Maas:CAV
Unlocking Mobility Futures

An Introduction to the Bicester MaaS:CAV Feasibility Project

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forty two.

Project Background

- Innovate UK funded project

- Running for 18 months, finishing in Jan 2020

- Objectives:

  - Examine real-world setting for integration of CAVs into a workable MaaS System

  - Explore business case for Infrastructure requirements

  - Develop a playbook for testing in a subsequent pilot study

- Consortium:

Project Scope

What it is
A technical feasibility study to enable the commercial deployment of autonomous systems as part of an integrated mobility system, focusing on first mile/ last mile.

Locations reviewed:
- Culham/ Didcot Parkway
- Oxford
- Long Hanborough
- Bicester North/ Bicester Village

People using:
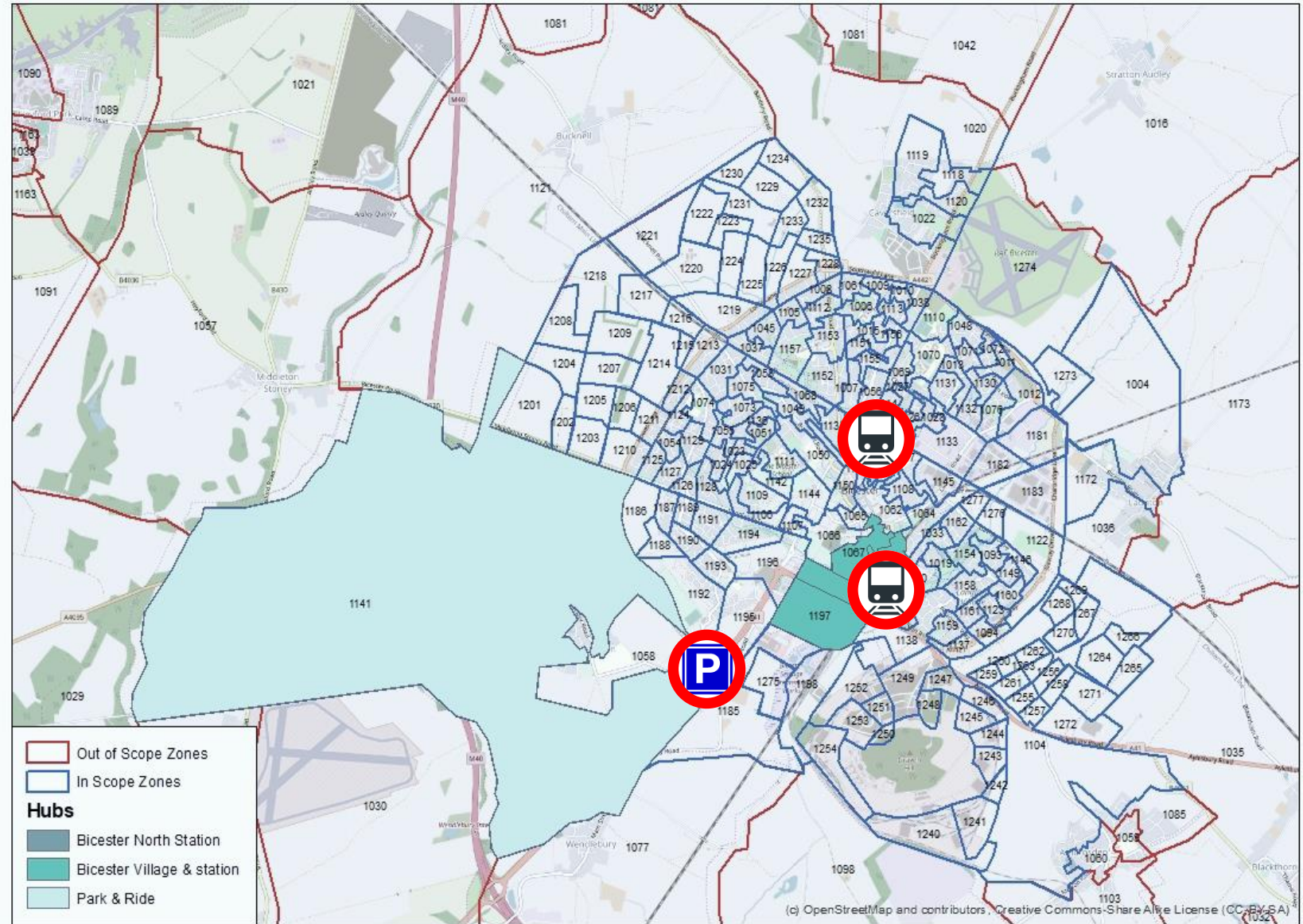- Railway Transport Hubs
- Car drivers

