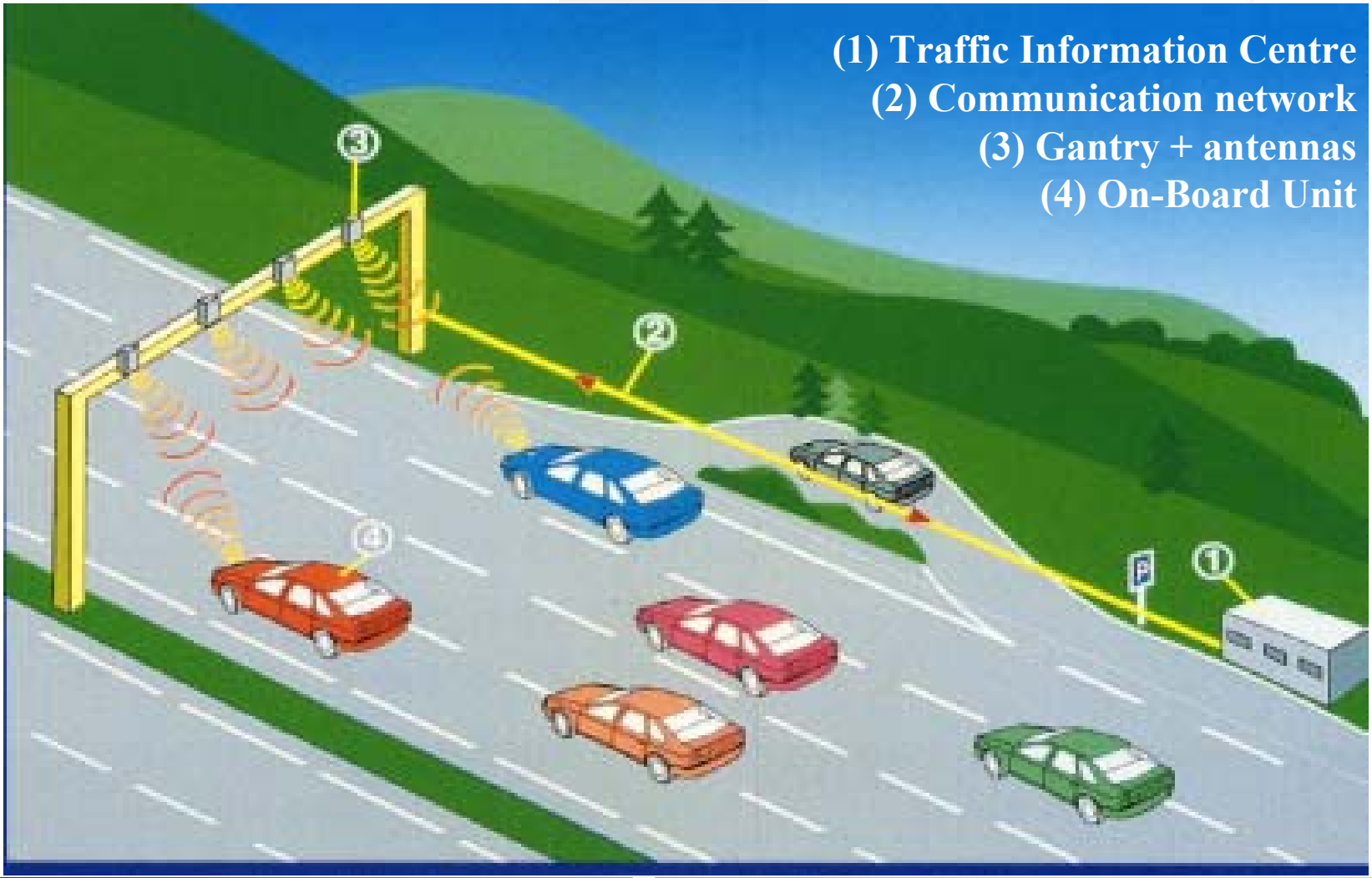
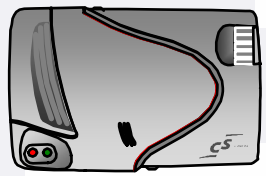
Evaluations of the AIDA system



