



Paul Aldridge

Road Markings and Autonomous Vehicles A Supply Chain Perspective

Managing Director WJ South Ltd
Chairman Road Safety Markings Association



WJ Group

- ❖ Comprises 4 companies
- ❖ Turnover > £55 Million
- ❖ 456 Staff and 191 Trucks
- ❖ Manufacture 12000 tons Road Marking Material



RSMA

- ❖ Road Safety Markings Association
- ❖ 96 Companies Contracting and Manufacturing members
- ❖ 90% of the Road Marking market



Connected and Autonomous Vehicles a UK imperative

Philip Hammond, 'Some may choose to reject the future we embrace it.'

As industry we have a duty to provide linear support for CAV systems but the conversation, so far is all about technology and ethics not infrastructure

We need more collaborative working currently we are working in silos



The Road to Autonomy

- ❖ Level 0, No Automation, Hands on feet on
- ❖ Level 1, Driver Assistance, Hands or feet off
- ❖ Level 2, Partial Automation, Hands and feet off, eyes on
- ❖ Level 3, Conditional Automation, Hands and feet off, eyes off, brain on
- ❖ Level 4, High Automation, Hands, feet, eyes, brain off – constrained
- ❖ Level 5, Full Automation, Hands, feet, eyes, brain off - unconstrained



The Road Markings and Autonomy



- ❖ CAV systems currently need Road Markings
- ❖ Elon Musk, Lack and condition of road markings is ‘Crazy’
- ❖ Lex Kressmakers CEO Volvo North America, commented ‘You need to paint the b----y Road Markings here’
- ❖ “The ‘rails’ for the self-driving car” John Dawson, EuroRAP



Regulation

EU is currently reviewing regulations on Active and Passive safety Standards

The review of General Safety Regulation (Regulation (EC) No 661/2009) and the Pedestrian Safety Regulation (Regulation (EC) No 78/2009)

Expected to be published March 2018:



Regulation

Lane Keep Assist (LKA)

These systems monitor the position of the vehicle with respect to the lane boundary and, when a lane departure is about to occur, corrects the course of the vehicle by applying a torque to the steering wheel or braking of individual wheels.

Make Mandatory for M1 and N1 vehicles (derived from M1):

- 01/09/2020 for new approved types
- 01/09/2022 for new vehicles

Make mandatory for all N1 vehicles 2 year offset to the above dates.



Infrastructure

- Cars in the showroom today go much further in protecting life than vehicles a decade ago.
- They can warn, guide and brake by reading road markings and signs.
- At least half the travel on Europe's roads by 2025 will be in vehicles equipped with these advanced technologies.
- Vehicles like drivers can not function well if basic road markings and signs are non existent, non compliant with international conventions, worn out, obscured, inconsistent or confusing.”

‘Roads that Cars can Read’, Euro NCAP and EuroRAP 2013



Infrastructure

The report called for a simple clear formula for Road Markings

150,150,35

150mm line

150 mcd

35 mcd wet night visibility

This is now adopted in The Design Manual for Roads and Bridges as requirement document:

TD26/17

'Inspection and Maintenance of Road Markings and Road Studs on Motorways and All – Purpose Trunk Roads'



Infrastructure

CAVs can run on current roads but those roads must be well maintained so that the vehicles can read them particularly the road markings.

Highways England are proactive with Smart Motorways

Local Authorities: Approx 220 in UK

No money

No joined up thinking

City Centres

Rural Roads



Infrastructure a Win Win scenario

CAVs are disruptive technology: understanding impacts is difficult enough for anyone

The Sector ie RSMA or individual companies eg. WJ

Road Markings Save Lives : Road Safety Foundation

Demography : Older Drivers



Infrastructure

Older Drivers and Road Markings

Newcastle University's Institute for Ageing and RSMA

Study by Dr Amy Guo looked into restricted night time driving amongst drivers as they age:

- 1 in 4 drivers miss out on family and social events if it means night time driving
- 4 in 10 drivers have reduced their driving in the dark in the last 5 years or stopped totally
- 55% said this could be improved by better markings
- Main source of dislike for driving was: 'the state of roads, signs and markings'.



Conclusion

- Infrastructure which all vehicles can travel safely is paramount
- CAV Systems need a point of reference currently well maintained markings are vital
- Road markings are quick, cheap and easy to apply
- Markings and CAV systems increase the efficiency of the highway and as such bring environmental improvements both in terms of Air Quality and Carbon
- THE 150,150,35 spec aids CAVs and Older Drivers
- Road markings are present on most roads so offer the potential for CAV systems to operate on the network beyond the SRN
- Road Markings offer a media for carrying other technologies that CAVs can read
- Ultimately systems may well develop which make road markings redundant, until then they appear vital to the process





Take Care