Who are they?
- Commuters
- Shoppers
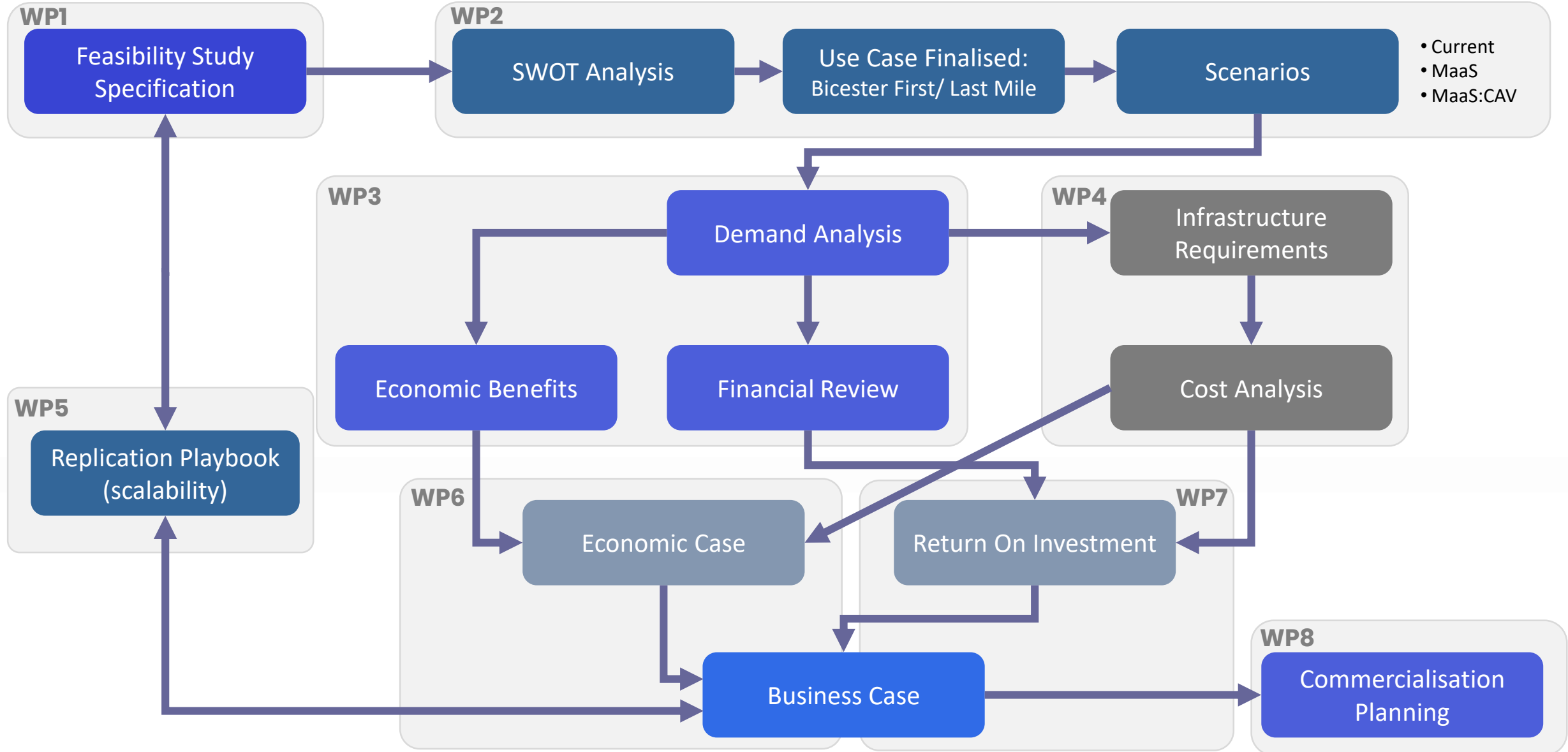- Residents
- Visitors/ tourists

Bicester was identified as the most versatile choice

MaaS:CAV

Why Bicester?

