THE ROUTE TO TOMORROW'S JOURNEYS

mcia

POWERED LIGHT VEHICLES
PRACTICAL, EFFICIENT & SAFE
TRANSPORT FOR ALL

In association with:

LowCVP
Low Carbon Vehicle Partnership

PARTNERS

MCIA

The MCIA is the Trade Association representing the Powered Light Vehicle (PLV) Industry, which includes motorcycles, scooters and all segments that are covered within the EU L-Category regulations.

The MCIA has been established for over 100 years and during this time, vehicles in this sector have evolved from pioneers of the internal combustion engine, to providing clean and efficient personal and family transport that underpins an industry that is now worth in excess of £7 billion.

Today PLVs are more relevant than ever, as their efficiency and size provide an obvious solution to the Government's 'Grand Challenges' regarding transport and the future of mobility.

Low Carbon Vehicle Partnership

The Low Carbon Vehicle Partnership was established in 2003 to accelerate the shift to lower carbon vehicles and fuels and create opportunities for UK businesses. It is a public-private partnership with over 200-member organisations from diverse backgrounds including automotive and fuel supply chains, vehicle users, academics and environmental groups, as well as local and national Government bodies. The LowCVP and its members play a key role in helping influence government strategy to deliver its low carbon road transport mandate.

With growing interest in the field, LowCVP brought together a range of stakeholders over the years to impartially assess the potential opportunities and actions required for L-Category Powered Light Vehicles (mainly focussing on the potential of the heavier 3 and 4-Wheeler PLVs) to penetrate the UK transport market.

PLVs EXPLAINED

Powered Light Vehicles (PLVs) is the collective term for a range of two, three and four-wheeled vehicles for either passenger or cargo use. Their compact size and light weight ensures optimal use of available road space and as they are predominantly powered by zero and low-emission powertrains they offer an efficient, clean and practical form of personal and commercial mobility.

Under EU regulations PLVs are referred to as "L-Category" vehicles, where they are subdivided into seven groups, each defined by power output, number of wheels, seating layout and weight.

Collectively, these vehicles can provide clean and efficient transport in cases where walking, cycling or public transport are not viable options. The sector has the ability to complement active travel (e.g. walking and cycling as an alternative to motorised transport) and public transport while displacing inefficient personal travel (single or low occupancy car use). They can also provide an alternative to trucks and large vans through step change in payload efficiency, often using a fraction of their available load capacity and by providing precision to end to end journeys.

Traditional small capacity mopeds (Category L1), motorcycles and scooters (L3) are collectively referred to as Powered Two Wheelers (PTWs), while the remaining L-Category vehicles have three or four wheels. Below is an overview of the categories, most of which are suitable for passengers or cargo. In all cases vehicles must be registered and insured and the operator must hold an appropriate licence.

L1 includes 2, 3 or 4 wheel, e-bicycles with a power output up to 1,000 watts (e-bicycles of 250w or less are not L-Cat) and PTWs with up to 50cc petrol engines or up to 4kW alternative power. The rider must wear a helmet. PTW top speed is 28mph (45km/h). On e-bicycles the power assistance cuts out at 15.5 mph (25km/h).

L2 vehicles have 3 wheels (or 4 if the wheels on the same axle are no more than 460mm apart) and 1 or 2 seats. Power is limited to 4kW and the maximum speed is 28 mph (45km/h).

L3 vehicles are the most numerous L-Category, also referred to as PTWs. Sub-divided into 3 main groups, defined by power output. Riders are tested relative to vehicle power and their age and must wear a helmet.

L4 - Category refers to L3 - Category vehicles fitted with a sidecar. Vehicles supplied for UK use must have the sidecar fitted to the kerb side of vehicle.

L5 - Category vehicles share many characteristics with L2 vehicles, but have power in excess of 4kW and top speeds exceeding 28 mph (45km/h). They can have a maximum of 5 seats and a running mass of 1,000kg. They can be enclosed or open.

L6 vehicles have 4 wheels and no more than 2 seats. Their power is capped at 6kW, top speed 28 mph (45km/h) and their running mass is limited to 425kg. They can be enclosed or open.

Vehicles in the L7 Category feature 4 wheels, an enclosed passenger area and a maximum power 15kW. They can have up to 4 seats or 2 seats plus a cargo area. Top speed is limited to 56 mph (90km/h).

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THE RIGHT VEHICLE FOR THE RIGHT JOURNEY

As acknowledged in the Government's Future of Mobility: Urban Strategy, *"Britain is on the verge of a transport revolution."*[1].

It is crucial that this transport revolution sees policies which fully encompass all modes of transport, as each has a role to play. National government and local authorities have obligations to improve air quality and reduce congestion, while enabling people and goods to move efficiently and safely.

With traffic congestion-related air quality an increasing concern for all, a solution must be found that also accommodates the need for convenient and safe transport.

During his keynote speech at the launch of the Government's *"The Future of Urban Mobility"* strategy, the former Minister for Transport, Jesse Norman MP, stated *"we must start to think differently about the motorcar, as transforming the same vehicle type as we drive today, to an electric variant, is not the solution"*.

These words suggest a modal shift away from single-occupancy cars and under-utilised vans, towards transport modes that use less energy and take up less road space, but still offer commuters, tradespeople and the logistics industry practical solutions, while maintaining freedom of choice.

The key is to encourage the use of the ***right vehicle for the right journey*** and to support transport users in making appropriate and relevant choices. With the adoption of cleaner power technology, the modes that exist today can all maintain a place in the transport mix, but the type of regular journey should be considered to ensure that the ***right vehicle*** is chosen as everyday transport and not a vehicle type that only suits a small percentage of journeys.

As an example, a journey of a few miles from home to work or study could be made by bicycle. A longer journey would suit a PLV (L-Category), perhaps a light weight, low powered L1 vehicle. Rather than using a van to deliver a small number of parcels, a PLV could be more appropriate. While active travel

has many additional benefits, it is not always possible due to distance and capacity needs. PLVs can also be the answer for the elderly, the young and those living in rural communities, where public transport is limited.

This document will show that the forgotten sector, **the PLV sector (L-Category)**, has an essential role to play in our transport future. The Government's Future of Mobility: Urban Strategy is underpinned by nine key principles. The following table shows how PLVs support these principles.

PLVs play a key role in allowing people to choose ***the right vehicle for the right journey***. They are **practical** in terms of the task that is required of them (moving people and goods). They are **efficient** in terms of energy use, road space and materials. They are **safe**, with appropriate regulation and with supporting transport policy they can fulfil a much needed role.

The MCIA and partners now call upon government and transport strategy executives to think differently and look beyond simply walking, cycling and public transport. PLVs of all types, 2, 3 and 4 wheel are the obvious choice for solving many of the challenges we urgently face.

We look forward to working with national and local government to tackle these problems. This is an industry that is both willing and able to make change happen.

Tony Campbell
Chief Executive, MCIA

1 Future of Mobility: Urban Strategy, Department for Transport, March 2019, Page 5.

Principles in Government Strategy	How PLVs support principle
New modes of transport and new mobility services must be safe and secure by design.	PLVs are an emerging market, with many still in the development phase. Safety will be integral from the beginning of the process.
The benefits of innovation in mobility must be available to all parts of the UK and all segments of society.	PLVs offer a wide range of vehicles, with something to suit most users and most budgets.
Walking, cycling and active travel must remain the best options for short urban journeys.	Active travel is always the primary option, but PLVs offer a cleaner, more efficient alternative to other modes, especially for longer urban journeys and when Active Travel is not a viable option. PLVs can also form part of a multi modal journey, i.e. getting to a train station for those with limited mobility, or where public transport is not readily available.
Mass transit must remain fundamental to an efficient transport system.	PLVs can complement many mass transit journeys and also help address road capacity issues on key commuter corridors.
New mobility services must lead the transition to zero emissions.	Many PLVs are new designs incorporating zero-emission powertrains.
Mobility innovation must help to reduce congestion through more efficient use of limited road space, for example through sharing rides, increasing occupancy or consolidating freight.	With policy and safety considerations, PLVs are already being used on a 'shared' basis and support improved efficiency of those schemes. PLVs take up less space than cars and vans etc. A shift from private car use to PLVs immediately frees up valuable road space helping to reduce congestion.
The marketplace for mobility must be open to stimulate innovation and give the best deal to consumers.	PLVs offer simplicity of design and are attractive to start-up producers and established brands alike. A competitive market ensures good value for consumers. PLVs have low barriers to entry and create a step change in payload efficiency.
New mobility services must be designed to operate as part of an integrated transport system combining public, private and multiple modes for transport users.	With policy and safety considerations PLV sharing can become widespread. The flexibility of PLVs means that their use can be adapted to complement almost all parts of a future integrated transport system.
Data from new mobility services must be shared where appropriate to improve choice and the operation of the transport system.	Such systems must be designed in a manner which allows integration with PLVs.

EXECUTIVE SUMMARY

Making the argument

Powered Light Vehicles (PLVs) will make a significant contribution to addressing the nation's transport and traffic problems, offering real benefits in terms of reduced congestion, improved air quality and an affordable transport solution for those who would not otherwise be able to travel for work or study. They can also help to tackle social exclusion by actively considering accessibility for all user groups.

The MCIA is the Trade Association representing the PLV industry (also known as L-Category vehicles) and has created this strategy to highlight the benefits of incorporating PLVs into the transport mix. The MCIA has partnered with LowCVP who, following growing interest in the sector, brought together a range of stakeholders to impartially assess the potential opportunities and actions required for PLVs to penetrate the UK transport market.

This partnership wants to work with stakeholders to fully realise the benefits of a transport system where the ***right vehicle is promoted for the right journey***. This strategy demonstrates in detail where PLVs have a clear role to play in:

- Helping Government and local authorities meet their air quality targets
- Significantly reducing congestion
- More efficient use of road space
- Achieving 'Healthy Streets' ambitions
- Managing the last mile, the first mile and every urban mile
- Supporting the delivery of goods and the gig economy

This is not a strategy to promote modal shift away from walking, cycling or public transport. These are the correct modes of travel for many journeys. However, PLVs offer a clean, less congesting alternative to cars and in many cases light commercial vehicles in urban scenarios.

This strategy introduces evidence from a 'Congestion and Air Quality Impact Study', carried out by Local Transport Projects Ltd and Air Quality Consultants. Unsurprisingly, the evidence clearly shows that a modal shift from private cars to electric PLVs reduced NO_X, PM_{10} and $PM_{2.5}$ emissions. Furthermore, the modelled scenarios also found that congestion levels decreased, resulting in reduced delays and shorter journey times for everyone across nine real world junctions.

In order to tackle congestion, improve air quality and reduce damage to infrastructure, the limited road space available must be used more efficiently. Encouraging the use of PLVs as part of an integrated transport system, by incorporating them into local and national policy, will achieve this.

Acceptance, consideration and planning

There are, of course, some changes that would need to take place to see this desired transport system come to fruition:

- The infrastructure must exist that caters for the use of alternative powered vehicles.
- Regulatory change may need to be considered to ensure that those using PLVs are tested in the most appropriate manner, and that the licensing system is structured to encourage PLV use.
- Consideration of further measures for preventing theft and improving security for these vehicle types is needed.
- Appropriate and proportionate fees should be applied when considering clean air zone charging.

Perhaps the most important element is the need for an open mind and this may be the challenge that is the hardest to overcome. With the current focus on active travel, and reducing the number of vehicles on the road, it can be difficult to consider options that do not immediately appear to meet these aims.

While efforts are being made to make public transport, walking and cycling the natural choice for commuters, it must be acknowledged that there are still a significant number of journeys where these options are not practical and other options must be fully considered and supported.

Choose the right vehicle for the right journey

This document is not suggesting that people should be discouraged from walking, using public transport, or cycling, but it does suggest that people should be able to ***choose the right vehicle for the right journey***. Making sure that the right environment exists, so that individuals can make that choice, is essential.

- If a young apprentice lives 10 miles from work and public transport could not ensure that they are on time for their shift and the journey is too far for them to cycle, a light weight PLV would be a perfect choice.

- An elderly person may not be able to go about their daily life if they can no longer walk any distance. An electric PLV could offer the right solution for their journeys.

With an ageing population, reducing private car use will become more challenging, but encouraging the uptake of PLVs is a way of changing car-dependency for those who are less physically able.

PLVs offer the potential for lower cost private transport, especially for those where public transport alternatives are not readily available. Three and four-wheeled, "sit-in" PLVs offer a lower cost alternative to a passenger car for young people. They also provide more opportunities for those in rural and suburban areas that are not well served by buses or trains for travel to work, study or apprenticeships. The lower purchase price, insurance and overall running costs of PLVs make them an attractive alternative to a conventional "first car".

But what about road safety?

Safety is a key consideration for all road users and it is vital that PLV users are able to interact with other road users safely. Using a Safe System Approach within this policy will help work towards Vision Zero. The following icons are visible throughout this strategy to demonstrate how the sections link with the Safe System Approach pillars.

Although the PLV Killed and Seriously Injured statistics have been fairly static for the last five years, the road safety record of traditional L3-Category motorcycles and scooters has prevented the potential offered by PLVs from being fully explored. In order for all the benefits listed above to be fully recognised, more must be done to improve the safety of both vehicles and users.

From a safety perspective, PLV training and licence acquisition requirements should be relevant to the vehicle in question, rather than the current blanket approach, and would therefore benefit from a review.

The MCIA's commitment to improving safety of users is long established and is currently championed by MCIA RIDE. Improved training will result in safer road users, so in 2013 the MCIA developed and funded an accreditation scheme now known as MCIA RIDE. This included the set-up of an Institute of the Motor Industry (IMI) approved accreditation centre and the development of bespoke Quality Assured programmes, which are IMI approved, DVSA endorsed and compliant with ISO 9001:2015 standards.

This strategy further demonstrates the MCIA's commitment to safety by announcing plans for an industry-wide campaign to encourage L3 users to take additional post-test training. This will bring many stakeholders together to improve the current level of user safety.

With industry taking responsibility for those riders whose skills, attitudes or behaviours can be improved by further training, we look to the Government to educate car drivers and other road users and raise awareness of PLVs. There are many collisions where the primary cause is inattention, distraction or failure to see the PLV user.

The UK economy and industry potential

The PLV market has the potential to provide a new UK Small or Medium Enterprise (SME) growth opportunity. The UK already has a number of industries which have relevant and transferable services to those needed in the PLV supply chain; including the technology-driven and precision engineering found in the UK motorsport industry.

Figure 1: Resolve Project PLV

With different rules and regulations for L-Category vehicles, and lower production volumes and complexity, PLVs offer smaller manufacturers the opportunities to test new and innovative manufacturing techniques and vehicle technologies at a lower cost of market entry.

While SMEs in the UK would benefit from this growing sector, there is also potential for existing global players, some of whom already operate in the UK, to develop and bring products to market. This has already been demonstrated by the EU-instigated "Resolve" project (Figure 1)[2].

