

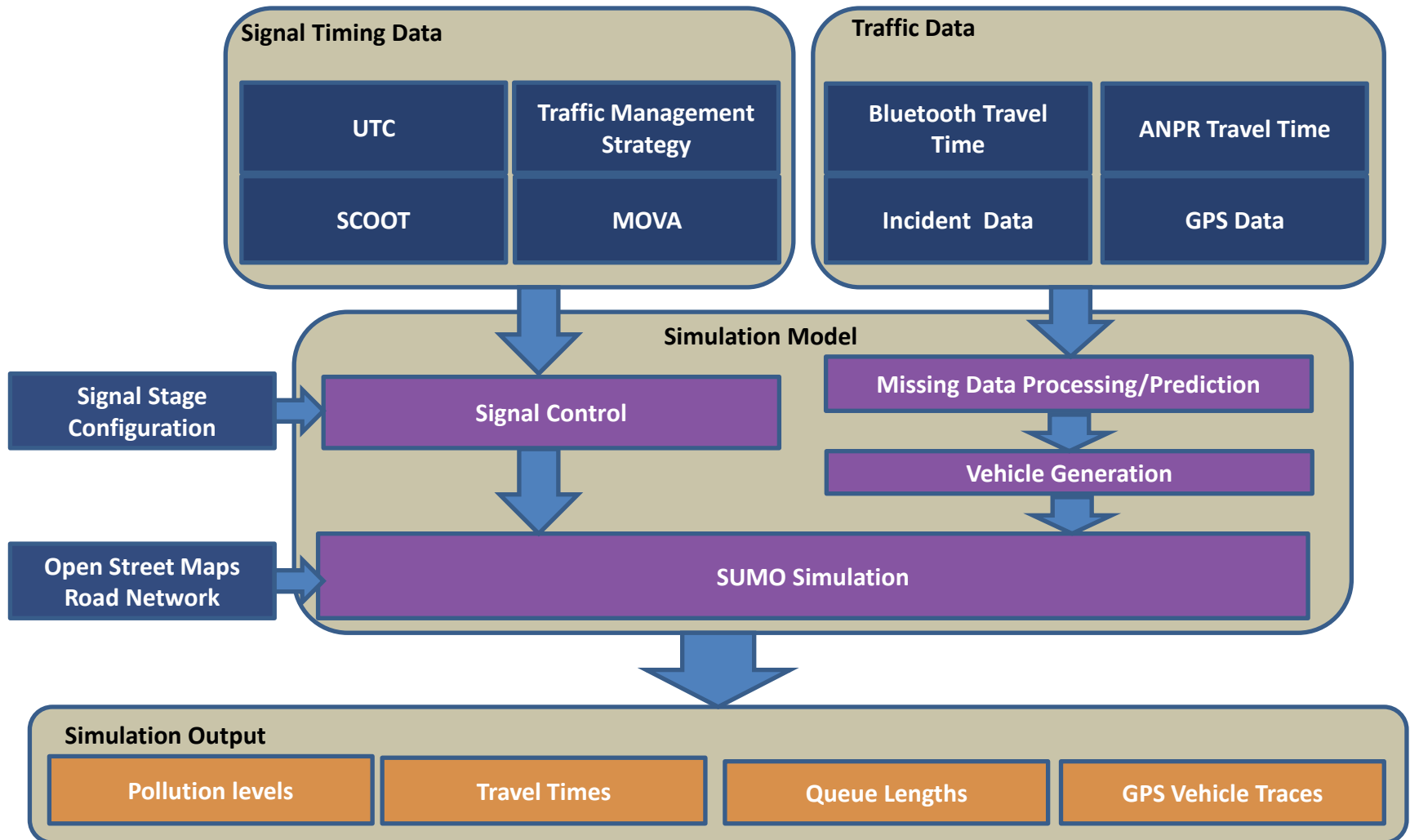
Simulation in the Loop for Travel Information Systems

Louis Burrows

What do we do

- We provide micro simulations to various traffic authorities
- We have developed a model with SUMO that allows us take data from current infrastructure technologies and provide a simulation to authorities, giving them greater clarity in the decisions they make.

