test designs for future demand

Recognising our track record of success, our clients are decisive policy-forming bodies, key decision-makers and major infrastructure providers. These clients rely on our modelling skills of equal importance our ability to interpret outputs for effective and knowledgeable analysis and recommendations.

We are well practised in tailoring our outputs to specific bodies' guidelines as well as for wider publication in the public realm.

Software

Halcrow, along with LUL as joint-developers of PEDROUTE, has unrivalled expertise in the understanding and application of the software, and PAXPORT, as a tool for passenger flow simulation modelling.

We have in-depth knowledge in the use of Legion, having modelled stations in cities such as Edinburgh, London, Kuala Lumpur and Vancouver as well as using Legion to carry out boarding and alighting studies to test rolling stock capabilities.

Adapting to the trend of using shared spaces in urban design we have developed skills in producing 3D models, such as the Longbridge regeneration site, these can prove useful visual tools at public consultations.

In addition we are able to utilise outputs from the Aimsun traffic micro-simulation models using the 'Aimsun for Legion' module, thereby successfully modelling complex urban environments. We also have capabilities to use the pedestrian modelling add-on for VISSIM should this be the preferred tool for an integrated pedestrian-traffic model.

Delivering value – case studies

■ World Youth Day (WYD) pedestrian modelling

RailCorp were concerned about the impact the 500,000 visitors for WYD were going to have on their network. They asked Halcrow to develop crowd management strategies and station operation plans for World Youth Day.

Halcrow developed PAXPORT pedestrian models of strategically important CBD stations and by drawing on experience from travel planning and crowd management for the 2000 Sydney Olympics predicted excessive delays as well as identified congestion pinch points.

By understanding WYD pilgrims' and regular travellers' desire lines we were able to optimise train timetables and produce crowd management strategies ensuring it was a successful and incident free event.



Visitors at World Youth Day, Sydney

■ Alstom Thameslink Bid, London

As part of the bidding process to provide the Thameslink rolling stock Alstom were required to prove they could comply with strict boarding and alighting timings. Halcrow were brought in to support their bid to the DfT. Using a Legion model, calibrated to the recent UCL study into dwell times, to simulate the boarding and alighting of passengers we advised on design solutions that would optimise their dwell times. Halcrow used a basic model provided by the DfT and, by adapting it to reflect Alstom's design proved it was capable of meeting the dwell time targets set.

■ Haymarket Evacuation, Edinburgh

To ensure best practice was adhered to with the re-design of Haymarket station Halcrow were responsible for testing various evacuation scenarios

dynamically in Legion. Platform and station clearance times were reported on and any weaknesses in the new design, that may have caused the station to fall short of the requirements, were highlighted.

■ KL Sentral Station, Kuala Lumpur

KL Sentral is a major hub for passenger interchange for both long distance services and frequent metro services and suffers from extreme congestion. Working for one of the largest construction companies in Malaysia Halcrow were asked to advise on how the station design would cope with future demand forecasts.

Responsible for carrying out surveys that allowed a validated Legion base model to be completed within a tight timescale Halcrow are now in the process of working with the developer further to look at additional stations.

■ Longbridge 3D Modelling, West Midlands

Providing advanced planning advice as part of one of Europe's largest brownfield redevelopment both 2D and 3D pedestrian models of the regeneration area were created. The 3D model was used as part of the key stakeholder negotiations to provide a video representing the future scenario with 2D model producing thematic maps to demonstrate densities around the new development for pedestrians and vehicles.



3D modelling of the regenerations plans for Longbridge

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