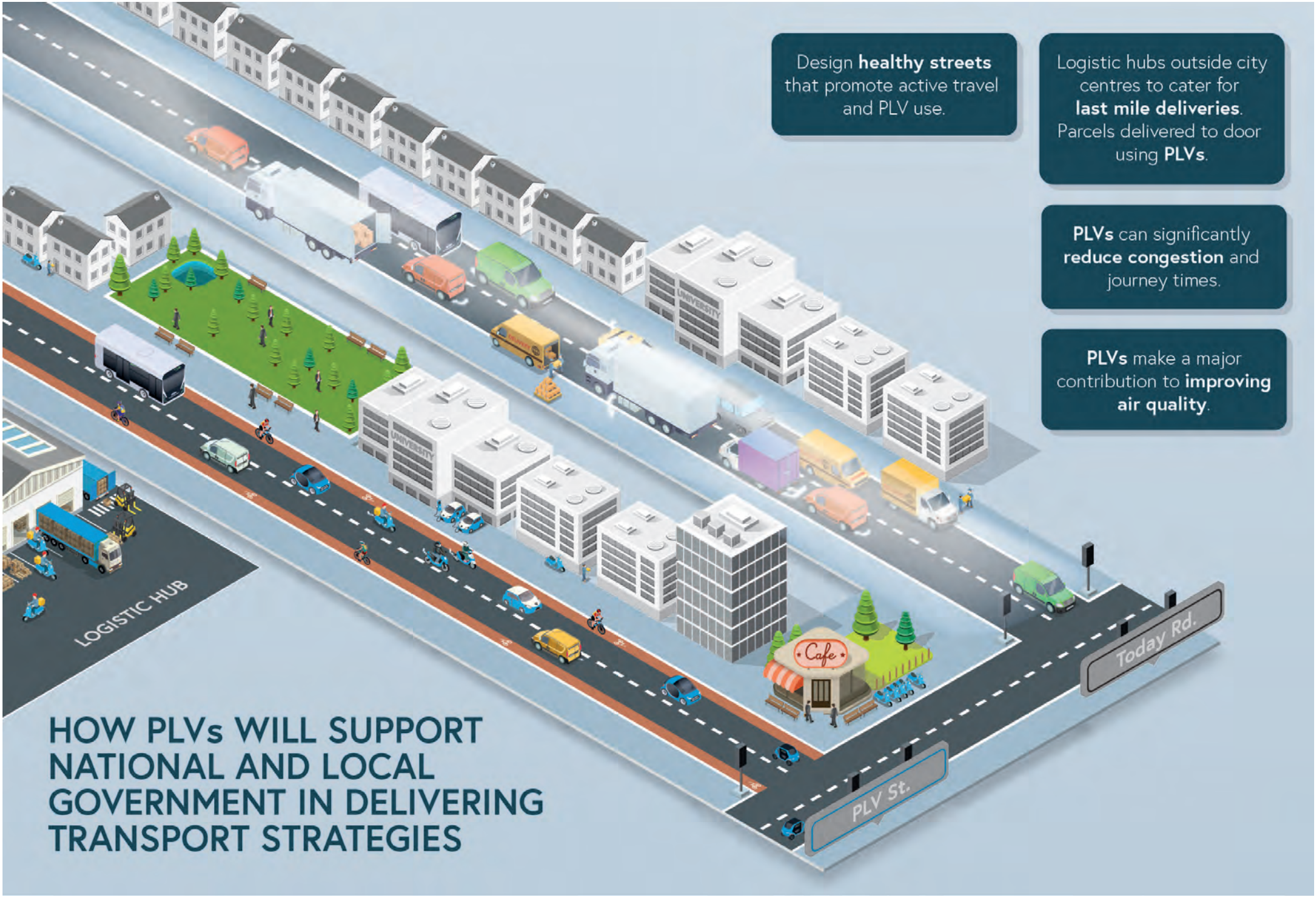
Special treatment required?

It is important to acknowledge that the MCIA and LowCVP are not asking for special treatment, but do request that PLVs are recognised as a key part of the solution and are therefore included in the transport policy mix.

When this happens and PLVs become more widely accepted, the benefits both in terms of the environment and safety can be fully realised.

Working together is key and we look forward to getting started right away.

2 https://www.resolve-project.eu/


Design **healthy streets** that promote active travel and PLV use.
Logistic hubs outside city centres to cater for **last mile deliveries**. Parcels delivered to door using **PLVs**.
PLVs can significantly **reduce congestion** and journey times.
PLVs make a major contribution to **improving air quality**.
LOGISTIC HUB
Cafe
Today Rd.
PLV St.
HOW PLVs WILL SUPPORT NATIONAL AND LOCAL GOVERNMENT IN DELIVERING TRANSPORT STRATEGIES

PLVs can offer a practical, efficient and safe transport option. More importantly from a local and national government point of view, they can help to meet key strategic objectives.

This section will demonstrate how including PLVs in policies can help to improve air quality, reduce congestion, encourage healthier streets and offer road users personal choice in transport modes. With adequate policy provision, these beneficial changes can be made safely.

The introduction of Clean Air Zones (CAZs) is a response to both the UK's obligations under international treaties on emissions and wider public concern about the effects of poor air quality, to which transport is a significant contributor.

CAZs are either confirmed or proposed in many cities. In London (from 2019) and Birmingham (from 2020), drivers of private vehicles which fail to meet emissions standards, will have to pay a daily charge to enter the zone. In these cases, and under many CAZ proposals, the charge is a flat rate applied to all vehicles of a certain age or emissions standard, regardless of their actual impact on air quality.

As they are mostly unaffected by traffic congestion, many current L-Category vehicles make a major contribution to improving air quality. Indeed, Birmingham City Council has opted to exempt Powered Two Wheelers (PTWs) from the charge and Bath is proposing to do the same. It is important that local authorities fully understand the advantages of PTWs/PLVs and follow these examples. Many currently make no reference to PTWs/PLVs in their plans.

Where PLV CAZ charging is under consideration, proportionate charging for older vehicles (Euro 2 specification and earlier, as recommended in DfT guidance) and exemption for all PLVs that comply with Euro 3 or subsequent regulations, should be adopted. If PLVs incur the same charges as cars in CAZs, users will be discouraged and the opportunity to further reduce emissions and congestion, while increasing available road space, will be lost.

PLVs contribute very little to overall emissions from vehicles, as was noted by DEFRA in the 2017 draft air quality control plan.[3]

The Low Carbon Vehicle Partnership (LowCVP) comment in their report on PLVs:

> *"The whole-life carbon footprint of PLVs compared to conventional passenger cars is expected to be significantly lower owing to their smaller size and weight. The PLV study has estimated the total life-cycle energy consumption of PLVs to be, typically, 50% lower than conventional passenger cars.*
>
> *With zero tailpipe emissions, the electrification of PLVs will further improve air quality in urban areas and enable vehicular access to potentially restrictive urban Clean Air Zones that are currently being considered across UK cities.*
>
> *PLVs with low mass and a small road footprint have the ability to offer energy efficient driving and help reduce congestion and, as such, are a good fit with the UK's carbon reduction and other objectives."*

The Government has previously used public funds to support the replacement of older vehicles with newer, cleaner ones, however the PLV sector has not benefited from such a scheme. CAZs are likely to generate an income from users of older PLVs and this income could be used to encourage the purchase of new, zero emission, PLVs, which would have a clear benefit to air quality in urban areas.

3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/632916/air-quality-plan-technical-report.pdf

Study findings that support proposals

The MCIA commissioned a study into the effects of an increase in the use of PLVs on congestion and air quality. As part of the work, the DfT's predicted traffic growth figures to 2028 were used, and the existing modal split assumed. Scenarios were then forecasted using industry standard traffic modelling software, to show the effects of a modal shift from private cars to PLVs over the 10-year period. The study area covered nine real-world junctions along the High Street/Station Road corridor in Slough, which included a mix of junction types, (priority junctions, roundabouts, and traffic signals).

Full traffic flow and vehicle composition data was obtained at the nine study junctions during the Friday afternoon peak period (17:00-18:00).

The air quality element of the study was carried out by Air Quality Consultants[4], who have over 20 years' experience in this field. This builds upon the previous report by Transport Mobility Leuven, which demonstrates that L-categories can contribute to reducing overall emissions.

The Air Quality report highlighted that:

> *"The potential impacts of the replacement of private car journeys with journeys made by electrically powered L-Category vehicles on road traffic related emissions has been assessed for a nine-junction study area in Slough. The assessment has considered not only the reduction in vehicle emissions associated with the replacement of conventional private cars with electrically powered L-Category vehicles, but also the reduction in delay brought about by reduced congestion associated with the use of L-Category vehicles.*
>
> *The assessment has shown that emissions of NO_X, PM_{10} and $PM_{2.5}$ reduce relative to the baseline scenario; greater reductions in emissions are experienced as the proportion of private car journeys reduces and the proportion of L-Category electrically powered vehicles increases."*[5]

The study looked at modal shift from private cars to a mix of electric PLVs. Unsurprisingly, the results showed that with a greater shift to electric PLVs (aka L-Category), fewer NO_X emissions will be recorded. Reductions were also seen in the scenarios showing the modal shift for PM_{10} and $PM_{2.5}$ (Figure 2,3 and 4).

4 Air Quality Assessment: Impact of L-Category Vehicles on Emissions, February 2019, Air Quality Consultants
5 Air Quality Assessment: Impact of L-Category Vehicles on Emissions, February 2019, Air Quality Consultants