- Ideal rail commuting hub – both to and from Bicester
- Lots of car trips every day
- Two train stations
- Park & Ride
- Captures Commuters (including residents)
- Captures visiting Shoppers (including tourists to the area)

Legend:
- Out of Scope Zones
- In Scope Zones

Hubs
- Bicester North Station
- Bicester Village & station
- Park & Ride

(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

# Our Approach

Demand Modelling Results

Projections

- Looks at total daily person trips within Bicester from/ to 'hubs'

- Demand is based on SATURN transport model
  - Modelled for 2016 and 2031
  - Other appraisal years are interpolated

- <u>Does not</u> consider any additional demand generated from the introduction of new transport services

- Total demand remains constant throughout scenarios
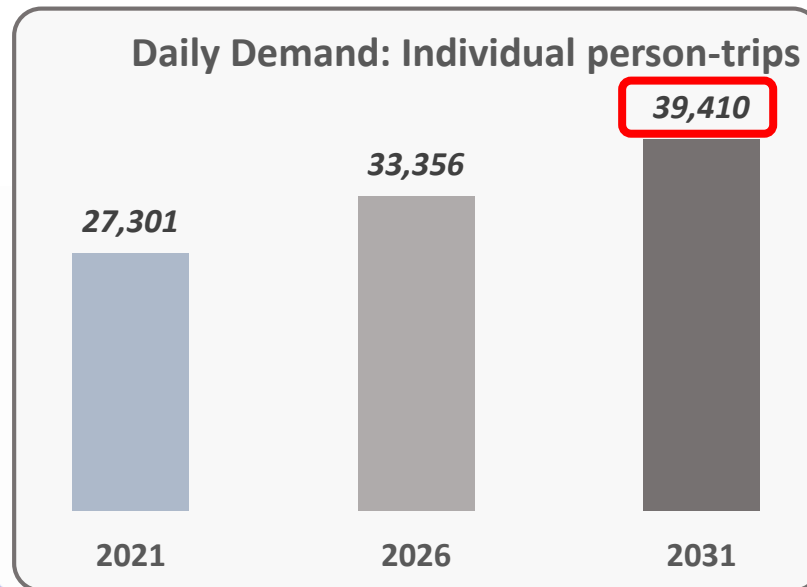
Planned new development zones are included in the analysis

Daily Demand: Individual person-trips

2021	2026	2031
27,301	33,356	**39,410**
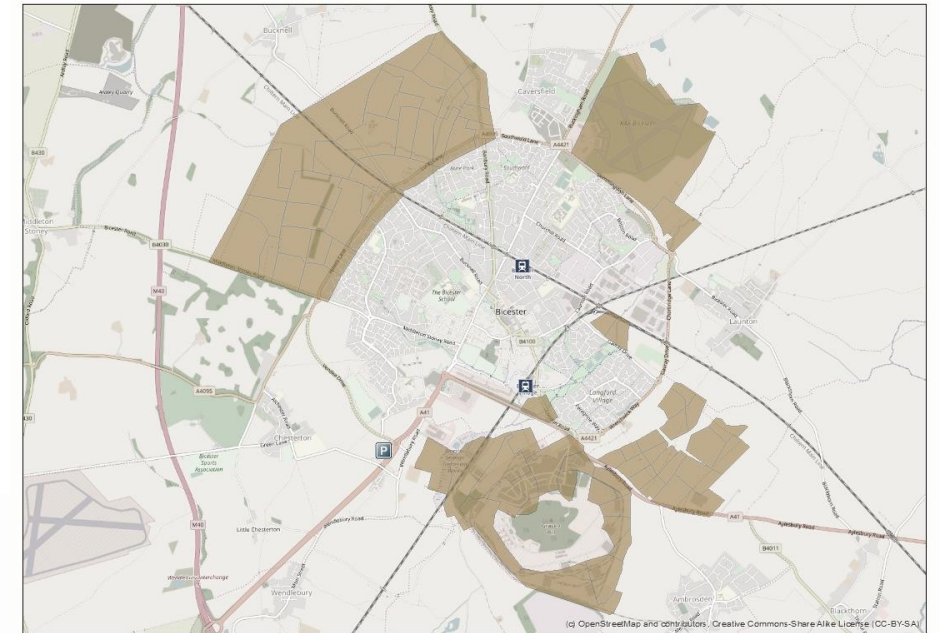
Results shown on the following pages are for 2031

Demand Analysis

Investigating three Scenarios

- All are based on 2031 projections of 39,410 person-trips per day
- This includes all planned new developments

Base Case	Scenario 1 MaaS Solution	Scenario 2 MaaS:CAV Solution

Base Case
- Assumes no change to current choice of transport mode
- Includes planned growth

