## Attachment 1:   What is real time information?

A Real Time Information system in public transport tracks vehicles in order to predict the 'real' arrival/departure time of that vehicle at various points along the route. The 'real' time is in fact an 'estimated' time, being derived from the vehicle's current location and historical travel time information collected over a certain period. The communication between the vehicles, the central server and on-street displays is wireless, using radio, GPRS[1] or broadband technology. The following figure sketches the basic components of a Real Time Information system:
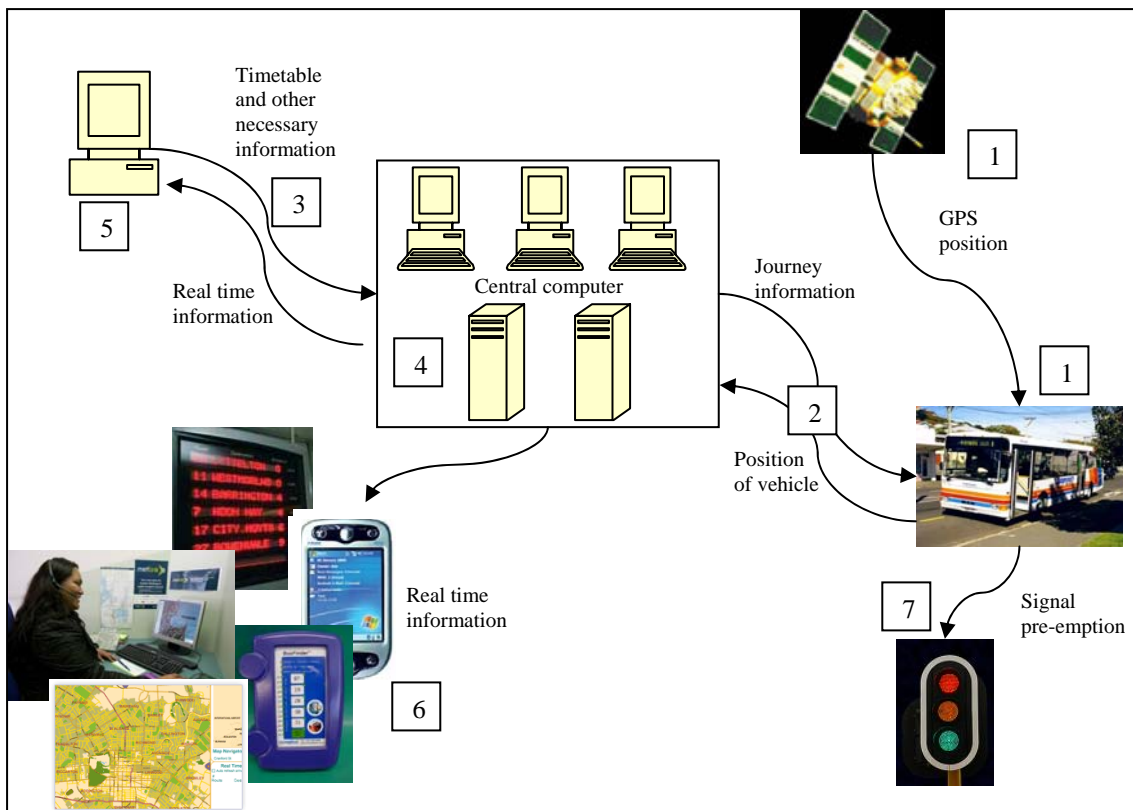
Although different suppliers may vary in the way they set up a Real Time Information system, systems usually consist of the following elements:

1. A device identifying the position of the vehicle (usually a Global Positioning System (GPS)) and other on-board equipment needed.

2. A wireless connection (e.g. a radio channel) from vehicles to a central computer (and back) and the hardware to supply the connection (e.g. antennas).

3. A way to enter the necessary information into the system.

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[1] GPRS stands for General Packet Radio Service and is a standard for wireless communications.

4. A central computer with software that collects the real time data from the vehicles, does the analysis, predicts the arrival time at the stops and prepares the information for the output. The software can also deliver reports for management information.

5. Computers at councils and operators to enable them to use the information for their own purposes (operation, planning, monitoring, reporting).

6. Tools to deliver the real time information to the passengers (on-street displays, internet, SMS-service, call centre).

7. An important add on is the signal-pre emption, which can give buses priority at traffic lights.