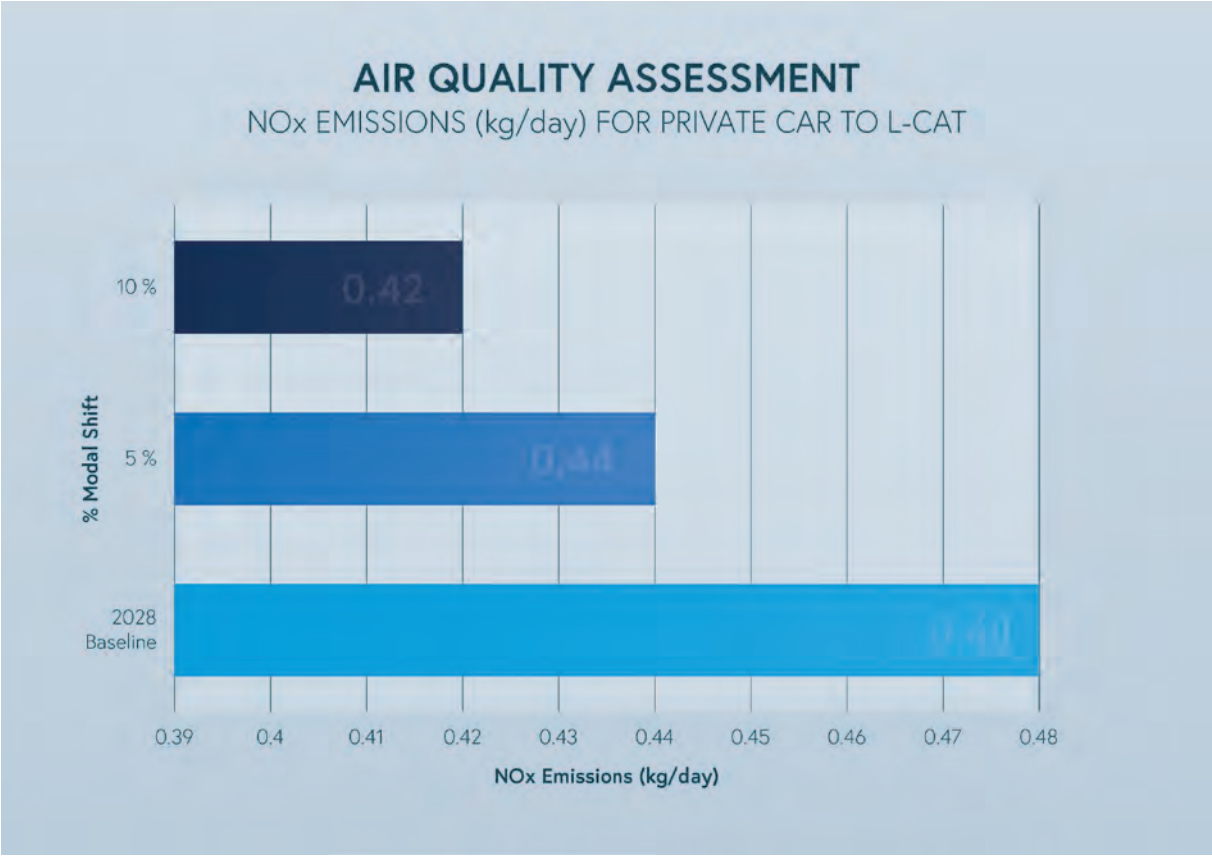


Figure 2: NOx Emission reductions following modal shift to PLV

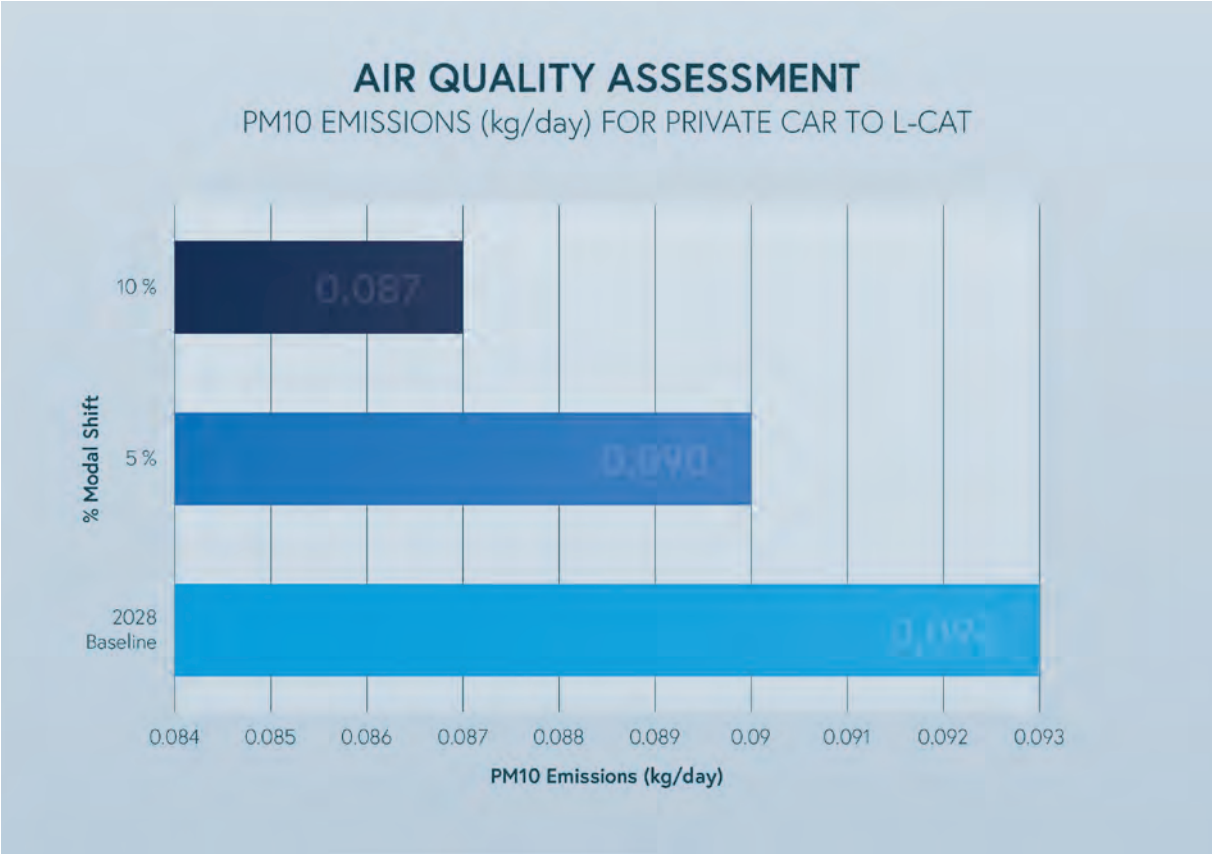


Figure 3: PM10 emission reductions following modal shift to PLV

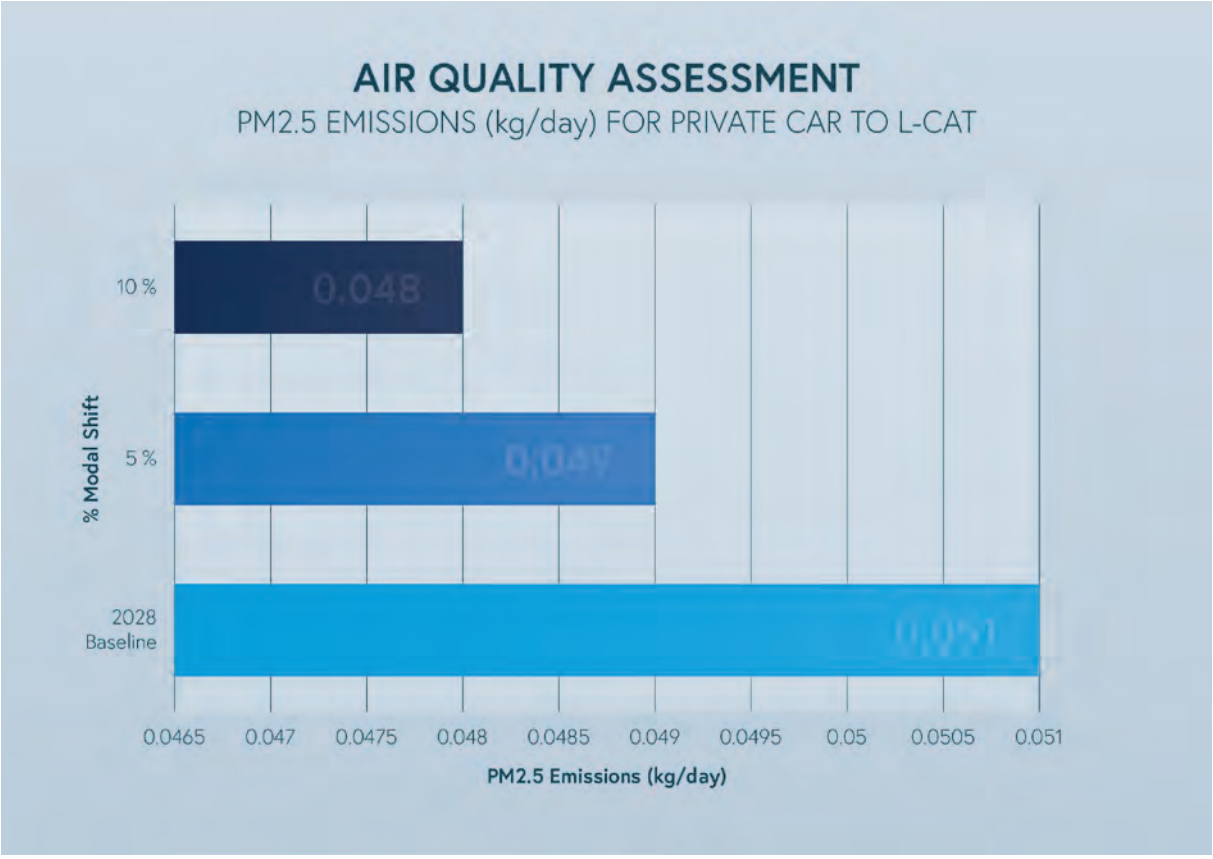


Figure 4: PM2.5 Emission reductions following modal shift to PLV

Nitric Oxide (NO) and Nitrogen Dioxide (NO2), together make up NOx. DEFRA explains that:

> *"NOX is released into the atmosphere when fuels are burned (for example, petrol or diesel in a car engine, or natural gas in a domestic central heating boiler or power station). NO2 can affect our health. There is evidence that high levels of it can inflame the airways in our lungs and, over a long period of time, affect how well our lungs work. People with asthma are particularly affected."* [6]

Particulate Matter is classified according to size and it is this classification that is used in concentration measurements. PM_{10} looks at the concentration of particles less than 10µm in diameter (10^{-6}m) and $PM_{2.5}$ refers to particles of less than 2.5µm in diameter. These are microscopic particles of "dust" that are small enough to make their way through human air passages and deep into the lungs. There is also growing evidence that $PM_{2.5}$ can cross the blood/lung barrier and enter the bloodstream where they can cause cardiovascular issues. They can consist of unburnt hydrocarbons, engine lubricant, tyre and brake material, etc. Most that are produced within a vehicle's powertrain are caught in particular filters in the vehicle's exhaust.

PM_{10} can also be responsible for reduced visibility ("Smog").

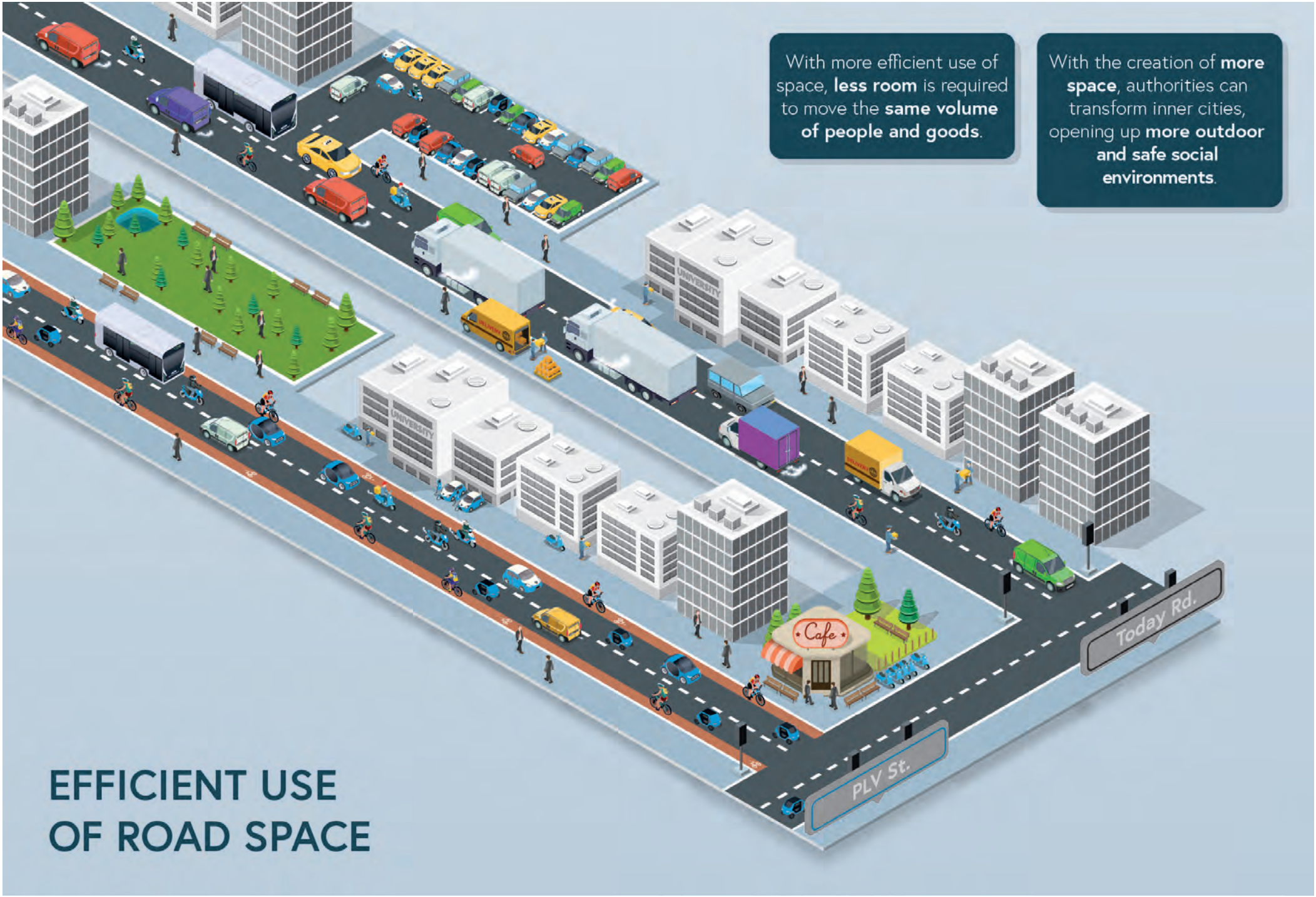
The Government has set bold and ambitious targets to have most cars and vans with zero emission by 2050. In their Future of Mobility: Urban Strategy, they explain:

> *"If we achieve this ambition, the forecast reduction in CO_2 emissions is 80% by 2050, even against a backdrop of rising GDP and traffic growth. In this scenario, vehicle NO_x and PM_{10} emissions for England and Wales are forecast to drop by 95% and 98% respectively".*[7]

6 Air Quality Expert Group, Nitrogen Dioxide in the United Kingdom, Department for Environment, Food and Rural Affairs, 2004. https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/nd-summary.pdf 7 DfT Future of Mobility: Urban Strategy, March 2019, Page 28

How can lower emissions and clean air be realised?

- Where they are not exempt, public authorities to support proportionate charging for PLVs in any air quality charges in recognition of the fact that they produce lower emissions than traditional cars and commercial vehicles.



EFFICIENT USE OF ROAD SPACE

Roads across the country are becoming increasingly congested. This is causing wider problems such as poor air quality, damage to the road surface, increased stress for drivers and extra costs for business. PLVs can provide the capacity to both reduce and dissipate congestion.

The Government's Future of Mobility: Urban Strategy highlighted the inefficient use of the limited road space available:

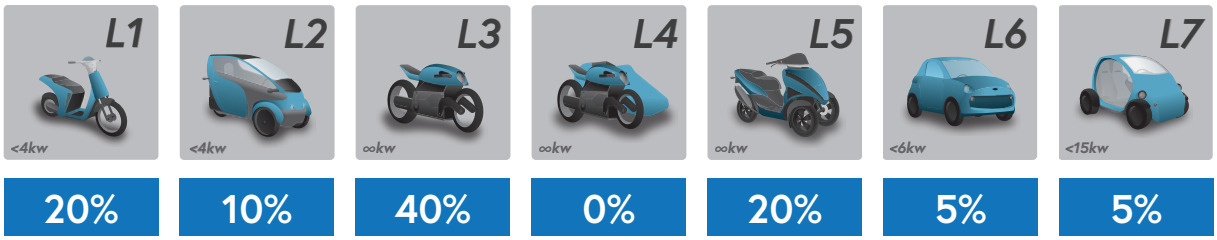
> *"There are six cars for every ten people in the UK, but the average car is unused 96% of the time."* [8]

This equates to only 4% utility. Improvements can also therefore be derived by reduction in on-street parking requirements.

The MCIA Congestion Impact Study[9] was carried out by Local Transport Projects[10]. They found that a modal shift from private cars to PLVs would see significant benefits in terms of delay reductions at junctions, and journey time savings at both individual junctions and along wider corridors.

The study demonstrated the outcomes of a low (1%), medium (5%) and high (10%) modal shift. Nine junctions in Slough contained a mix of roundabout, signal controlled and priority (give-way) junctions.

The assumed mix of PLVs within the transport flow was:



20%	10%	40%	0%	20%	5%	5%

8 DfT Future of Mobility: Urban Strategy Page 14 9 MCIA Congestion Impact Study, 2019 10 https://www.local-transport-projects.co.uk/

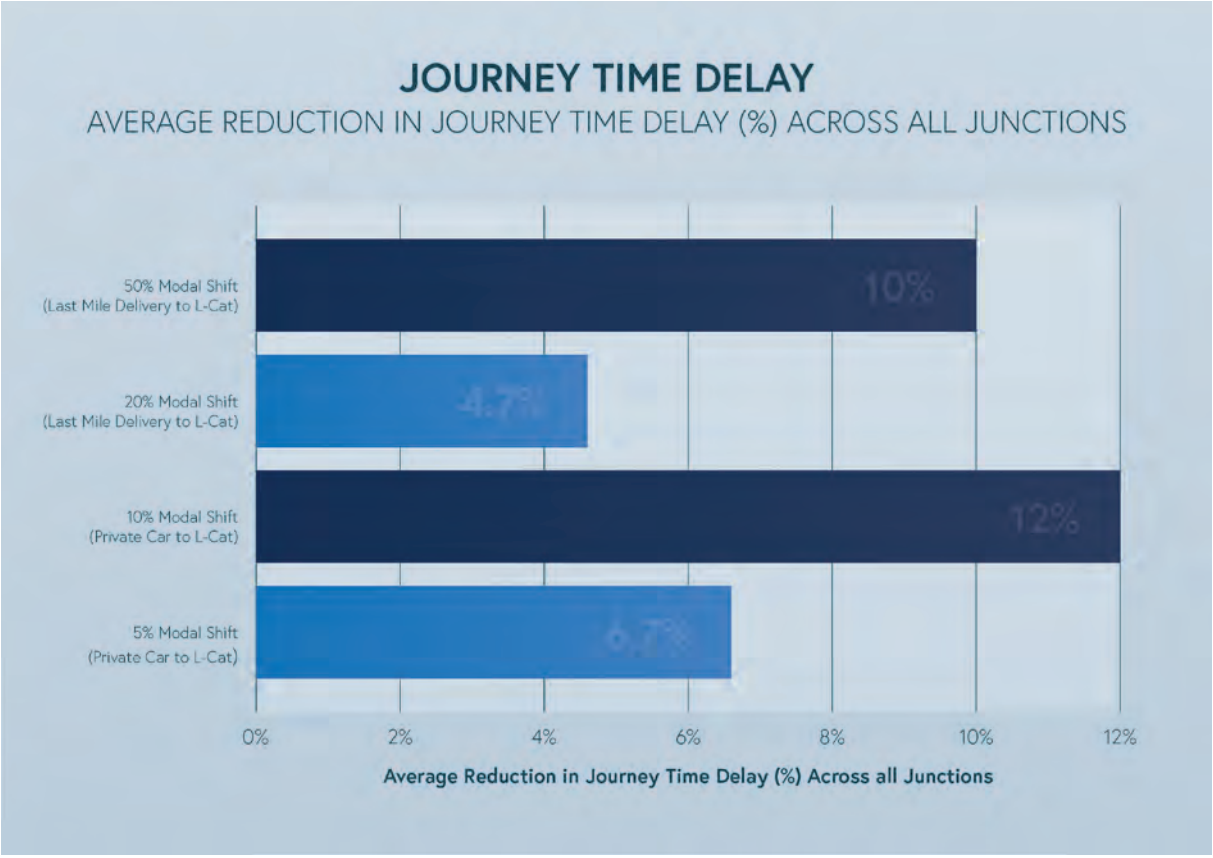


Figure 5: Journey time reductions across the junctions used within the modelling study.