Information, safety, data collection

AIDA antennas



- Road information
- Safety messages
- Traffic and weather data collection
- Incidents detection

The AIDA services

AIDA : an on-board system providing real time information dedicated to safe and comfortable highway driving

Traffic conditions
- accidents
- perturbances
- road works
- traffic jams

Road information
- sorties conseillées
- distance to next exits
- estimated time of arrival
- relief routes

Weather conditions
- fog
- low temperature
- heavy rain

Personalised traffic information
- tourist information
- petrol stations with brand and price
- service and rest areas

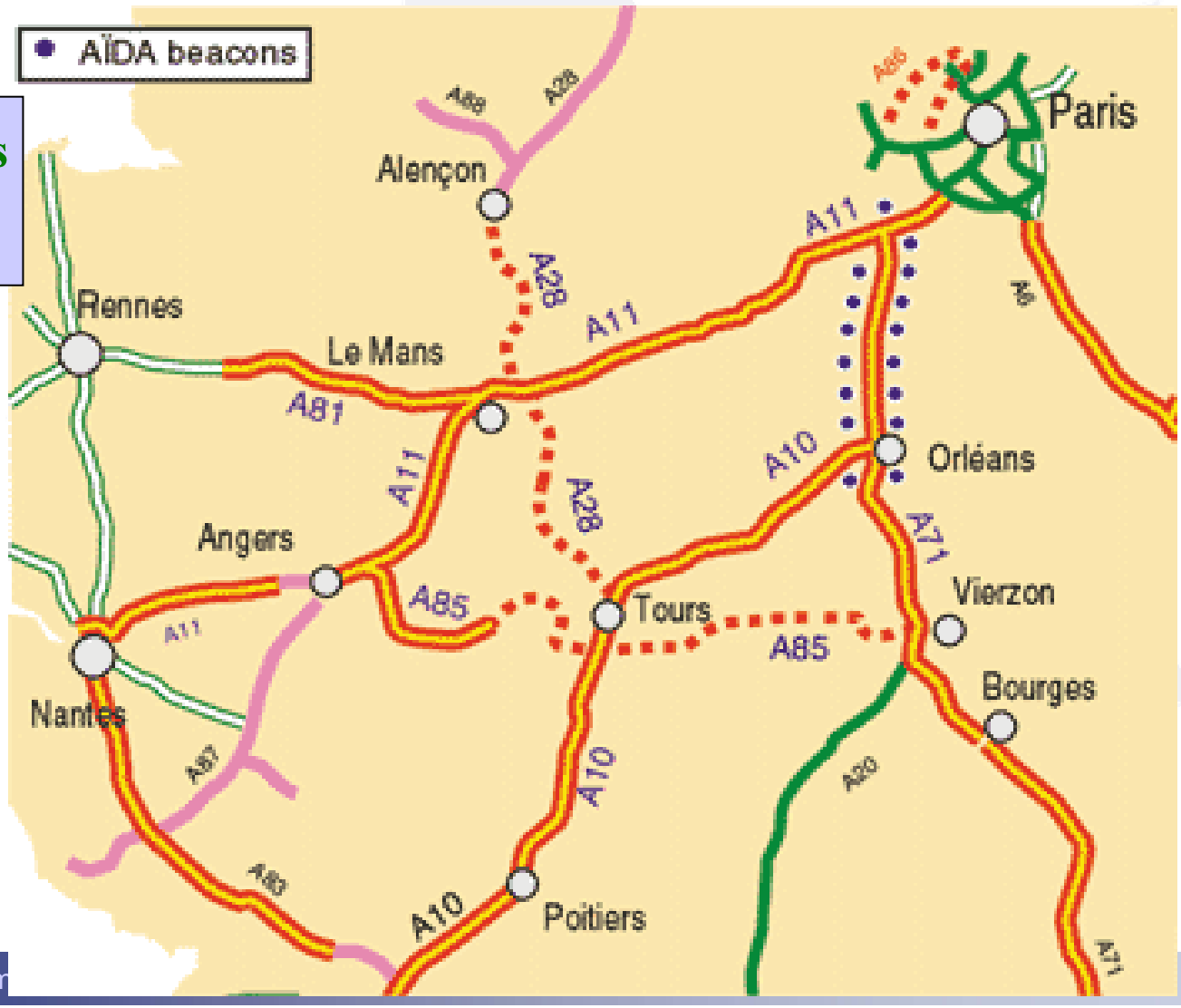
Interactive services
- incidents signalling