Model Overview

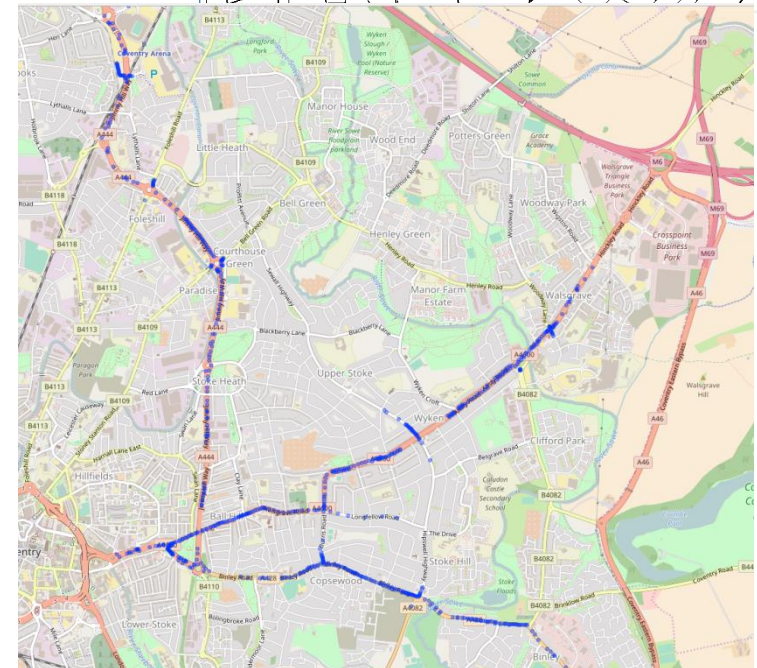
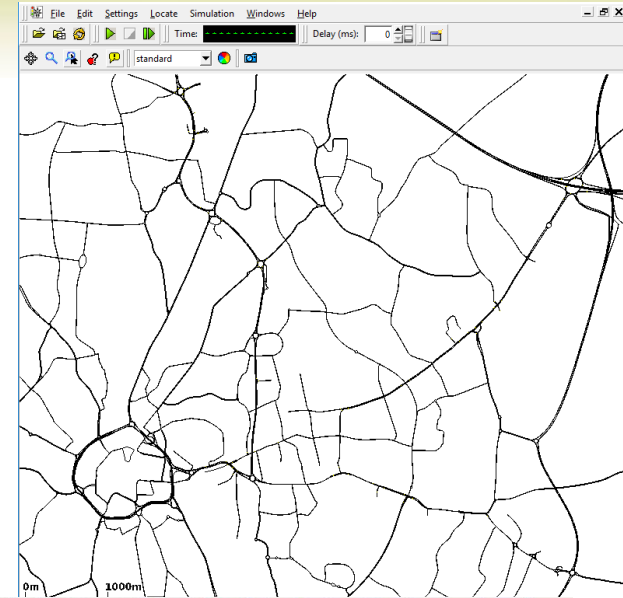


Why SUMO

Sumo- A micro simulation tool that allows us to approximate traffic behaviour with the use of open street maps data and appropriate vehicle generation and UTC control methods

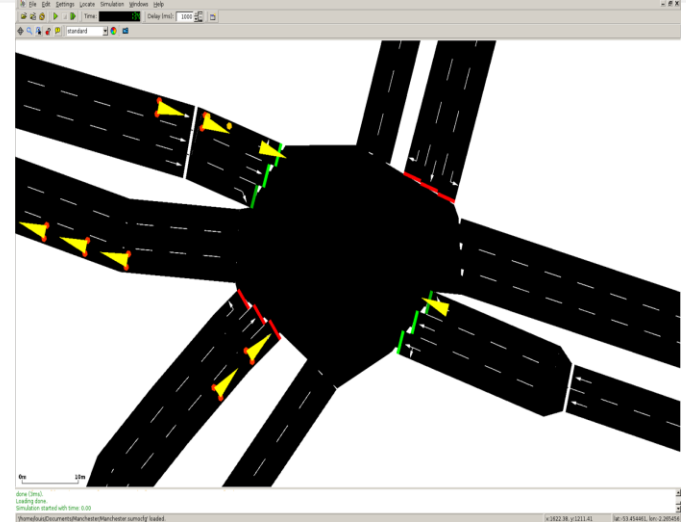
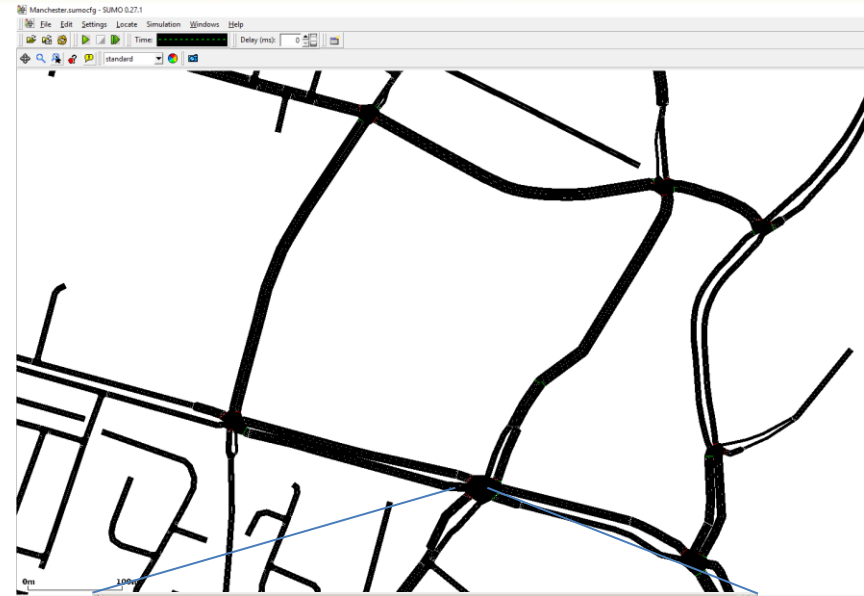
Both Vehicle generation and UTC control can be handled statically and dynamically allowing sumo to be used for both testing and monitoring purposes