In all scenarios, replacing a percentage of cars with PLVs, reduces journey times. Put simply, the delays are shorter. Replacing 5% of private cars with PLVs would mean a 6.7% reduction in average journey time delays across all modelled junctions. This increases to a 12% reduction in journey time delay when a 10% modal shift is considered (fig 5). With increased PLVs in the transport mix, the journey time delays for all road users are reduced.

The benefits of modal shift on a road with fewer junctions was even clearer in the 2011 Leuven Study, which found that a modal shift of 10% cars to L3-Category would reduce congestion by 40%.

In addition to the scenarios where private cars were replaced with PLVs, Local Transport Projects also looked at the impact of switching Other Goods Vehicles (OGVs) and Light Goods Vehicles (LGVs) from the junction network in question. Essentially, these are the vehicles commonly used at present for deliveries in urban areas – vans and smaller lorries. Again, there were reductions in journey time delays.

In order to tackle congestion, improve air quality and reduce damage to infrastructure, the limited road space available must be used efficiently. Encouraging the use of PLVs on the roads, by incorporating them into local and national policy, will achieve this.

The Government's Future of Mobility: Urban Strategy quoted 'We Ride Australia', a not for profit charity seeking better conditions for cycling in Australia. They demonstrated how much road space would be needed to move the same number of people by bus, on bicycles and in cars.

The MCIA Congestion Impact Study, also examined the amount of space that could be freed up on the road when a modal shift to PLVs is incorporated at a specific junction in Slough.

276 metres of road space is taken up using the baseline data and a 5% modal shift shows that an additional 25 metres of road space becomes available. A 10% modal shift gives 48 metres more space (fig 6). This additional space would allow local authorities to make changes to the infrastructure in line with local strategies.

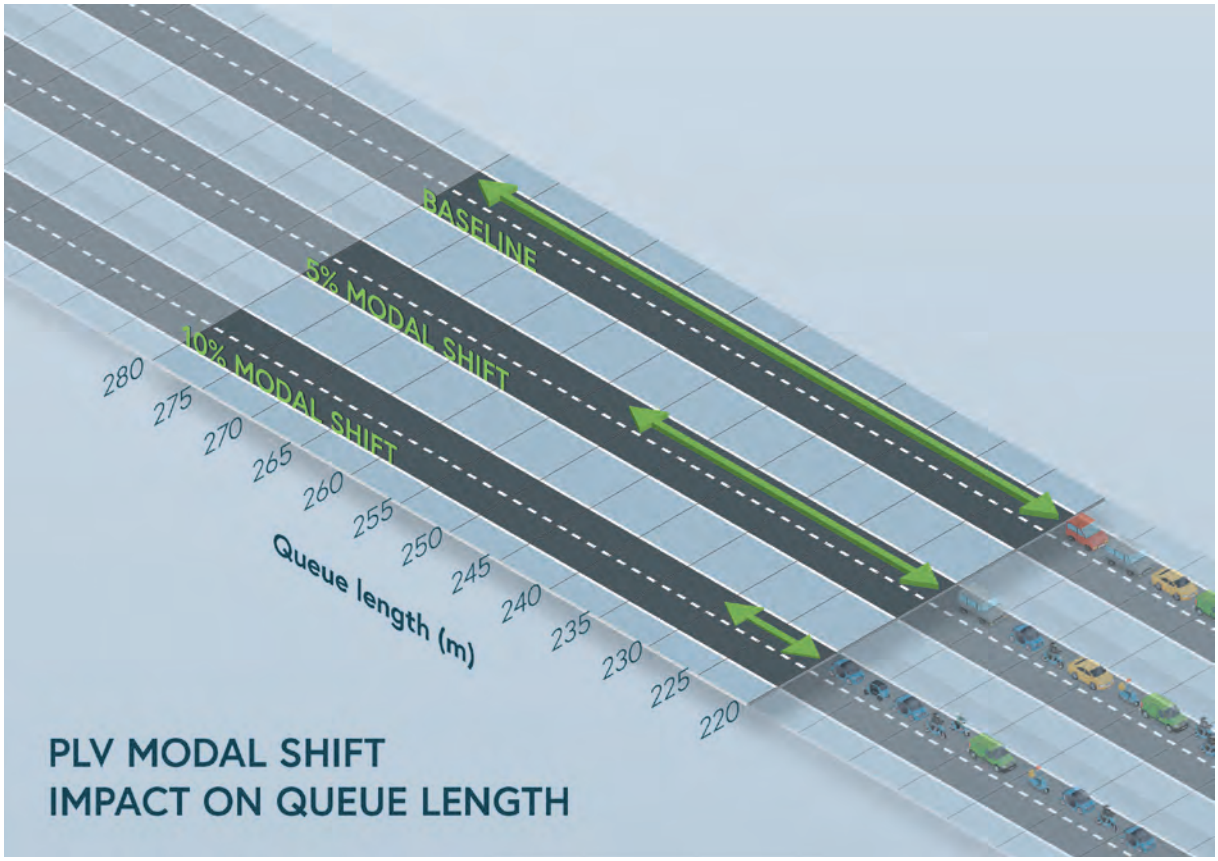


Figure 6: Queue length reduction at the High Street and Trelawney Avenue Junction, Slough.

In order to take advantage of PLVs, both the vehicles and the users must be catered for in transport policy, nationally and locally. LowCVP stated in their executive summary of their reports into PLVs:

> *"PLVs offer important potential environmental and economic growth opportunities for the UK. For these to be realised, however, several regulatory aspects need to be addressed, along with a need for PLVs to be incorporated into the existing policy framework."*[11]

The DfT Road Traffic Estimates for Great Britain 2017 show just how traffic levels have grown. In 2017 there were 327.1 billion vehicle miles travelled. This is 16.9% more than 20 years ago.

In 2016, 76% of freight goods were moved by road. The National Infrastructure Assessment (July 2018) recognises that congestion is impacting economic development:

11 LowCVP Executive Summary, Page 2, January 2019.

> *"…as urban populations increase, many cities are becoming full and congested, and this is inhibiting economic development and reducing quality of life."*[12]

The same report recognises that urban transport can enable UK growth.

Local authorities should consider the following when developing local transport plans, which should include PLVs:

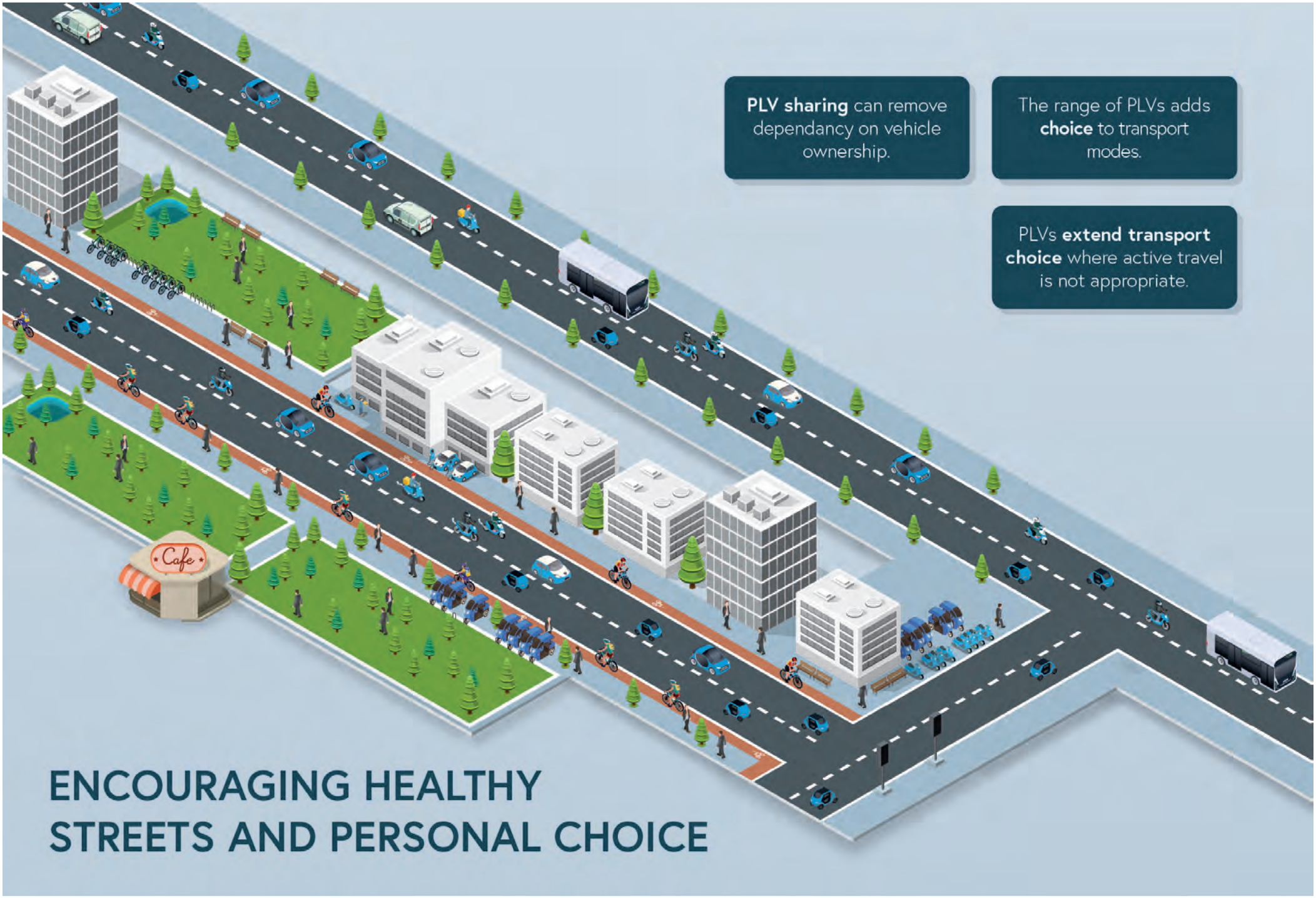
- Access to bus lanes
- Congestion charge exemption
- Secure parking
- Shared road space with bicycles for low powered PLVs
- Workplace Parking Levy exclusions for PLVs

The MCIA has worked closely with Northamptonshire Highways, who has recognised the benefits of supporting a modal shift away from single occupancy car journeys. With the safe introduction of PLVs into the transport mix, Northamptonshire Highways has acknowledged that their increasingly congested roads can improve, allowing them to keep their road network, which is used for many 'just in time' deliveries, free from congestion.

Using road space more efficiently?

- Local Authorities should incorporate a strategy for accommodating PLVs as part of their Local Transport Plan updates at the earliest opportunity, to include; access to bus lanes, congestion charge exemption, secure parking, shared road space with bicycles for low powered PLVs and Workplace Parking Levy exclusions for PLVs.
- Government should lead by example and ensure that PLVs are acknowledged in all transport policy and investment decisions, for the role that they can play in addressing the country's transport issues.

12 National Infrastructure Assessment, Pg 11, National Infrastructure Commission, July 2018



ENCOURAGING HEALTHY STREETS AND PERSONAL CHOICE

Many cities in the UK are adopting a "Healthy Streets" policy. In simple terms, this focuses on designing streets to reduce less active forms of travel, such as car use, and encouraging more active forms of travel, for example cycling and walking. Cycling and walking are encouraged primarily for health benefits, but also to increase footfall for retail businesses in urban centres, at the expense of out-of-town retail parks.

There are considerations here for PLVs which offer a way of making those urban spaces more attractive for walking and cycling. Increased town centre retail will require frequent deliveries and PLVs can meet the public's expectation of short delivery times without the associated congestion and emissions of full-sized delivery vehicles. Unused road space can then be used for other activities.

With an ageing population, reducing car use will become more challenging and therefore encouraging the uptake of PLVs is a way of changing car-dependency for those who are less mobile. It is worth noting that the 450kg or 600kg mass of an L7e-Category PLV is significantly less than an electric car and therefore much safer for pedestrians. In this sense, increased PLV usage would support the Healthy Streets agenda by making streets cleaner, quieter, safer and less congested.

Personal choice and freedom of movement

Although the promotion of public transport, walking and cycling as the natural choice for commuters is to be encouraged, it must be acknowledged that there are some journeys where these options are not practical and alternatives must be considered and supported. There is much discussion about electric and autonomous vehicles, but it should be considered that simply replacing a combustion-engine vehicle with a comparable electric or autonomous equivalent will not alleviate the increasing congestion issue. This is where PLVs offer an alternative to the status quo. In general, electric PLVs, particularly two wheelers, present the opportunity to make a step change with the adoption of electric vehicles (EVs), as they have a more accessible price point and lend themselves to cost-effective sharing schemes.

Flexibility for the user

There is a desire to see a reduction in single occupancy car journeys and the wide range of PLVs mean that choices are available for consumers. Some of the PLVs have a 'car like' feel but still take up less road space and support government targets for clean air and congestion reduction. These vehicles are likely to have broader appeal for those who would not have felt confident on the more traditional two-wheeled PLVs. Increasingly, PLVs offer a range of features that meet a wider range of transport demands than has previously been the case.

PLV sharing schemes

Electric PLV sharing schemes have emerged in the transport networks of cities such as Paris, Berlin and Barcelona. It is estimated that scooter sharing schemes constitute a fleet of circa 25,000 vehicles. Schemes are often operated through simple mobile apps. This is proving a popular new model for travel, illustrating the changing nature of vehicle use, that doesn't necessarily involve ownership.

A report into the DfT electric bike programme[13] found that e-bicycles and e-mopeds (L1-Category) can be used for longer, hillier journeys and provide a better alternative to car use than regular bicycles. It is evident that small electric PLVs greater versatility fulfils these requirements more than e-bicycles, making them a better alternative to cars for many journeys, especially in urban and extra-urban areas.

A trial scheme preceded the successful implementation of several permanent scooter sharing schemes in Paris, beginning in May 2018. The Mayor of Paris hailed the "very positive results" of the trial and recognised the positive impact such schemes can have on congestion, traffic noise and air quality. Successful trials were also undertaken before implementing permanent schemes in Berlin and New York City.