Scenario 1 MaaS Solution
- New On demand **Shuttle** service (ODS) addressing first/last mile trips within Bicester from/to hubs
- Incorporates the impact of simplified ticketing and improved real time passenger information on existing bus services and ODS
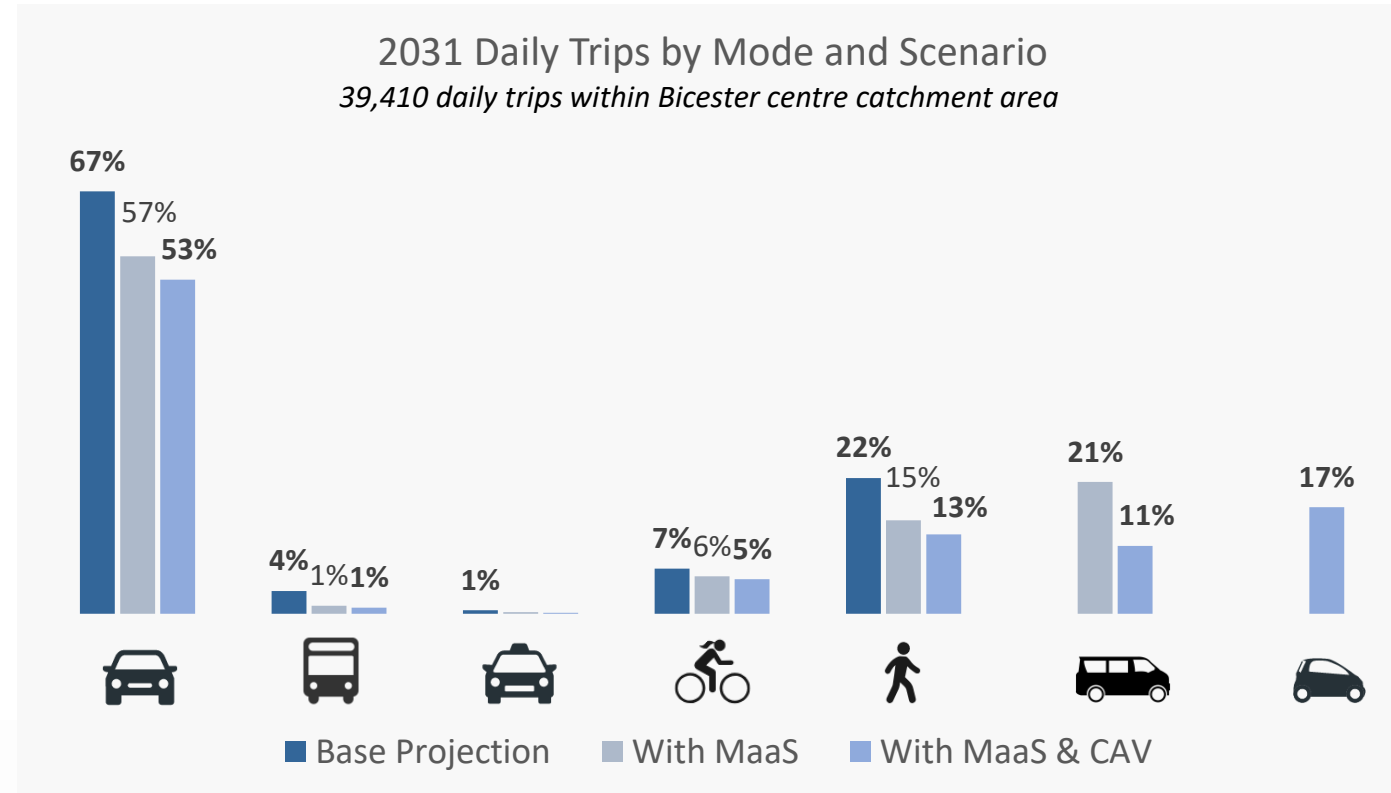
Scenario 2 MaaS:CAV Solution
- New On demand autonomous **pod** service addressing first/last mile trips within Bicester from/to hubs
- ODS becomes autonomous
- Assumes public acceptance of AVs

(according to the MERGE study, 86% of people claim to be willing to use an AV in the future)

Initial Findings

(+) • Reduction in car travel
- MaaS Scenario: 10% of all trips switch from car to On Demand shuttle
- MaaS:CAV Scenario: 14% of all trips switch from car to On Demand Shuttle and Pods

(−) • BUT.... Significant reduction in active travel
- MaaS Scenario: 28% fewer active travel trips
- MaaS:CAV Scenario: 37% fewer active travel trips made
- 11% of ALL daily trips switch from Active Travel to ODS or Pods