Cofiroute test site : 100 km / A10

Existing beacons

Phase 1 = 18

Phase 2 = 27



An evaluation in 3 steps

- **Man-Machine Interface and driver behaviour aspects carried out by INRETS in 1998**
  - **legibility of text and icons displayed,**
  - **no interference with the driving task**
- **Assessment of some AIDA functions by simulation**
  - **traffic simulation + individual driver behaviour + AIDA model**
- **Field trials in real traffic conditions in 2001**
  - **qualitative evaluation through questionnaires and enquiries**
  - **quantitative evaluation through data records in the TIC and in the on-board units (smart card)**

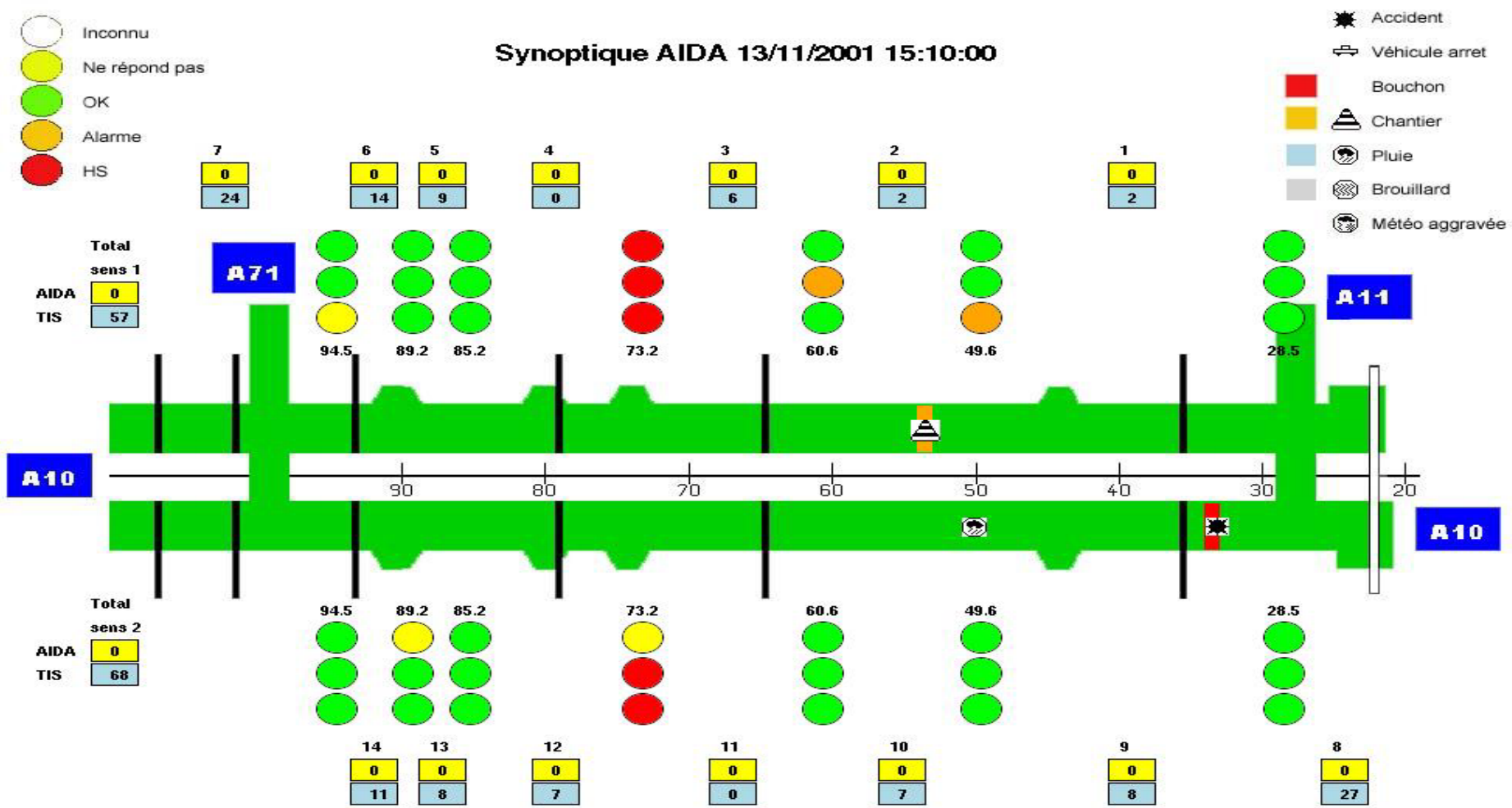
Safety / Ergonomics evaluation

- Evaluation of AIDA system has been carried out with 32 users (without and with AIDA, on 2 sections of 100 Km)
  - 1 Peugeot 406 equipped with AIDA, 5 video cameras and recorders
  - 1 INRETS researcher on board as an observer
- 90% of the users rely on the system
- The safety services are considered as the most important
  - in particular the interactive signaling service is considered as essential
- It was observed that drivers slow down when approaching an incident which was signaled (!)
- Reduction of the mental work load
- No path deviation was observed.

Field trials in real conditions

- **Duration : from May to July 2001**
- **Location : a section of 100 km (A10 motorway of COFIROUTE network between Paris and Orléans)**
- **30 vehicles equipped with AIDA devices**
  - **volunteers, frequent users**
  - **150 AIDA OBU manufactured, but only 30 installed, due to delays in the project**
  - **vehicles : Peugeot, Renault, Citroën**
- **Several thousands of vehicles equipped with ETC tags (travel times collection)**

