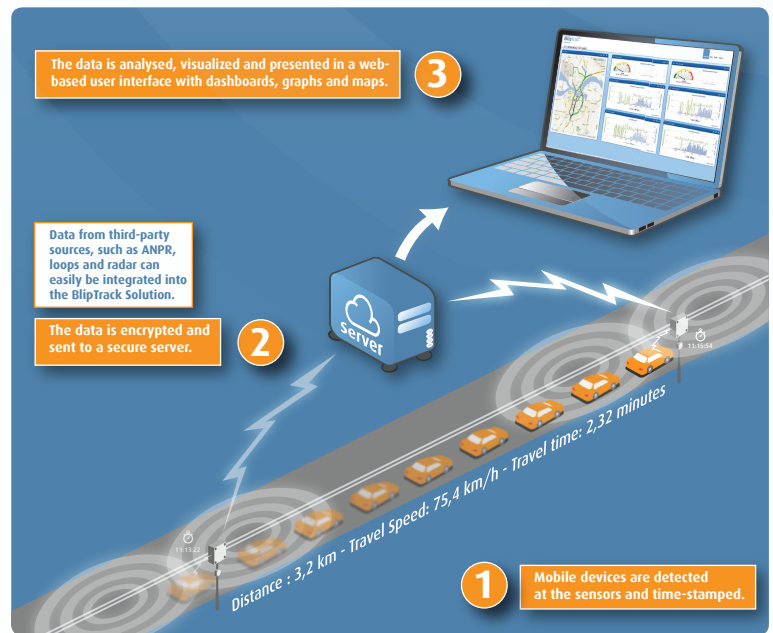# BlipTrack

Travel Time Measurement/Queue Monitoring

Understanding who is using the road, where they are going and whether they get there on time is essential for policymakers, traffic managers and drivers alike. Real-time travel time information helps to reduce commuting times and vehicle emissions.
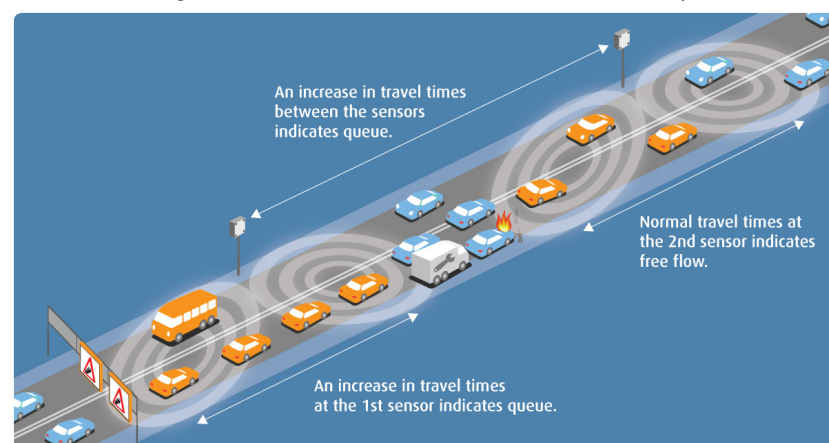
Traffic planning is normally based on assumptions, simulations and short-term traffic surveys. But as Bluetooth and Wi-Fi technologies have become ubiquitous, and a substantial percentage of vehicles and pedestrians now carry detectable electronic devices, faster and more reliable real-time traffic measurement can be conducted.

BlipTrack works by placing sensors at strategic points along roads, transit networks and public places. The sensors detect Bluetooth or Wi-Fi devices, found in mobile phones and in-car audio and communication systems. When a device passes the sensors, its unique ID—called a MAC address—is recorded, encrypted and time-stamped. By re-identifying the device from multiple sensors, specific and accurate statistical information, such as the travel times, average speeds, dwell times and movement patterns become available, both

The data is analysed, visualized and presented in a web-based user interface with dashboards, graphs and maps. **3**

Data from third-party sources, such as ANPR, loops and radar can easily be integrated into the BlipTrack Solution.

The data is encrypted and sent to a secure server. **2**

Distance : 3,2 km - Travel Speed: 75,4 km/h - Travel time: 2,32 minutes

1 Mobile devices are detected at the sensors and time-stamped.

in real-time and historically. The solution is able to measure travel times on road segments with multiple flows, such as parallel train tracks, bus lanes, bike lanes and roads.

Queue Monitoring

BlipTrack's segment-based incident detection provides detailed real-time journey times, both in the sensor's coverage and between the sensors. This allows road operators to monitor the entire road

An increase in travel times between the sensors indicates queue.

Normal travel times at the 2nd sensor indicates free flow.

An increase in travel times at the 1st sensor indicates queue.

segment, unlike traditional point-based solutions with limited coverage. Real-time segment-based road monitoring provides both faster and more accurate travel times, and immediate warnings about incidents and queue. This rapid detection allows traffic managers to respond to situations before they are exacerbated by additional congestion. The environmental benefits of queue warnings include decreased emissions, noise and fuel consumption.

BlipTrack is able to provide data for queue warnings via variable message signs, TMC feeds in navigation systems, mobile applications, traffic announcements, and more.

The encrypted data from the sensors is transferred to a secure data warehouse. The combined and analyzed data is presented in a web-based, multilingual intuitive user interface, with graphs and dashboard views, including interactive map views. BlipTrack can be easily integrated with existing traffic management systems through various data output facilities and open standard protocols.

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