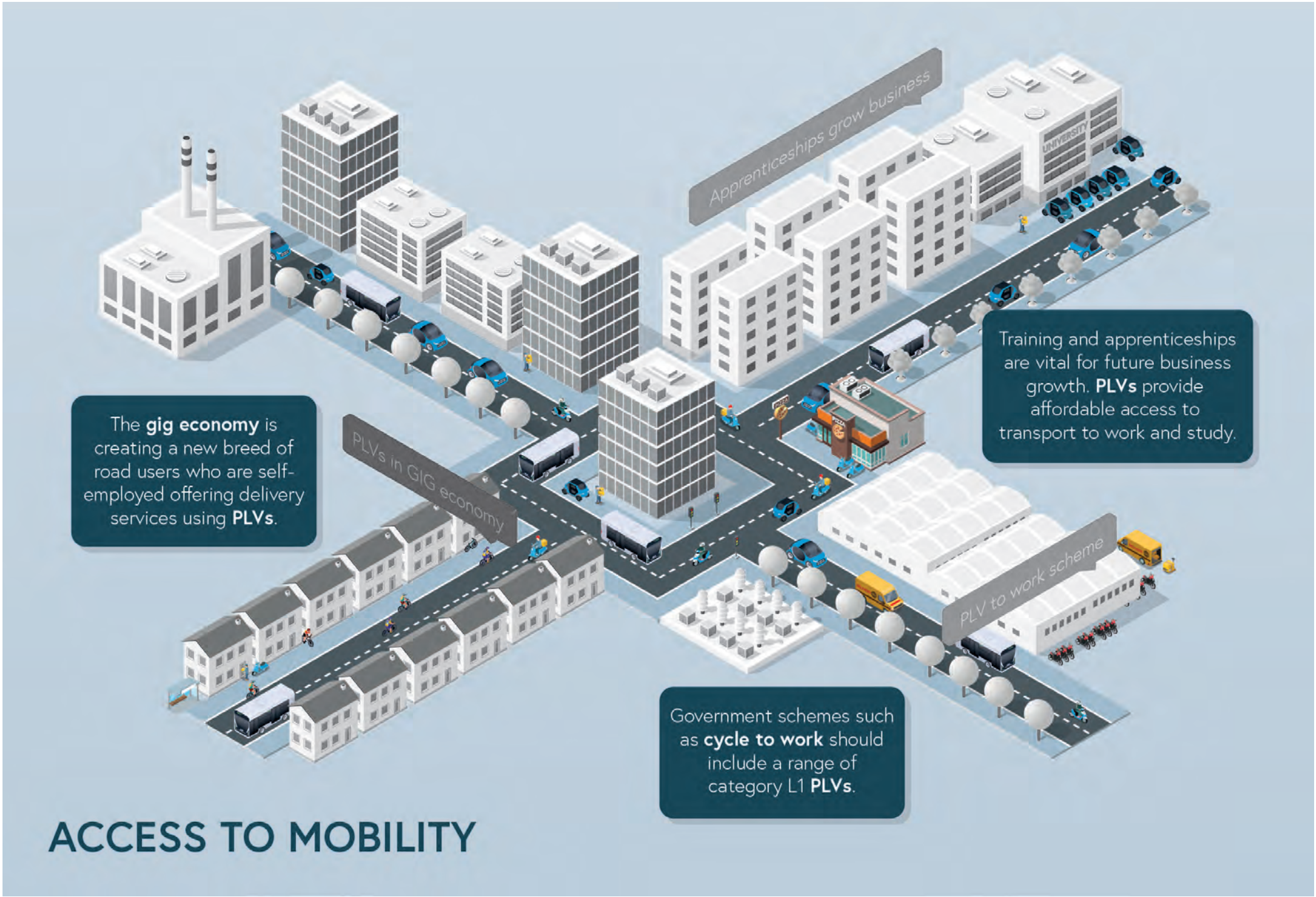
Vehicle sharing is something that the Government is keen to look at, and in their Future of Mobility: Urban Strategy they state:

> *"New mobility models could reduce dependency on car ownership, increasing vehicle utilisation rates and allowing urban space to be used more efficiently as parking spaces are removed. This could allow for more green space, with associated benefits including improved physical and mental health and mitigating the higher temperatures and air pollution of urban areas".*[14]

Encouraging PLV sharing to grow?

- Local authorities should engage positively with realistic private sector proposals for PLV sharing schemes.
- Government should support trials to prove the electric PLV sharing scheme model in the UK.

13 https://como.org.uk/wp-content/uploads/2018/05/Shared-Electric-Bike-Programme-Final-Report.pdf
14 DfT, Future of Mobility: Urban Strategy, March 2019, Page 30



ACCESS TO MOBILITY

This section demonstrates how PLVs offer users a mobility option which has the potential to provide a range of choices when considering the right vehicle for the right journey. As the perfect solution for travelling to work or study, this section details the flexibility offered by PLVs and how incentives can be introduced to encourage a switch from single occupancy car journeys.

This section also explores how PLVs can help Government with their social inclusion and loneliness strategies.

PLVs provide opportunities for those looking at the last mile, the first mile and every urban mile and how they are used to service the gig economy.

PLV users comprise people from all walks of life across the generations. For example, of the circa 1.4 million people who regularly use a powered two wheeler (PTW), a large proportion use their vehicles purely as practical commuting transport. This is because of the ability of a PTW to avoid congestion, reduce journey times and avoid travel related stress. As a result, PTWs represent an important commuter transport mode. Use of new PLVs will increase both access and availability for commuter travel.

PLVs are often unfairly overlooked in the discussion about a modern transport system, and have not traditionally been afforded much consideration in the development of national transport policy. They sit between bicycles and micro mobility products at one end of the spectrum and traditional cars and vans at the other. Micro mobility vehicles include "stand on" scooters, electric mono-wheels and electric skateboards and as with bicycles, are not regulated, nor do users require a licence, insurance or MOT tests, whereas PLVs are regulated and licences are required for their use (Figure 7).

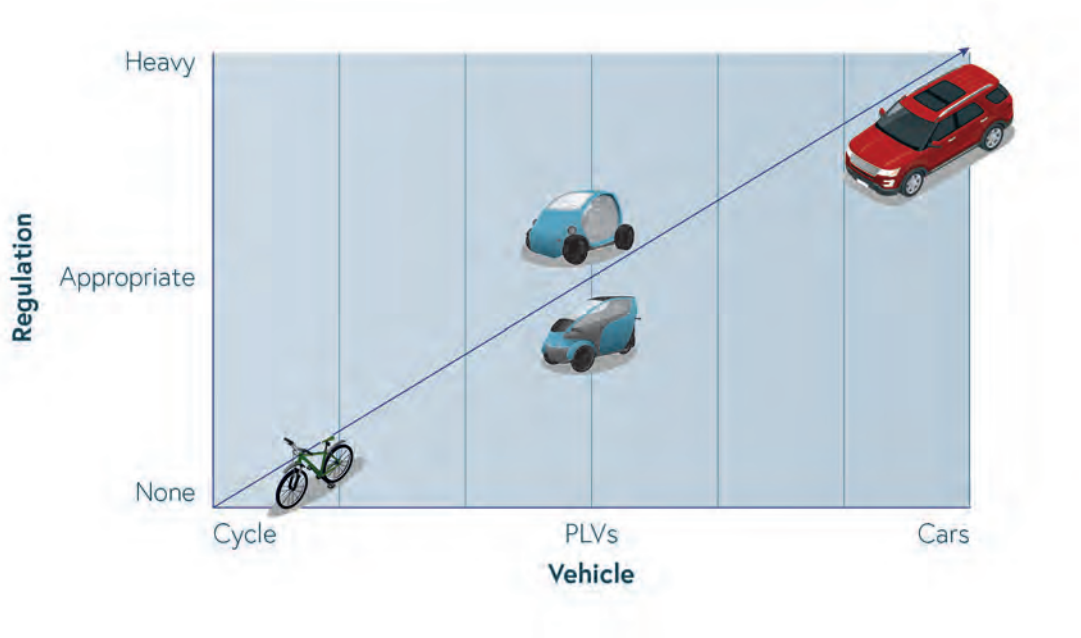


Figure 7: Levels of vehicle regulation.

PLVs make an ideal vehicle choice for many journey types and they sit well with active travel plans when used for part of a journey. They are ideal for commuting when public transport is limited and they have an important role to play in the delivery and logistics sector.

As highlighted above, PLVs should NOT be confused with vehicles often referred to as 'Micro Mobility', as these vehicles are unregulated and have no licence restrictions, so cannot legally be used on public highways, pavements or footpaths (Figure 8).

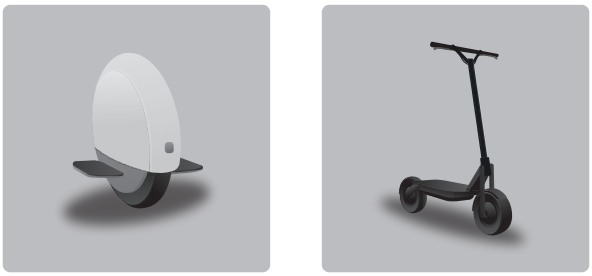


Figure 8: Examples of unregulated Micro-Mobility vehicles.

Young people: Education and apprenticeships

PLVs are about more than just transport for work. In 2017, the Government's Industrial Strategy recognised the need for better routes into work and training in order to restructure and future-proof the UK economy.[15] Business leaders, think-tanks, charities and trade unions share the Government's view that apprenticeships are vital for building a sustainable workforce, increasing skills and social mobility, and allowing British industry to compete on a global stage.[16]

However, a significant number of people, particularly in provincial areas, face barriers to taking up apprenticeships and employment that requires travel. The principal difficulty is their inability to physically get to work or training, caused by the remoteness of places offering employment, the lack of reliable or affordable public transport, the expense of maintaining a car, and the impracticality of longer commutes by bicycle or on foot.

The Wheels2Work Association (W2WA), supported by the MCIA, has been successful in getting young people and others into jobs or training, by providing them with affordable PLV options. PLVs are more aligned with their lifestyles and help tackle social exclusion. Key successes to date include:

- Assisted over 3000 people a year to access work, training, apprenticeships and education.
- Approximately 40% have moved from unemployment into work, while a notable proportion of the rest were able to safeguard their employment following access to reliable transport.
- W2W schemes currently employ approximately 250 staff with a variety of specialist skills.
- Over 1500 PTWs, bicycles and electric bicycles are available for hire.

W2WA has recently changed its status to that of a registered charity, W2W UK[17]. It will be seeking support to further develop its network of schemes.

Employers are urged to consider how they can utilise schemes such as W2W to help their apprentices and wider workforce travel to work. This could be further valued by employers and employees if tax incentives were available for participation in appropriate schemes and employers had more flexibility in how they spend their apprenticeship grants.

Incentivising the sector

Cycle-to-Work schemes were introduced by the UK Government in 1999 as a tax exempt initiative, created to help the environment and promote a healthier lifestyle, specifically on journeys to work. Under current schemes, employers buy bicycles and lease them to employees, then recoup the cost through a monthly deduction from gross salary.[18] Cycle-to-work schemes can also include the simple loan of an employer's bicycle to an employee as a tax-exempt benefit. Employees make savings on their tax contributions.

Since the introduction of cycle-to-work schemes, the UK Government has set itself targets on decarbonisation, improvement of air quality and reduction of CO_2 emissions. All of which have

15 https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future 16 See https://www.gov.uk/take-on-an-apprentice/get-funding, https://www.suttontrust.com/2018-better-apprenticeships-campaign/, https://www.unionlearn.org.uk/charter-apprenticeships, https://www.ft.com/content/9650dcc6-86b4-11e8-a29d-73e3d454535d 17 www.wheels2workuk.org
18 See https://www.cycle2work.info

led to an increased focus across government departments on both cycling and the take-up of low-emission vehicles, as less polluting forms of transport.[19] Incentivising the purchase of low or zero-emission PLVs among all categories of commuters, including apprentices, would help achieve the UK's targets in all three areas.

In practice, the amount that can be loaned to the employee is currently limited to £1,000, as this allows schemes to be regulated using the cycle to work group consumer credit licence, agreed with the Competition and Markets Authority. Loans above £1,000 require schemes to be individually regulated under the Consumer Credit Act. As the average purchase price of a PLV, plus the necessary safety equipment, will be higher than a bicycle, the level of funding available to employees should be higher. Joining the £1,000 group consumer credit licence would not be practical for most employers, so an exemption would be required.

While a package of £5,000 would have a bigger impact on the Treasury's tax revenue than the bicycle scheme, this would be offset by the proportionately larger tax contribution of users of PLVs via Vehicle Excise Duty, insurance premium tax and VAT on consumables etc., most of which is not paid by cyclists. The resultant increase in access to employment in lower income and socially excluded areas would also accrue social and economic benefits.

The wider social agenda

The Government's Loneliness Strategy, launched in October 2018, noted the deep social, psychological and public health impact of physical isolation affected up to one in five people across the UK. One recommendation of the strategy was that lonely individuals be connected to local activities, classes and groups by their GPs and community workers.

In the absence of reliable or affordable public transport, especially in provincial and rural areas, a lack of access to personal transport constitutes an obvious barrier to taking up these opportunities. In such cases, PLVs can play a key role in helping individuals to overcome social and physical isolation, as they are more affordable than a car and more versatile than a bicycle.

Taking this a stage further, in the DfT's Future of Mobility: Urban Strategy, the second principle focuses on inclusion of all segments of society:

> *"The benefits of innovation in mobility must be available to all parts of the UK and all segments of society."*[20]

The last mile, the first mile and every urban mile

The DfT 2017 Road Traffic Estimates show that the largest share of personal car mileage in England was for commuting and business trips[21]. The transport data company Inrix showed that the UK ranked 6th in the world for the most congested cities. British drivers lost £7.9 billion in 2018 due to traffic congestion.[22]

PLVs offer a viable solution to reduce congestion and they can make a difference to businesses in terms of reducing journey times. The MCIA Congestion Impact Study showed reductions in delay times across junctions, when a modal shift from cars to PLVs was introduced.[23]

Transport for London (TfL) has recognised the potential benefits of transferring small parcels from lorries and vans and onto PLVs. It is acknowledged that any such switch must be carried out safely. Consequently, TfL plan to incorporate rules for the safe use of commercial PLVs into their Fleet Operators Recognition Scheme (FORS).

19 See, for instance, the Business, Energy and Industrial Strategy committee's report 'Electric Vehicles: driving the transition: https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/383/38302.htm 20 DfT, Future of Mobility: Urban Strategy, March 2019, Page 41
21 DfT Road Traffic Estimates 2017. 22 http://inrix.com/scorecard/ 2018 Traffic Scorecard, Inrix 23 MCIA Congestion Impact Study, 2019

Last mile deliveries

Receiving goods is an essential component of business, but these deliveries are also a large contributor to congestion and air pollution. Delivery drivers and riders are also at a high risk of KSI collision involvement.

Setting up logistic hubs outside the centre of major cities can help alleviate the issues above. Parcels and other goods can be delivered in bulk to the hubs (out of peak hours) and then taken to their final destination in the busy city centre by cycles and PLVs. This is known as last mile delivery.

There is some criticism of this idea particularly in relation to the number of vehicles it would take to replace the HGVs currently delivering goods. The Road Haulage Association calculated that 23 "Transit- sized" vans would be needed to carry the same amount of goods as one full HGV.

It could be argued however, that many of the vans being used are not carrying full loads, so it would in fact be better environmentally to consider more efficient alternatives for deliveries.

There is currently a lot of emphasis on considering last mile deliveries and LowCVP have noted the growing interest in light commercial use of PLVs for this, in response to congestion and on-line shopping demand:

> *"The use of PLVs is widespread in several large markets around the world. Typically, these consist of 3 or 4 wheeled vehicles used for personal mobility and 'last mile' goods delivery."*[24]

PLVs offer tangible opportunities to improve air quality and safety as well as reduce time wasted on congested roads. It should be noted that high powered electric cargo cycles are increasingly being used for this purpose, however these often feature a power output of more than 250 watts, which means that they are a L1-Category PLV, requiring registration and licensing and not a bicycle.

PLVs, such as those already in use by logistics company DPD, can be safely adapted to carry goods or specifically designed for that purpose. Last Mile logistic hubs would be particularly well served by small footprint, quiet, electric PLVs, particularly where multiple parcels, bulky or heavy loads must be transported.

24 Low CVP PLVs, Executive Summary, Page 4, January 2019

Study findings that support proposals

The MCIA Congestion Impact Study specifically modelled a change to the traffic mix by replacing a percentage of delivery vehicles with a mix of PLVs. Two scenarios were explored; one replacing 20% of LGV/OGV1 with a mix of PLVs (Categories L1, L3, L5 and L6) and one replacing 50% of LGV/OGV1 with the same mix.