AIDA supervision tool

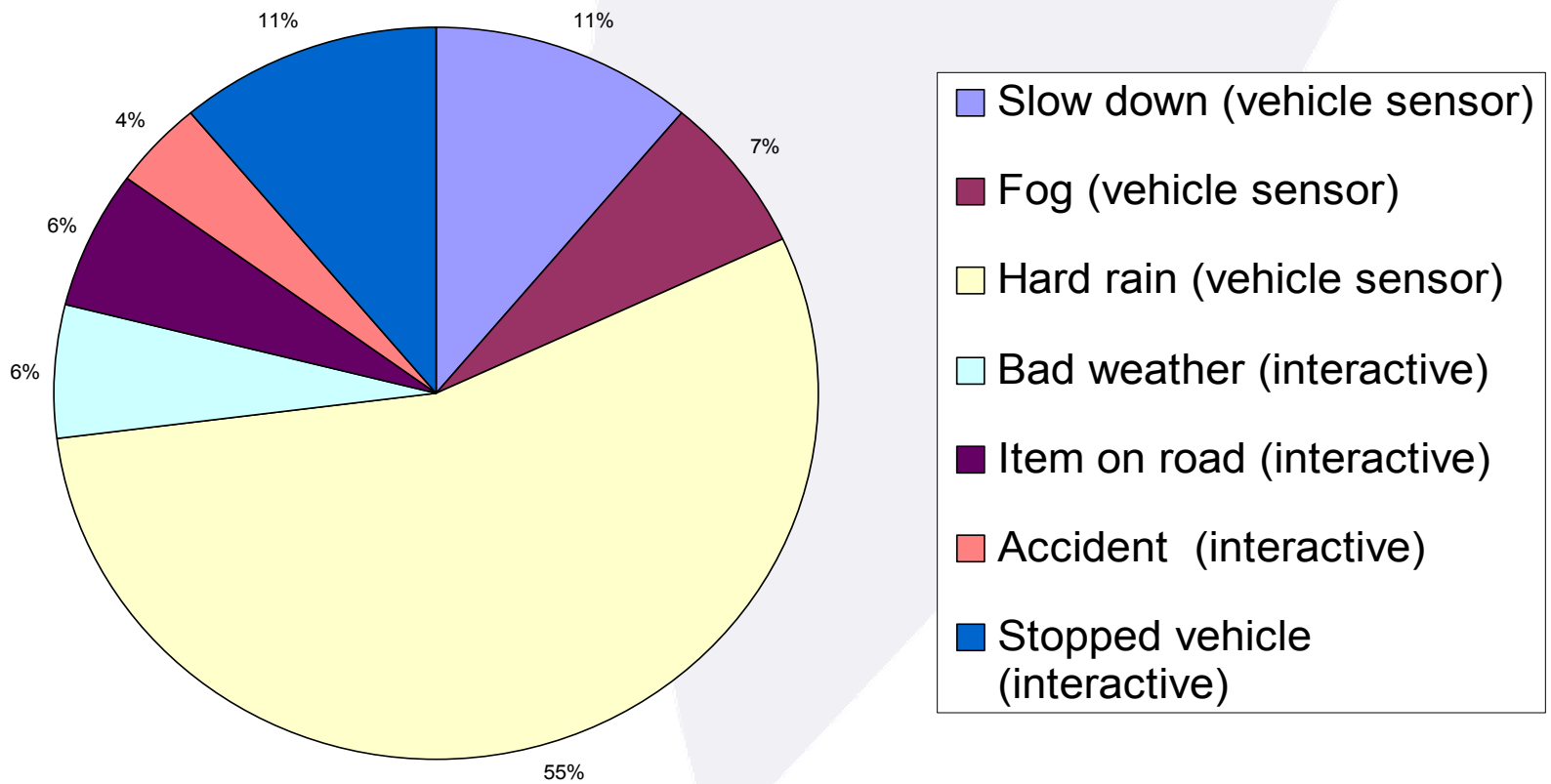


Main results of qualitative evaluation

- Safety services are considered the most important
- The driver becomes an actor in the improvement of road safety through incident signalling (as a witness)
- Accurate, on time information received
- Complementary media with motorway advisory radio (107,7 MHz)
- Reliability of the system (hardware) to be improved
- Integration of On-Board Unit in the vehicle expected

Transmission of events