• Traditional bus use falls to a quarter if ODS is introduced

• Reduction of demand for ODS when autonomy and pods introduced

Analysis produced by Connected Places Catapult

2031 Daily Trips by Mode and Scenario
39,410 daily trips within Bicester centre catchment area

Car: 67%, 57%, 53%
Bus: 4%, 1%, 1%
Taxi: 1%
Bicycle: 7%, 6%, 5%
Pedestrian: 22%, 15%, 13%
ODS (van): 21%, 11%
Pod (car): 17%

■ Base Projection ■ With MaaS ■ With MaaS & CAV

Results

- Significant number of trips made by car from/to hubs within Bicester:
  - Most common purpose is "other" – leisure, shopping, education, etc. to Bicester Village

2031 Daily person trips by mode, purpose and scenario
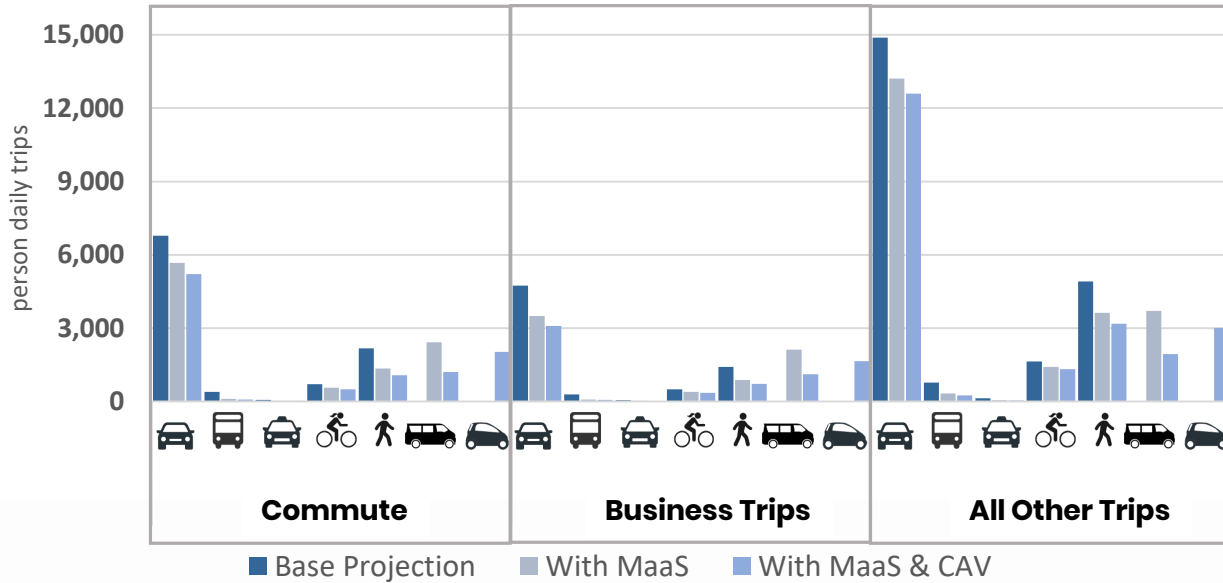
Reduction in car trips

	Commute	Business Trips	Other
MaaS Scenario	–17%	–26%	–11%
MaaS:CAV Scenario	–23%	–35%	–15%

- Greatest percentage reduction in car trips for business trips, though greatest reduction in number for 'Other', which includes shoppers

Largest opportunity in Bicester for ODS and Pods is for 'other' trips (shopping, leisure, etc.)

Analysis produced by Connected Places Catapult

What We're Doing Next

Still to do

Customer Needs Analysis

- Gain feedback from most likely users of MaaS and CAV services running from Bicester North, Bicester Village, and Bicester Park & Ride:

  Shoppers   to Bicester Village, town centre; includes visitors to other local non-retail visitor attractions

  Commuters   to/ from Bicester by car or train

- Use a service design approach to understand what the ideal solution would look like

Finalise Demand Model

- Agree final inputs before developing economic model

Still to do

Determine key infrastructure requirements

- Interview infrastructure providers and site operators on future CAV deployment

Business Case Development

- Explore business models based on demand projections, and opportunities for local implementation with the stakeholders involved

Dissemination of Results

- Share the learnings with stakeholders, local authorities and other interested parties

Progress to a Pilot Phase

- Move from feasibility to implementation

Any Questions?

See what we're up to at
http://maas-cav.info/

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