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UK Industry Response to the 2016 Sandilands Tram Accident

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European Light Rail Conference 2024





Agenda

- What happened?
- Response to the Accident





Tram Overturn - 9th November 2016

- Tram travelling at 3 times permitted speed
- Derailed on sharp left-hand curve near Sandilands Tram stop in London
- 7 fatalities, 61 injured, 19 seriously







Sandilands Accident

- Rail Accident Investigation Branch (RIAB) report makes 15 recommendations. These include:
 - Technology, such as automatic braking and systems to monitor driver alertness
 - Better understanding the risks associated with tramway operations, particularly when the tramway is not on a road, and the production of guidance on how these risks should be managed
 - Improving the strength of doors and windows
 - Improvements to safety management systems, particularly encouraging a culture in which everyone feels able to report their own mistakes
 - Improvements to the tram operator's safety management arrangements so as to encourage staff to report their own mistakes and other safety issues
 - Reviewing how tramways are regulated
 - A dedicated safety body for UK tramways





LRSSB Response

- IRAL commissioned to produce:
 - Research into Driver Inattention and Speed Management Systems
 - Production of guidance for the industry
 - Monitoring industry response





LRSSB - LRG18 - Speed Management Systems Guidance

- Two approaches
 - Location based Protects certain locations only
 - Continuous Protects all Speed restrictions on the network





Conclusions

- Please do not assume that you are immune from driver inattention.
- No amount of training or experience can change this.
- What happened at Sandilands could happen to YOU!!
- Please learn from our experience.
- All research is published and available for the LRSSB web site
- Guidance now being adopted by UK operators is available on the LRSSB web site (LRG17 and LRG18)







Teresa Benet

Metrotenerife





Who we are



- Public company constituted in 2001
- 23M€ Turnover. 200 Employees
- Railway Operation and Maintenance
- Consultancy services
- R+D+i
- Members of:







Background: overspeed



On Light Rail, driving on sight is a standard practice all over Europe and across the world.



Assistance Driving System



■ Back in 2013:

- ATP: specific location protection SIL2
- Assistance Driving System: continuous monitoring in each point

LRSSB

Assistance Driving System



■ Advance Driver Assistance System (ADAS)

- Inform the driver about the maximum speed allowed at each point
- Alert threshold
- Automatically stop the tram. Emergency threshold
- Tool for speed supervision and analysis
- No SIL2

Our solution



SIMOVE FOR RAILWAYS



Vehicle's real time monitoring position



Vehicle's speed monitoring



Data Registration and Storage



Back Office







- SIMOVE fully deployed since 2016
- 28,6 km. of tramway track. 2 Lines.
- 26 Vehicles Alstom Citadis 302
- Records of derailments avoided
- Safety increased: overspeed under control
- Operation activities and drivers management improved: information on time stopped at terminals, very accurate time stopped at stops
- Avoid accidents against derail buffers





- SIMOVE fully deployed since 2019
- 48,8 km. of tramway track. 2 Lines.
- 27 Vehicles Alstom Citadis 302
- Trial in 1 vehicle from 2017 to 2019. No brake application.
- Overspeed protection and information of driver behaviour
- MLO has declared that SIMOVE deployment has had many advantages. Some of them:
 - "SIMOVE has increased the safety of the service, improved the operability of the network and upgraded passenger's confidence in the system"

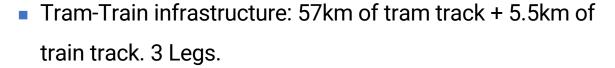




- Manchester Metrolink Trial. Pink Line
- Bombardier Vehicle
- Trial as part of the RAIB investigation report (LRSSB guidelines). April to June 2020
- Customization and installation
- Evaluation of SIMOVE's functionalities meets RAIB recommendations for over speed prevention system
- Trial extremely successful. High accuracy and reliability proved.









- 25 Siemens tramway + 7 Stadler tram-train
- Overspeed Protection System. Follow LRSSB guidance.
- Customize, supply and install
- Timeframe: 14 months. October 2023 to November 2024



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