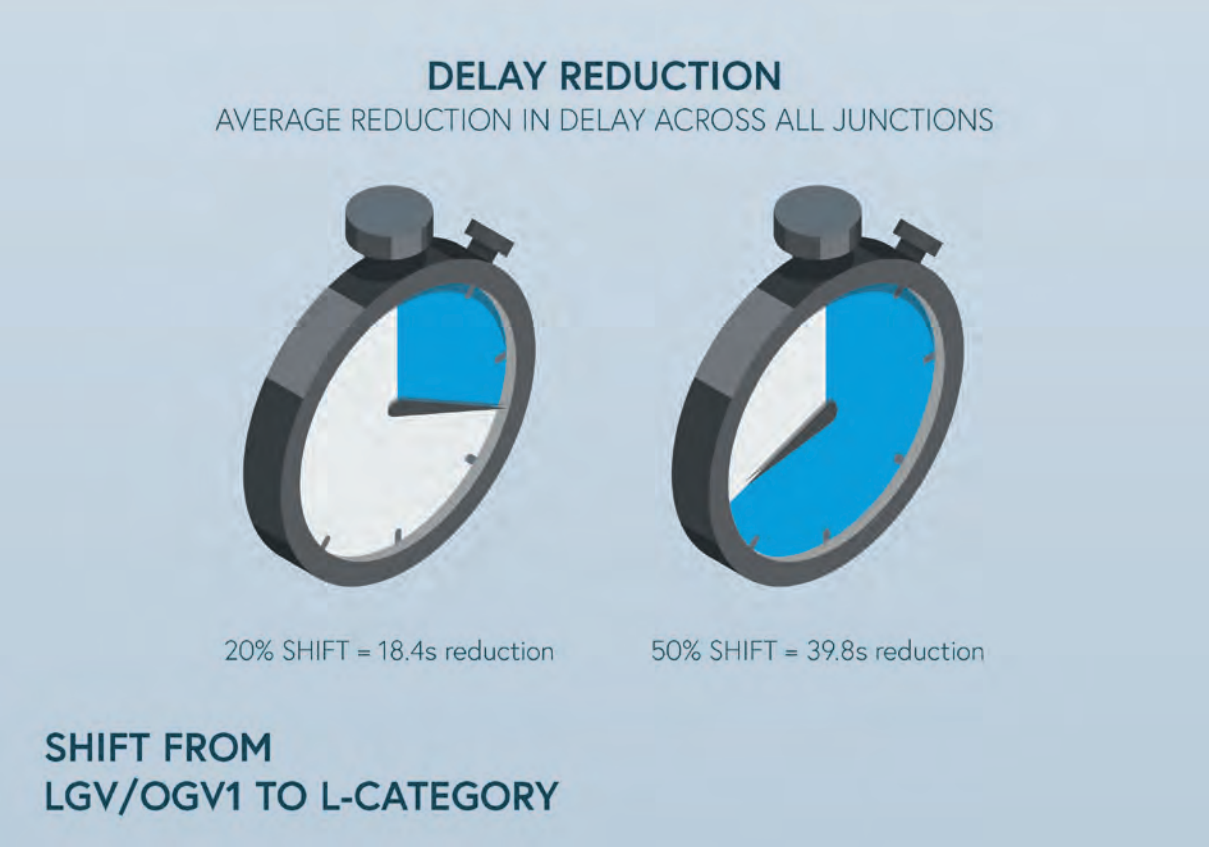


Figure 9: The average reduction in delay highlighted in the MCIA Congestion Impact Study

The 20% modal shift gave a 18.4 second reduction in delay averaged across all junctions, a reduction in delay of 4.3%. The 50% modal shift scenario gave a 39.8 second reduction in delay across all junctions, equal to a 9.4% reduction delay. (Figure 9).

The Government acknowledged in the Future of Mobility: Urban Strategy that:

> *"There is significant potential for new modes of transport to replace traditional vehicle miles in urban areas. This could alleviate congestion, reduce noise and emissions, and improve traffic flow. For example, trials of electric cargo bikes showed that they have the potential to increase road speeds in congested areas as well as reducing emissions, costs and delivery times when compared to van-based last mile delivery services."*[25]

While the last mile logistics hubs may represent significant advantages, in some areas where land is at a premium, it may not be possible to access sites as close to city centres as would be desirable. The journey range of PLVs make accessing sites slightly further away more realistic than when using other modes.

The advantages of using these low powered, light vehicles should not be disregarded, but instead the contribution of the PLV sector towards the clean and safe delivery of goods should be fully explored and considered as part of a wider transport strategy and local authority provision.

25 DfT, Future of Mobility: Urban Strategy, March 2019, Page 31

The Government's Future of Mobility: Urban Strategy looks for innovation in the area of last mile deliveries:

> *"Innovation that supports the more efficient movement of goods, for instance through the use of consolidation hubs or freight brokerage platforms matching goods and vehicle space, will also be important to reduce congestion."*[26]

How can PLVs help with last mile deliveries and more?

- TfL to continue with their plans to incorporate PLV use into their FORS programme, which will help to raise the importance of user safety and encourage employers to comply.
- Government to introduce tax incentives to encourage the use of PLVs for last mile deliveries.

PLVs servicing the gig economy

The relatively new phenomenon that is the gig economy is seeing a whole new breed of road users who are working, usually on a self-employed basis, offering delivery services often requested via an app or over the internet.

In the gig economy, where work is conducted on an ad hoc basis and workers get paid for the "gigs" they do, such as an individual food or parcel delivery and consequently may feel under pressure to complete deliveries as quickly as possible. These riders are often young people and/or those for whom English is a second language. It can also be a second job for low income family breadwinners.

Naturally, many of these deliveries are undertaken by PLVs (particularly small PTWs), but these riders are often only provisional licence holders and are consequently inexperienced. They are also likely to be using smartphone-based satellite navigation systems, a distraction which makes riding in congested traffic more challenging.

However, the wider PLV range, along with traditional mopeds and motorcycles provide many benefits, as detailed throughout this document, to users servicing the gig economy, and offers opportunities for cleaner air and congestion reduction. These vehicles are an excellent choice for this type of work when used correctly by well-trained riders. Mitigation of the risks to delivery riders are explored on page 49.

Using PLVs to move people to work and study

- Government to work with Industry and stakeholders to design, promote and implement a workable scheme which will offer financial incentives to employers and the public to consider PLVs.
- Government to incorporate Category L1 PLVs into the cycle to work scheme.
- Any training to allow use of a PLV on any of these proposed schemes to include training with an MCIA RIDE training school. See page 41.
- Government to introduce more flexibility for employers in relation to apprenticeship grants.

26 DfT, Future of Mobility: Urban Strategy, March 2019, Page 45

ADDITIONAL POLICY CONSIDERATIONS

In order to fully exploit the advantages that PLVs can offer, there are some challenges that must be overcome and some opportunities to be further explored.

UK manufacturing opportunities

In 2018, the Advanced Propulsion Centre UK (APC) produced "The Road Map Report, Towards 2040: A Guide to Automotive Propulsion Technologies for the Automotive Council UK"[27]. While the document itself is geared towards the heavier end of the automotive spectrum, the report highlights some of the key opportunities for UK manufacturing that are appropriate for the UK's PLV market supply chain. Notably, they predict the growing trend in light-weight vehicle materials and powertrain structures, the continued development of more efficient electric motors and electrical energy storage. All of which are prime areas where UK PLV manufacturers can be at the forefront of development and market realisation.

Electric charging infrastructure – a perceived barrier to electrification

The take-up of electric vehicles will require a supportive national infrastructure, a significant part of which is the availability of charging points. To help alleviate this shortfall, businesses should be offered a financial incentive to make their charging points publicly accessible.

As noted in the Government's Future of Mobility consultation, large investments are being made in the electrification and automation of road vehicles, with overarching environmental objectives including making all new cars and vans zero-emission by 2040. This mass shift towards electric vehicles will, of course, require a similarly significant upgrade to the national charging infrastructure. The Department for Business, Energy and Industrial Strategy (BEIS) Committee's 2018 report on electric vehicles stressed that poor provision of charging infrastructure is one of the greatest barriers to growth of the UK's electric vehicle market. The existing charging network is lacking both in size and geographic coverage, with the fastest 'rapid' charge points being particularly scarce.

UK businesses are in an ideal position to make charging points available at their workplace and could receive incentives for doing so. These incentives could mirror the previous announcement in the October 2018 Budget of mandatory business rates relief for making toilets available to the public, whether publicly or privately owned. This would allow the greater take-up of electric PLVs by facilitating their ease of recharging and extending their potential range. The increased appeal of such vehicles would contribute to the Government's goal of switching to zero-emission transport, which would also be encouraged by the greater provision of charging infrastructure.
Such an incentive to business, together with the Government's welcome commitment in 'The Road to Zero' to maintain grants for workplace and on-street residential charging until at least 2020, would go some way to overcoming the lack of targeted commitments in making the infrastructure changes needed. Currently, this lack of an infrastructure plan is an obstacle to fulfilling the UK's potential as a centre of zero-emission vehicle technology and use.

The EV Energy Taskforce, being co-ordinated by LowCVP and the Energy Systems Catapult on behalf of the Office for Low Emission Vehicles (OLEV), is currently looking at the issues around electricity grid infrastructure that may arise with a greater number of electric vehicles in use.

One concern is that having many standard electric vehicles, with ever higher battery capacities, plugged in and charging at the same time may put more strain on the local network than it was originally designed for. A potential mitigation that would avoid expensive grid reinforcement would be to promote the use of smaller, lighter PLVs. Without having to carry around excessive battery mass, PLVs can be fully charged in less time and with less power than electric cars. Rather than having high mass vehicles with long electric ranges and low occupancy and mileage utilisation, PLVs are a much more energy efficient way of moving a person and/or light cargo the

27 https://www.apcuk.co.uk/app/uploads/2018/06/roadmap-report-26-6-18.pdf

relatively short distances of the average urban commute.

Simplicity of charging

Although the charging infrastructure situation is a potential barrier to mass electric transport, many electric PLVs have a significant advantage over electric cars and vans, in that they can be charged via a conventional three-pin domestic plug. Additionally, it is not unusual for them to feature removable battery cassettes, which can be charged away from the vehicle, thereby removing the need for dedicated charging bays.

Life cycle

The overall energy use during a PLVs life is considerably lower than that of a conventional car or van, which is roughly in proportion to the vehicles' mass. Not only do PLVs require less energy during use, but also in the manufacturing stage and during end of life recycling. Using different materials, and less of them, means the "embedded energy" consumed during PLV manufacture, is significantly less than a battery electric passenger car (there is little overall difference between the embedded energy in different car types, irrespective of powertrain size).

How to see improvements in the take up of electric PLVs?

- The Treasury to give businesses a mandatory discount in their rates for making charging-points for PLVs publicly accessible.
- Encourage the replacement of older PLVs with zero emission alternatives.

Theft and security

Theft of motorcycles, scooters and other PLV types has been a perennial problem. By definition, these vehicle types are light weight and as such, easy to move or remove from the road side. As a consequence, PTWs have become a prime target for both organised and opportunistic criminals who can realise significant profit from breaking the vehicle into its constituent parts, which can then be sold virtually risk free via on-line auctions.

Social and environmental impacts of PLV theft

The increased levels of theft, particularly in urban environments where PLVs are often used for commuting or business purposes, has resulted in significant negative impacts for both the user, wider society and industry. Users of PTWs and other PLVs who have been victims of theft face rising insurance costs or even the inability to obtain insurance. In these cases, the victim is often forced to return to a single occupancy car.

Industry security initiatives

The industry has a record of being proactive with a number of security related campaigns, including national and local media campaigns targeting PLV users with messages such as "Lock it or Lose it" and "Lock, Chain & Cover". In addition, the Industry has funded the MASTER initiative, where an indelible forensic marking is applied to various components on the vehicle.

A new MCIA initiative, ***MCIA Secured***, will build upon the success of the activities referred to above. This new programme encourages manufacturers to "design in" or incorporate at the point of sale, additional layers of security that use the latest technology.

MCIA Secured will acknowledge those manufacturers supporting the initiative by awarding their entire product range a star rating based upon the levels of additional security fitted as standard.

Eligible items for the lowest priced scooters include an approved steering lock, an engine immobiliser and forensic marking systems, which earn a maximum rating of 3 Stars. Larger vehicles can attract a maximum rating of 5 Stars by also including an alarm system and GPS tracking device.

It is envisaged that the MCIA Secured rating of PTWs and PLVs will become a significant and influencing factor in the customers buying decision.

How can theft be further deterred and security improved?

- Local Authorities must ensure there is sufficient secure parking for PLVs, including stipulating minimum requirements on all planning permissions, especially in the urban and suburban environment where use will be at the highest levels.
- The DVLA to accelerate efforts to close loopholes that currently facilitate the sale of the vehicle identity by way of tighter controls on V5 log books.
- Support Industry in raising awareness of theft among users, via a breadth of media campaigns.

HOW TO SAFELY INTEGRATE PLVs

Adopting the Safe System Approach (Figure 10) is a commitment to the principles which puts safety at the heart of planning, design and engineering, without sacrificing other operational requirements. It recognises the limitations of the human body and sets safety as a precondition for satisfactory road use.

Figure 10: How the Safe System Approach interlinks

This approach is gradually being adopted worldwide, although currently it is predominantly found in Europe, Australasia and North America and it provides a system to ensure best practice in road safety. The focus is on the prevention of fatalities and serious injuries, rather than collisions, enforcing the belief that saving lives is possible and any loss of life is unacceptable. Human life, rather than the vehicle, is positioned at the heart of the system; the assumption is made that all road traffic deaths and serious injuries are predictable and preventable.