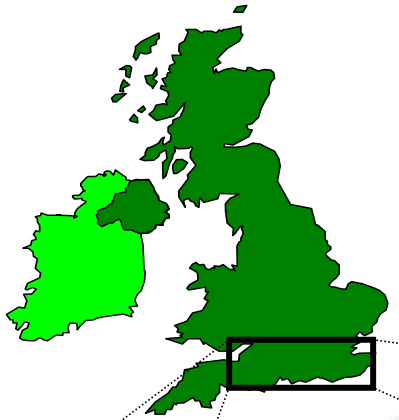
Breakdown of the events transmitted by the AIDA vehicles



Lessons learned from evaluations

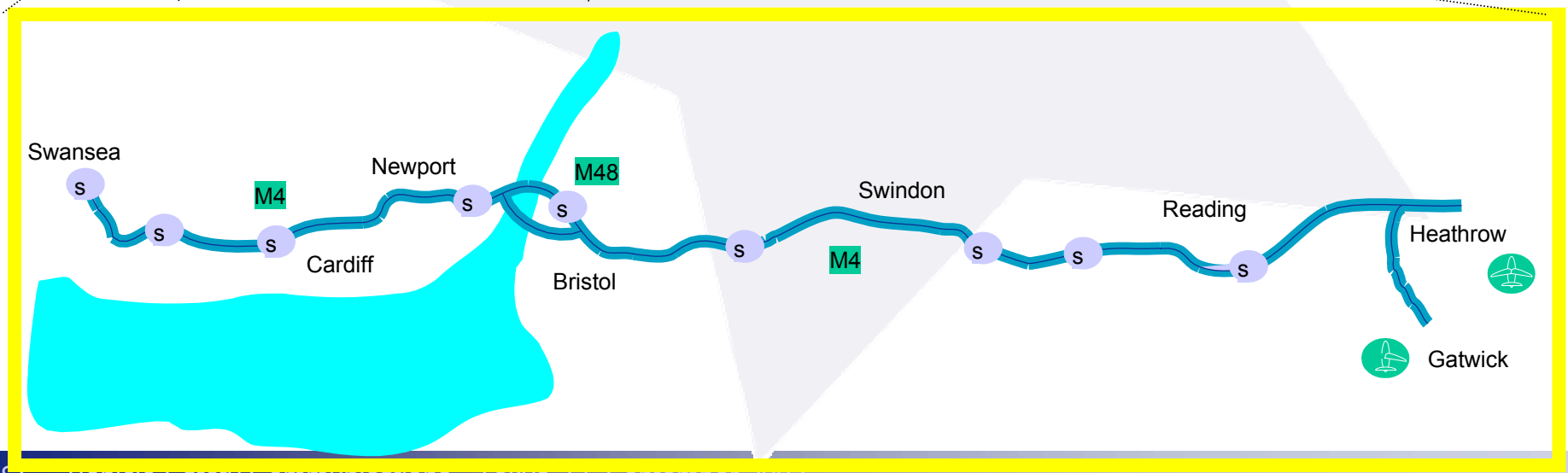
- Good accuracy of travel times measured with probe vehicles (DSRC tags) on motorway
- Impact of the AIDA equipment rate on the average speed of the whole traffic (speed reduction to avoid pile-up accidents)
- Reduction of detection and warning delays will improve the incident management chain and increase safety

