

MultiCAV Project

IoT Tech Expo Europe 2019

Amsterdam 20 June 2019



- Where are we? South Oxfordshire
 - Milton Park - a large hi-tech business park; due for further expansion; low density
 - Close to Oxford and Didcot; served by Didcot Parkway station – fast links to London Reading and Bristol
 - Management has a strong focus on walk, cycle, car share, public transport
 - Mainly car use to/from and within site, but dedicated shuttle bus to Parkway station
 - Locality is zoned for major housing development – Didcot Garden Town
 - Cannot expand local road network - needs a comprehensive transport solution
- What are we demonstrating?
 - Better travel information and choice, integrated travel
 - Mainstream use of autonomous vehicles – testing user acceptability and potential first/last mile, flexible and low density/rural public transport
 - Why autonomous? Can run buses where currently unsustainable – low density developments; and where they cannot reach due to size, access problems

- Mobility as a Service (MaaS)
 - Information on transport options
 - How soon do you need to travel; how quickly do you need to get there; how close do you need to get; how much do you want to pay?
 - You can plan book and pay for your trip in one easy process
 - Tailored to the user – Milton Park occupants and visitors

- Autonomous vehicles
 - Driverless shuttles – on private roads – that look and feel like public roads
 - Driverless shuttles – on public roads
 - Full size 12m single deck bus – on public roads
 - As part of the MaaS offer, linking travel demand and supply – a real application not a sterile test

- Research actual user experience of using multimodal mobility
 - On-demand shuttle on flexible route initially within Milton Park
 - Then parallel with bus line Parkway Station to Milton Park; and autonomous bus
 - Integration with local transport through MaaS and Didcot Garden Town plans
 - Public reaction, suitability for use, safety issues, business case
 - Commercial viability of package and AV transport options
- Demonstrate multi-modal MaaS solution in operation
 - Target -convert up to 50% private journeys within park into shared electric service
- Prove shared autonomous shared vehicles in normal traffic on public roads – mainstream public transport
- Extend reach of public transport

- First Group UK - overall coordination and project lead; operational trials
- Arrival – supplier of full size autonomous bus and taxis
- Zipabout – designers and developers of MaaS system and App
- Milton Park – providers of infrastructure in business park
- South Oxfordshire District Council – local planning authority
- Vale of White Horse District Council – local planning authority
- Oxfordshire County Council – local transport authority
- University of the West of England – user evaluation
- Nova Modus – AV transport consultants

- Journey planner smartphone App – travel choice and payment
- Existing systems already handle 40m journeys
 - Deployed across region
 - Versions specific for particular locations / towns/ business parks
- Will include full range of MultiCAV travel modes and existing local transport options including integration with GWR Rail
- Link to other MaaS systems – emerging MaaS Global/MaaS Alliance aspirations for common standards and links
- Collecting data on travel habits in and around Milton Park
- Initial deployment of shuttles will be as driven vehicles collecting additional site specific demand data
- Needs a public brand – NOT MultiCAV!

- Arrival
 - 60 passenger 12m electric bus, *made Level 4 autonomous in the project*
 - 4 seat electric taxi, *made Level 4 autonomous in the project*
 - Autonomy software & sensors in development

- Shuttles – were to be procured by Oxfordshire
 - driverless electric POD c.8 passenger capacity
 - available off the shelf with experience of operation in mixed traffic
 - But not capable of operation in an uncontrolled environment
 - And would require too many derogations from regulations to permit passenger carriage
 - Alternative approach under evaluation



- AV Phases Zero/One – within Milton Park – start late 2019
 - Shuttles connect car parks and current bus services; provide internal site to site transport – initially driven, then autonomous
 - Seeking views on user convenience, acceptability of concept; reduced need for private transport

- AV Phase Two – external link – building on Phase One
 - First POD trial to connect Milton Park with Didcot Parkway Station by public roads
 - POD and taxis in parallel with current bus service
 - Seeking views as phase one plus interaction with general traffic; reduced need for car

- AV Phase Three – a world first – building on Phases One and Two – start Nov 2020
 - Autonomous electric bus and taxi in parallel with current bus service
 - Seeking views on future of transport; changes to lifestyles as this could become mainstream

- Evaluation of value of multi-modal choices – MaaS system
 - Departure time, journey duration, proximity to origin and destination, pricing
- Evaluation of value of aggregated travel information for new/novel modes
- Evaluation of acceptability and use of MaaS app/website including ticketing solutions
- Evaluation of acceptability of autonomous vehicles – personal safety and security
- **Achievement of modal shift – the true indicator of success! (reduced intra site car trips by 50%)**
- **Lifestyle changes – to support a non car reliant future and new development opportunities**
- Evaluation of operations in mixed traffic, weather, obstructions, manual intervention
- Operator experience of vehicles – reliability, availability, cost, passenger reaction
- Support requirements for users & vehicles

Thank you



Listening Learning Leading



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