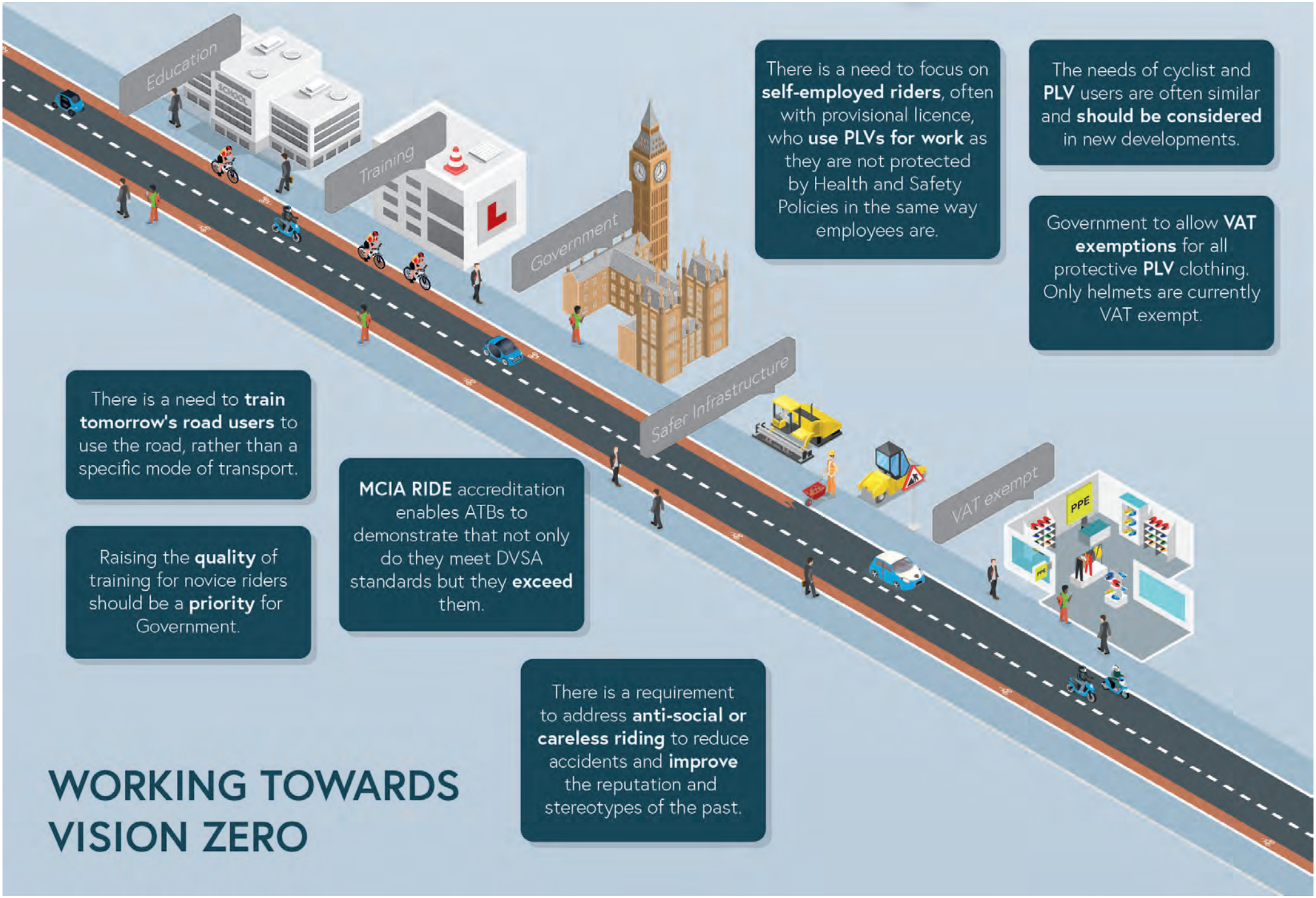
Although achieving zero casualties on our roads must be viewed as a long term objective, the safe system approach encourages a high level of ambition. It provides potential to improve performance by considering all elements of the road transport system. It identifies synergies for

trauma reduction when safer road and vehicle design, speed limits and compliance with road rules are pursued together and considered as part of a holistic transport policy.

The safe system approach is based upon the notion that:

- we can never entirely eradicate road collisions because there will always be a degree of human error;
- when collisions do occur the human body is inherently vulnerable to death or injury; and
- we should manage our infrastructure, vehicles and speeds to reduce crash energies to levels that can be tolerated by the human body.

The 2010 United Nations Global Plan for Road Safety promotes a 'five pillar' strategic approach for managing road safety and creating a truly safe system.



There is a need to focus on **self-employed riders**, often with provisional licence, who **use PLVs for work** as they are not protected by Health and Safety Policies in the same way employees are.

The needs of cyclist and **PLV** users are often similar and **should be considered** in new developments.

Government to allow **VAT exemptions** for all protective **PLV** clothing. Only helmets are currently VAT exempt.

There is a need to **train tomorrow's road users** to use the road, rather than a specific mode of transport.

MCIA RIDE accreditation enables ATBs to demonstrate that not only do they meet DVSA standards but they **exceed** them.

Raising the **quality** of training for novice riders should be a **priority** for Government.

There is a requirement to address **anti-social or careless riding** to reduce accidents and **improve** the reputation and stereotypes of the past.

WORKING TOWARDS VISION ZERO

While the Killed and Seriously Injured (KSI) statistics have been fairly static for the last five years, the road safety record for traditional motorcycles and scooters has prevented the potential offered by PLVs from being fully explored.

Road safety responsibility has largely been devolved to local authorities and funding has not been ring-fenced. Following budget cuts, there are now very few road safety officers with any specialist knowledge of PLVs.

Lack of direction from central government has meant that although they notionally support the Safe System Approach, many local authorities do no more than produce a leaflet or a poster to fulfil their perceived responsibilities to keep PLV users safe. This is costly, does not encompass the Safe System Approach and is likely to be ineffective.

Many Local Transport Plans (LTPs) do not even mention PLVs, and where they do it is often to highlight the provision of a few extra parking spaces. As welcome as these are, much more needs to be done if the benefits of PLVs regarding congestion, air quality and mobility are to be fully exploited.

Application of the Safe System Approach dictates that PLVs must not be looked at in isolation. The safety of PLV users must be considered at all levels, and fully included in national, as well as local strategies and transport plans. As detailed in the previous policy sections, PLVs can play a significant part in reducing congestion and improving air quality. They can also offer a solution to move people and goods efficiently and safely, when given the proper consideration required within a Safe System Approach.

The term PLV covers a wide spectrum of vehicles, in addition to the familiar PTW (L3-Category). These are identified at the front of this policy.

Many are small footprint, light, low power, 3 and 4 wheel vehicles in the L2-Category and 2 wheel low powered mopeds in the L1-Category.

To improve user safety, the smaller L-Category vehicles could be given access to some cycle lanes (the larger cycle superhighways or any other road sharing schemes, which have a large footprint within the general traffic). Many of these vehicles are quiet, speed restricted and have low or zero emissions. Consequently, they should be considered a normal part of the urban environment and given similar consideration to bicycles. The greater uptake of cycling, led policy makers to realise that infrastructure changes and awareness campaigns were needed to improve the safety of cyclists. The effort placed by policy makers nationally and locally in this area has been very positive.

Some of the larger quadricycles, which are in the L7-Category, can carry a passenger comfortably, and offer weather protection. These are ideal for sharing schemes and can also be adapted as delivery vehicles for the gig economy. By thinking about PLVs when planning for the future, users can be safely integrated into the traffic mix.

This section provides a specific focus on safety, in particular:

- How education within the school environment can be expanded to improve the safety of all road users.
- How a higher standard of training will deliver better, safer users.
- Development of an industry-backed campaign to encourage PTW users to improve their skills and become responsible riders through post-test training.
- How road users can be educated to raise awareness of vulnerable road users.
- Why autonomous and connected vehicles must consider PLV users.
- How infrastructure improvements can benefit vulnerable road users.
- Improved enforcement.
- How PLVs can be used to service the gig economy safely.

Moving towards Vision Zero by using the Safe System Approach means that road safety problems should be addressed by considering the interaction of several components of the transport system, rather than by implementing individual countermeasures in relative isolation.

The full range of infrastructure, traffic and speed management, technology and behaviour challenges must be addressed if we are to make the most of the PLV opportunity and work towards Vision Zero for our roads.

PLVs to help solve the transport problems faced by the UK are already available, however, the environment for their safe use does not yet exist. In many cases, what is already in place for cyclists could be amended or expanded to include PLV access.

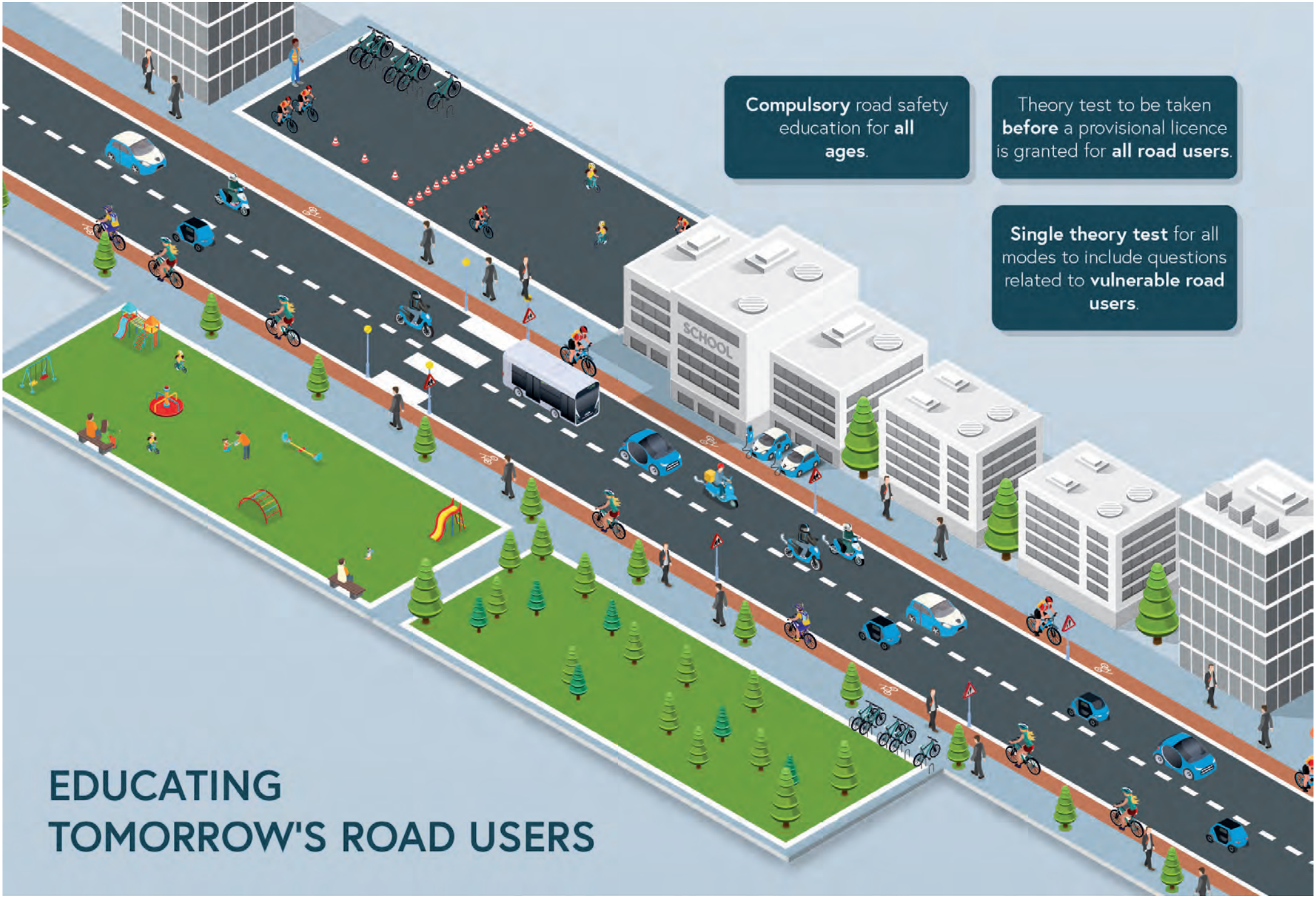
As part of the Government's Future of Mobility: Urban Strategy, a 'Future of Mobility Regulatory Review' was announced:

> *"The review will be one of the most significant of its sort for many years. Through a broad programme of work across the modes, from maritime autonomy to micro-mobility, we will seek to challenge the status quo, asking fundamental questions about how we regulate transport in the UK."*[28]

Describing the review further it states:

> *"We will also take the first steps to consider how traffic regulation and street design may need to evolve to accommodate new vehicles and new ways of using roads."*[29]

28 DfT: Future of Mobility: Urban Strategy, March 2019, Page 53 29 DfT: Future of Mobility: Urban Strategy, March 2019, Page 53


Compulsory road safety education for **all ages**.
Theory test to be taken **before** a provisional licence is granted for **all road users**.
Single theory test for all modes to include questions related to **vulnerable road users**.
SCHOOL
EDUCATING
TOMORROW'S ROAD USERS

Much needs to be done nationally to target the way in which road users interact with each other. General road user awareness appears to be lacking and this will require action from the Government.

There is a need to educate and train people to use the road, not just to use a specific mode of transport. This will have a cross modal benefit in terms of creating a new generation who are ready to use the road. We all use roads, be it as pedestrians, cyclists or drivers, therefore everyone should have a basic understanding of the rules of the roads, likely hazardous situations and how to mitigate the risks.

In primary education settings, many children are offered Bikeability to help make them proficient cyclists by taking them from an off-road training environment to on-road journeys. There are various levels from beginners to advanced, which benefited from government funding in excess of £9.8 million during 2018/19.

We believe that this is a basis to build upon and ensure that road safety education continues from primary to secondary school. It has long been the aim of road safety officers to have road safety education incorporated within the school curriculum and as an essential life skill, we consider it worthy of a permanent place on the school timetable. There are also opportunities to include road safety in other subjects on the core curriculum.

It would be highly advantageous for secondary school students to benefit from compulsory road safety education, focusing on the Highway Code. This is a life skill for all and should be targeted at young people prior to taking to the roads. A comprehensive, sustained Think! campaign to educate all road users to look out for and understand the actions of PLV users, would also be beneficial.

Becoming a vehicle user

A single theory test, rather than one for each vehicle mode, will allow road users to become more aware of the overall road environment. It will also encourage drivers and riders to consider and understand the actions of all vulnerable road users, including pedestrians, cyclists, horse riders and PLV users.

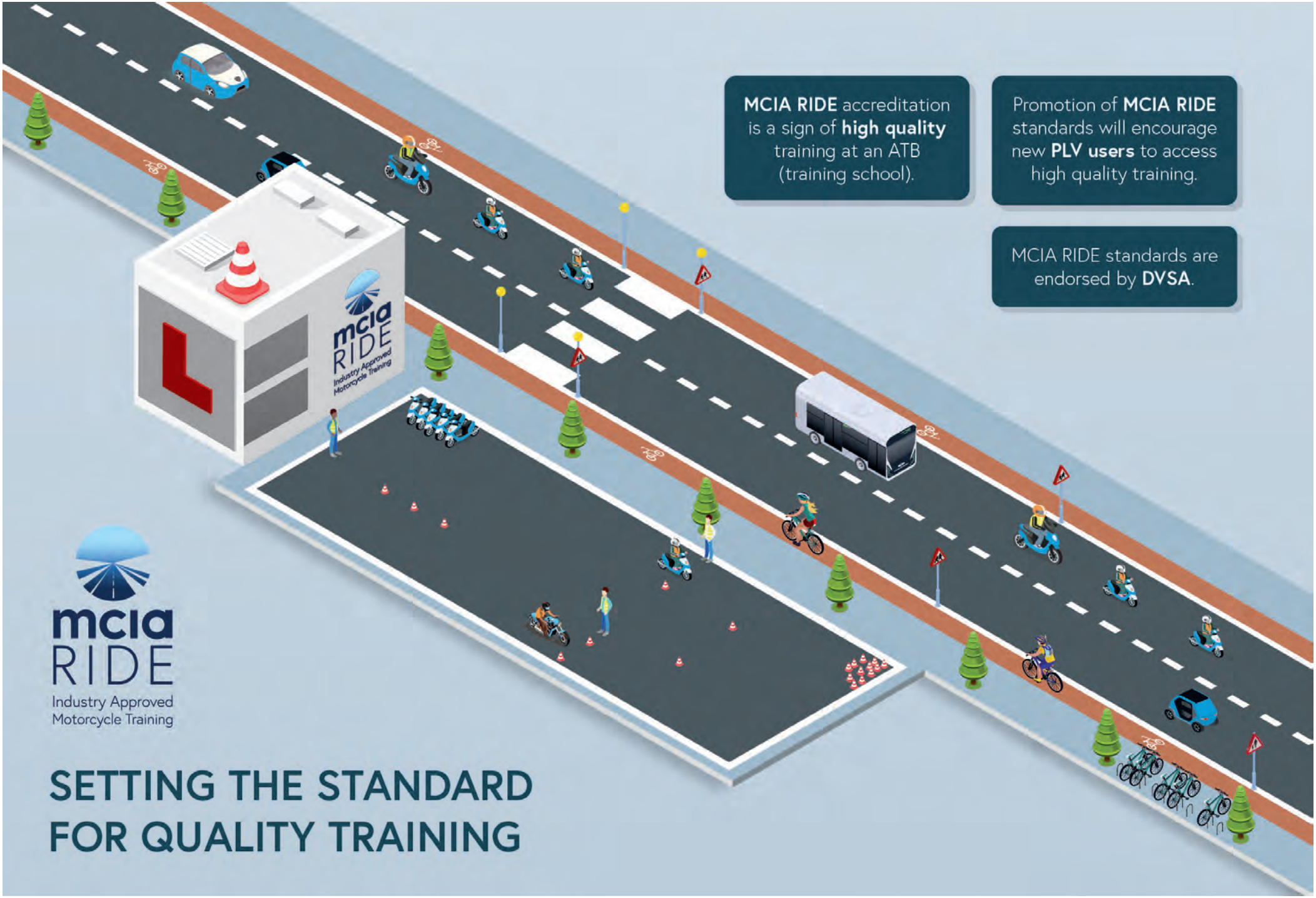
One of the proposals in the DVSA consultation on '*Improving Moped and Motorcycle Training*'[30] was to introduce the theory test before, or as part of, Compulsory Basic Training (CBT). Over 80% of respondents agreed with this proposal. While the safety argument that suggests riders pass a theory test prior to riding unaccompanied on the roads to improve their safety is sound, it should be taken a step further.