Road Traffic Advisor



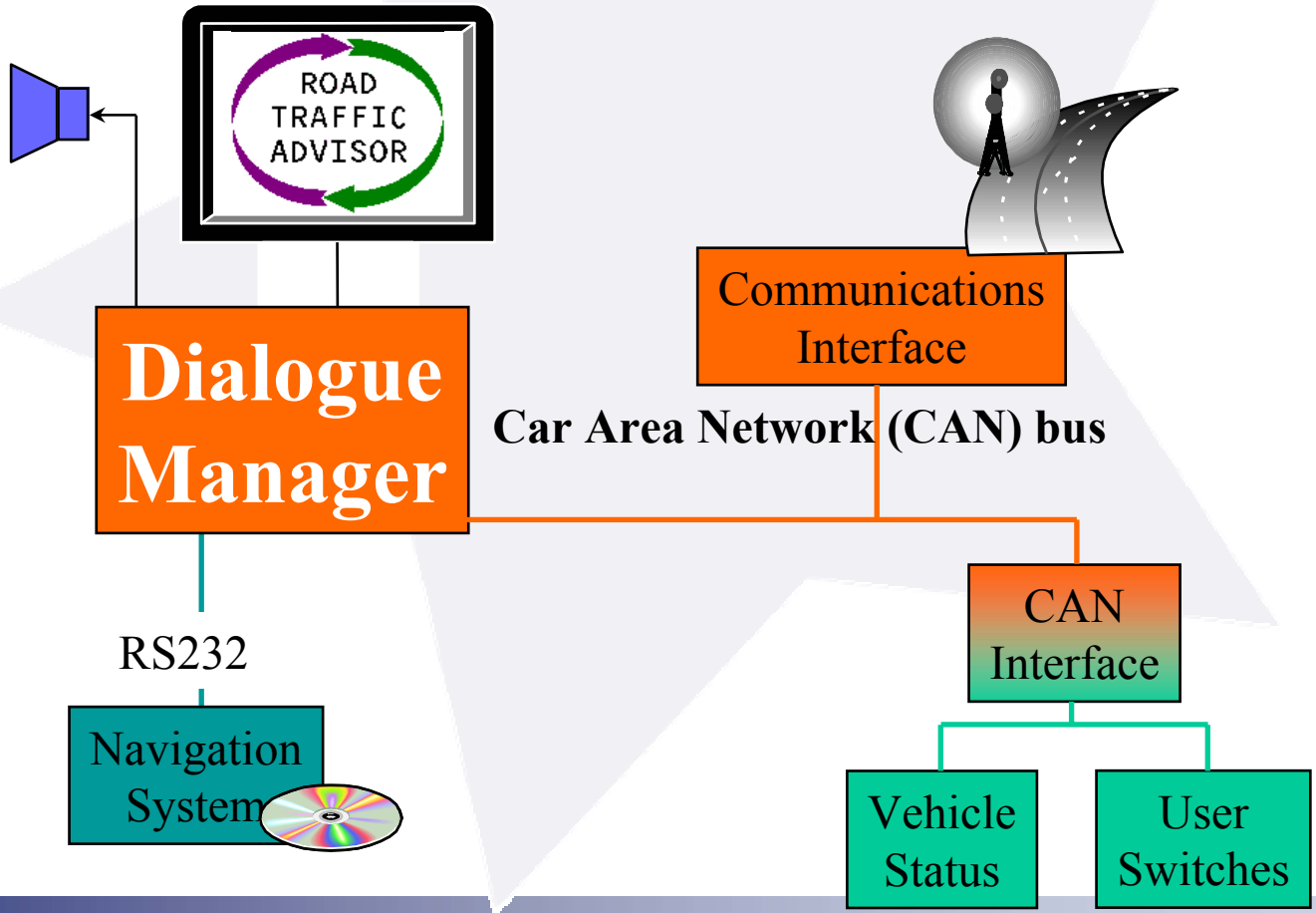
The RTA test site

M4 from Swansea (UK Wales) to London airports



Road Traffic Advisor

- System architecture in the vehicle