- Testing
 - An environment can be created to test traffic management strategies for specific circumstances .
- Monitoring
 - By simulating real time traffic based on real time data it is possible to create an approximation of the current state of a traffic network.



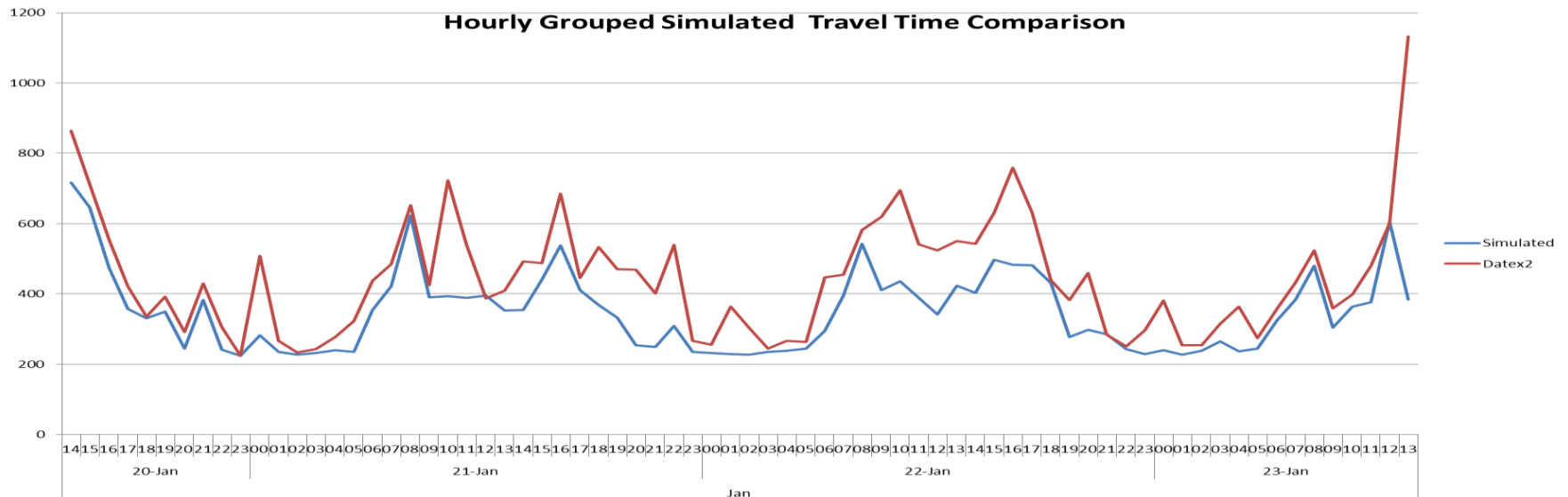
Testing Model

- Sumo can be configured create a predetermined inflow of vehicles and output characteristics , e.g:
 - Air pollution
 - Travel time
 - Average queue length
 - etc
- By doing this we create specific repeatable testing circumstances
- The ability to manipulate the UTC commands during run time allows the implementation of signal timings according to traffic management strategies.
- The overall impact of each strategy can then be evaluated based on the simulated output.



Real Time Model

- The Real time model we have developed allows us to simulate the current state of traffic based on travel time and UTC signal timing data received in real time.
- The basis being that by regulating the generation of vehicles based on the difference in simulated travel time and record real world travel time, a real-world like state is maintained within the simulation.
- The below is a comparison of data from Bluetooth sources around Coventry compared to the simulated travel times.



Thank you for your time.