

Texas A&M Transportation Technology Conference

Planning future infrastructure for autonomous vehicles (AVs)

4 May 2017



Intelligent Mobility

A new way of thinking about how to use technology and data to connect people, places, goods, and services and to reimagine infrastructure across all modes of transportation.

Intelligent Mobility

The future of transportation will be characterised by:



Public/Private Sector

Public sector acting more as an enabler, providing data and governance. Private sector responsible for the end to end journey



User Focused

To meet the needs of an ever connected world and a high youth population, as well as an aging population



Integrated

To maximize and optimise the capacity of multi-modal transportation



Efficient

To meet global resource demands



Sustainable

To address global social, environment and economic risks, particularly climate and resilience.



Agenda

1. Connected Vehicles and Autonomous Vehicles Overview
2. Mobility Focused CV/AV Activities
3. Unlocking the Value of CV/AVs

Five levels of driving automation

		Steering and acceleration/ deceleration	Monitoring of driving environment	Fallback when automation fails	Automated system is in control
Human driver monitors the road	0 NO AUTOMATION				N/A
	1 DRIVER ASSISTANCE				SOME DRIVING MODES
	2 PARTIAL AUTOMATION				SOME DRIVING MODES
Automated driving system monitors the road	3 CONDITIONAL AUTOMATION				SOME DRIVING MODES
	4 HIGH AUTOMATION				SOME DRIVING MODES
	5 FULL AUTOMATION				

 **Human driver**
 **Automated system**



“Highly automated vehicles (HAVs)”

Source: SAE International / VOX

Mobility Focused CV/AV Activities

CAVs - VENTURER

The VENTURER consortium, which is trialling autonomous vehicles in the Bristol and South Gloucestershire council areas to explore the feasibility of driverless cars in the UK.

- First CV/AV project to start in the UK
- Funded by Innovate UK
- \$6.1M research project
- Working in partnership with **local** universities
- Consortium of 13 companies.



Intelligent Mobility in action

CV/AVs - FLOURISH

User-centered approach to achieve a better understanding of consumer demands and expectations, including the implications and challenges of an aging society

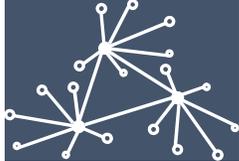


15 member FLOURISH consortium.

Three year \$6.8M research and development project jointly funded by CCAV, Innovate UK and the consortium.

Three key themes:

1. 
user needs and customer experience

2. 
data fusion and visualisation

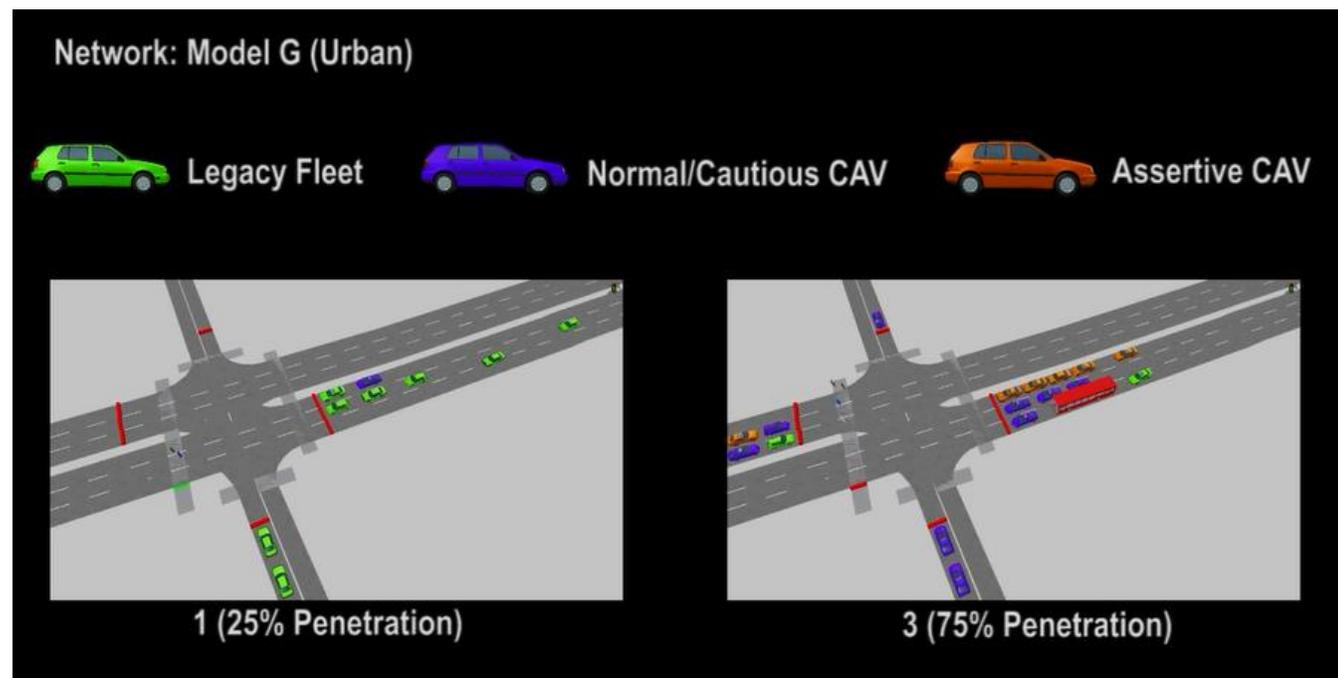
3. 
cyber security and communications

- Flourish objectives:**
- Ensure that future CV/AV provision meets specific mobility needs, improving quality of life
 - Enable older adults to continue to be active contributors to the economy and society
 - Make access to CV/AVs a reality by designing human-machine interface addressing age-related impairments
 - Develop clear guidelines and frameworks for mobility service providers and CV/AV manufactures

CAV Modelling – Department for Transport (DfT)

Connected Autonomous Vehicles (CAV) will transform the way we use our existing networks allowing us to re-imagine future infrastructure

- DfT commission to look at the impact of CAVs on London's roads
- A new transportation model was developed with control algorithms to represent communication between driver controlled and driverless cars
- Visualisation used extensively to allow people to see what will happen
- Work was presented at the European Transport Conference 2016
- Already looking at similar work in the US and UAE.



New mobility options



Unlocking the Value of CV/AVs

Unlocking the value of CV/AVs

1

DEFINE YOUR VISION



2

ASSESS READINESS

(e.g., Infrastructure changes, data management needs, operations, human impacts)



3

DEVELOP A CLEAR ROADMAP to guide activity & make wise investment decisions toward goals

(especially on projects in progress)



Thank you