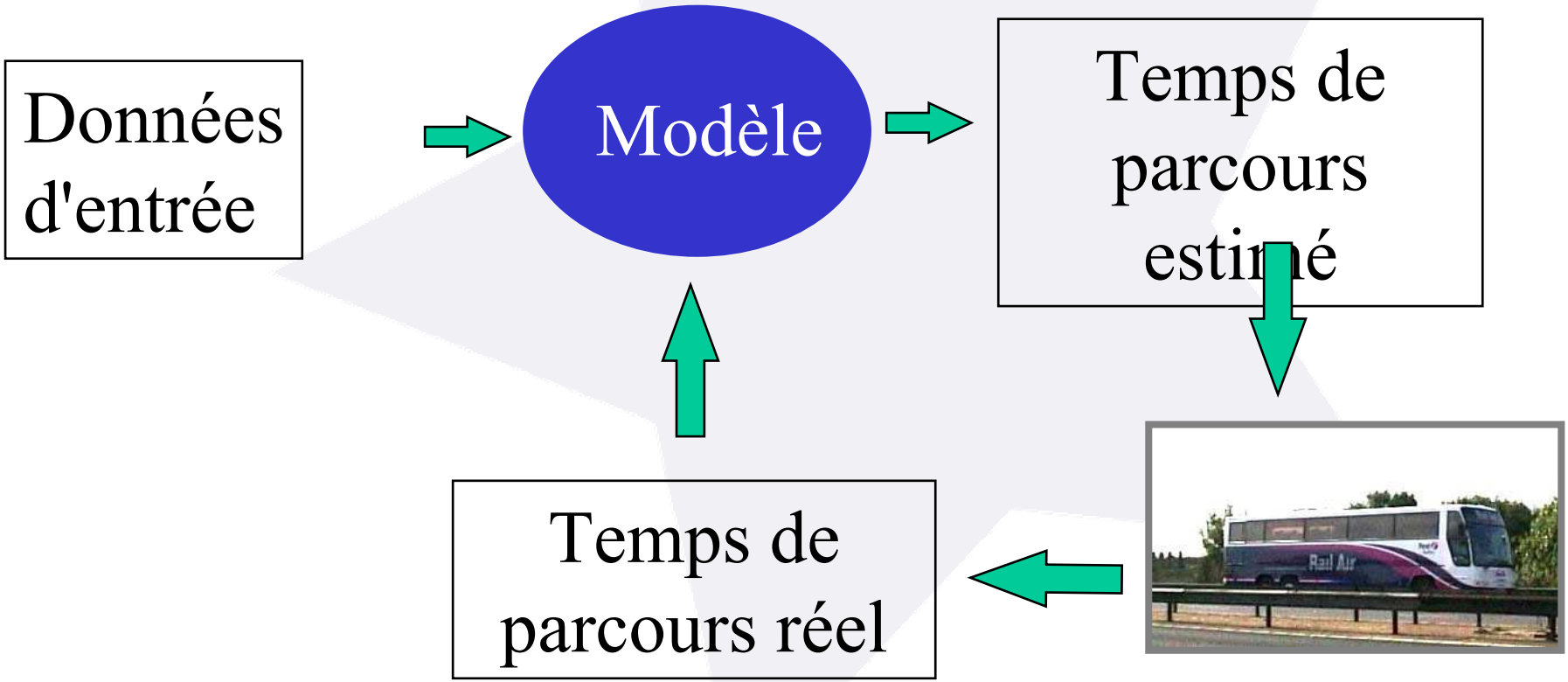


Road Traffic Advisor

- **Display in the vehicle**

Road Traffic Advisor

- **Floating car data**



RTA display examples