Anyone applying for a provisional licence of any kind, should be required to pass a theory and hazard perception test first. This would ensure that anyone considering using the road with any form of powered transport would be more prepared, and therefore safer. As part of the DVSA consultation, it was also commented that learner car drivers could benefit from experiencing some PTW training.

Improving the education of tomorrow's road users?

- Government should use curriculum time in secondary education to help young people understand the Highway Code.
- Government should consider changing the process of licence acquisition, so that a single multi-mode theory and hazard perception test pass is required, prior to a provisional licence being obtained.

30 DVSA Consultation Responses Improving Moped and Motorcycle Training, December 2017, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/668960/improving-moped-motorcycle-training-response-to-consultation.pdf


MCIA RIDE accreditation is a sign of high quality training at an ATB (training school).
Promotion of MCIA RIDE standards will encourage new PLV users to access high quality training.
MCIA RIDE standards are endorsed by DVSA.
mcia RIDE
Industry Approved Motorcycle Training
SETTING THE STANDARD FOR QUALITY TRAINING

The PLV family covers a wide spectrum of lightweight 2, 3 and 4 wheeled vehicles. As most of these vehicles are currently mopeds, scooters and motorcycles (also known as PTWs), the applicable licences are AM, A1, A2 or A. The only way to target all users of these vehicles is to improve the initial training that they receive. This pre-test training is mandatory and regulated by the Driver and Vehicle Standards Agency (DVSA).

The MCIA believes that better training will result in safer road users, and in 2013 it developed and funded an accreditation scheme now known as MCIA RIDE. This included setting up an Institute of the Motor Industry (IMI) approved accreditation centre and developing bespoke Quality Assured programmes which are both IMI approved and maintained at ISO 9001:2015 standards.

Pre-test Motorcycle training is carried out at DVSA Approved Training Bodies (ATBs) facilities. MCIA RIDE offers these ATBs two courses; one aimed at the ATB Owner or Manager, covering both safety and customer service, the other developed for the instructors working at the ATB.

MCIA RIDE accreditation enables the ATBs to demonstrate that not only do they meet the standards laid down by the DVSA, but they exceed them. The motorcycle training industry has suffered from a lack of recognition and professional status for too long, with the quality of CBTs often the subject of complaints, with shortcuts being taken that can endanger the lives of learner riders. ATBs who are investing in their businesses to raise standards and consequently improve safety should be recognised.

The DVSA have been supportive of MCIA RIDE and have endorsed the scheme. They carried out a thorough evaluation of the ATB Owner course during 2017. They found that:

> *"The comprehensive framework developed by MCIA RIDE provides detailed and clear exemplar standards of business operations that ATBs should aspire to as best practice."*

Other organisations have seen the importance of the accreditation:

- Transport for London funded a project to ensure coverage of MCIA RIDE ATBs and instructors across London. They have also trialled a number of projects working only with MCIA RIDE accredited ATBs.
- Northamptonshire Highways will only promote and work with MCIA RIDE ATBs, as they acknowledge that the standards are uniformly high and want to ensure that their work to encourage more people onto PTWs results in well trained riders.
- MCIA are working with motorcycle manufacturers to encourage their dealer network to partner with an MCIA RIDE accredited ATB. This will offer a complete customer package, that incorporates learning to ride into their purchase process.

There are approximately 190,000 CBT certificates issued to ATBs each year, so the opportunity to positively influence a large number of riders is high. However, more work still needs to be done to raise the standard of all ATBs, as better quality training will result in safer riders.

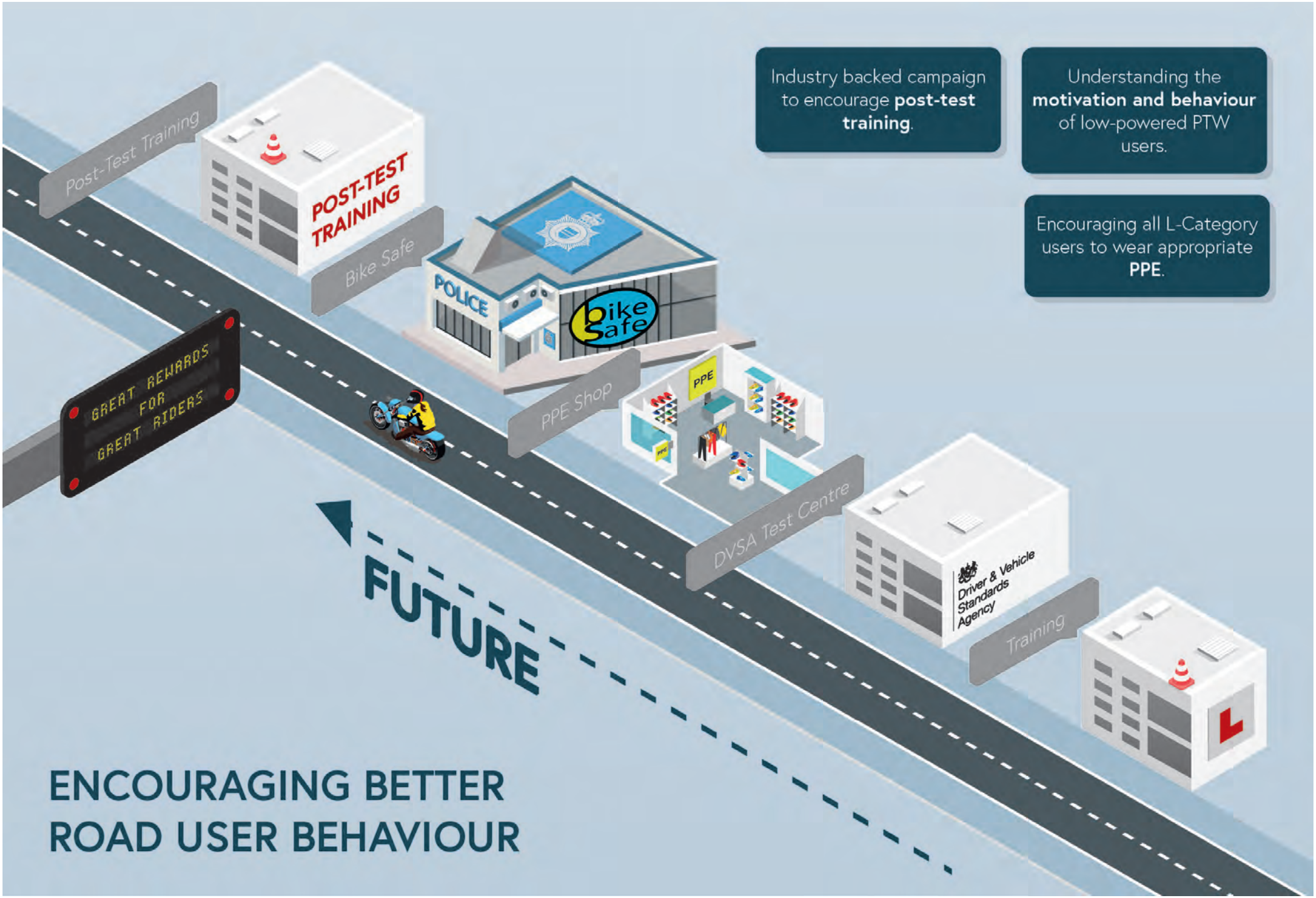
The DVSA currently check each instructor every 4 years. The check is based on observations during the pre-arranged visit (although unannounced spot checks are now being used effectively on those ATBs who are significantly underperforming). DVSA are also evaluating ATBs overall, indicating whether instruction at a particular ATB is likely to be of a suitable standard.

MCIA RIDE quality assurance processes go much further and include an annual visit, as well as surveying customers of accredited ATBs. This enables MCIA RIDE to monitor performance at all times, not just when an assessor is present.

To fully exploit the many benefits of PLVs, users must be confident, safe and responsible on the road.

How can standards for motorcycle training be raised?

- Raising the quality of training for novice riders should be a priority for Government. Support from DfT/DVSA to encourage ATBs to meet MCIA RIDE standards should be included in policies.
- The benefits of using MCIA RIDE accredited ATBs should be made available to the public via the DVSA, Think! websites and promotional materials.
- DVSA should only offer "Earned Recognition" status to ATBs who have a robust quality assurance mechanism in place, one which is at least equal to that of MCIA RIDE.
- Industry to raise awareness of MCIA RIDE among the public, so potential customers are aware of the benefits of accredited ATBs.
- Seek further industry and major manufacturer partnerships to promote and support MCIA RIDE ATBs.


Industry backed campaign to encourage **post-test training**.
Understanding the **motivation and behaviour** of low-powered PTW users.
Encouraging all L-Category users to wear appropriate **PPE**.
Post-Test Training
POST-TEST TRAINING
Bike Safe
POLICE
bike safe
PPE Shop
PPE
GREAT REWARDS FOR GREAT RIDERS
DVSA Test Centre
Driver & Vehicle Standards Agency
Training
FUTURE
ENCOURAGING BETTER ROAD USER BEHAVIOUR

In 2018 Government announced that they were refreshing the British Road Safety Statement and highlighted four areas of concern, with PTW riders being one of the four. The most effective way to target riders in any quantity is to reach them at the entry point. Pre-test training is legislative and not voluntary therefore, changes to legislation which improve the quality of training received at this stage will result in safer road users. MCIA RIDE is a way to ensure pre-test training is improved.

However, there are over a million existing Category A (PTW) licence holders. Funding and promotion of post-test training for all modes is lacking and progress must be made to improve both riding and driving skills among full licence holders.

There are also over 190,000 Compulsory Basic Training (CBT) certificates issued each year, many to riders who do not progress past this basic training.

Although available data relating to accident causation factors is not completely clear, it is evident that rider error is a contributory factor in some cases. This is an area where the MCIA feels that the PTW industry can do more to target riders who are unlikely to put themselves forward for voluntary post-test training.

As post-test training and skills development is voluntary the number of riders benefitting from it is relatively small. However, it is clear that many of the collisions recorded, whether the fault of the rider or not, would have been mitigated or avoided altogether had the rider undertaken advanced training.

The National Police Chiefs Council have a remit to improve PTW safety. This includes supporting BikeSafe, a popular police led safety initiative, offering assessments to riders and promoting post-test training. BikeSafe workshops explore the most common causation factors faced by riders. By delivering theory presentations combined with observed rides, a BikeSafe workshop helps riders to discover their strengths and weaknesses and encourages them to take post-test training. Around 26% of BikeSafe attendees subsequently sign up with IAM RoadSmart (a registered charity which aims to improve riders' and drivers' skills).

It is the MCIA's objective to instil a sense of responsibility in the minds of riders and for them to make positive choices in the decisions they make and the way they ride. This will improve safety overall.

INDUSTRY BACKED CAMPAIGN TO ENCOURAGE POST-TEST TRAINING

Medium and large capacity motorcycles (over 125cc)

The MCIA is uniquely placed to co-ordinate with manufacturers, as well as other member companies, to offer incentives for riders to take post-test training opportunities. It is also working with the specialist media to make training aspirational and high profile.

A joint industry campaign would target riders and provide incentives where necessary, to encourage more riders to undertake post-test training, such as the DVSA's relaunched Enhanced Rider Scheme (ERS), IAM RoadSmart or ROSPA courses. The provision of traditional incentives such as discounts on products or insurance will be offered and where possible the inclusion of non-traditional incentives that money can't buy.

It is not known how many riders take further training to improve their skills after passing their test, but it is only a few thousand of the one million-plus "Category A" licence holders. Many of the riders who take courses to improve their skills take multiple or repeat courses, so the number of individual riders participating could be far lower.

BikeSafe workshop data from 2010 to 2018 shows that 14% of attendees had previously attended a BikeSafe workshop and 11% had previously taken an alternative form of post-test training, before their BikeSafe workshop. Some had repeated several times.

Given that around 45,000 riders pass a Category A2 or A licence test each year and over a million already have a Category A licence of some kind, there is clearly potential for post-test training. IAM RoadSmart in their 2019 Manifesto also acknowledge the need for the post-test training support:

> *"IAM RoadSmart advanced riding courses must be more widely supported to allow powered two wheelers to fulfil their promise as a key solution to our congestion and pollution problems."*[31]

Unique or inspiring incentives, combined with a sustained national advertising campaign will encourage more riders to come forward to improve their skills. MCIA will:

- Encourage members to help promote this scheme on their websites and within marketing campaigns.
- Partner with motorcycle media to make post-test training more appealing and interesting to more riders.
- Make it an aspirational goal to improve riding skills, rather than something only the safety conscious riders do.

Understanding why riders behave in the way they do is important. In addition, understanding why people choose certain types of vehicle is also important. As PLV use expands beyond its traditional enthusiast base, it is important that industry can reach this new breed of user with our safety message, however they consume information.

It is also important for the industry to understand that although an expanding PLV market presents many opportunities, the reputation and stereotypes from the past are long remembered. Consequently, we must endeavour to make it socially unacceptable to use the roads irresponsibly or with a lack of training.

The MCIA will work with a range of stakeholders to promote this campaign including DfT, NPCC, Highways England via their Motorcycle Working Group, user groups and the wider road safety and PLV industry and carry out research and evaluation to monitor its effectiveness.

Small capacity mopeds, scooters and motorcycles (50-125cc)

Although many local authorities have attempted to facilitate young rider safety interventions, these have often been subject to very little research or evaluation. As a consequence, it is difficult to quantify the effectiveness of any activity.

Any new PLV interventions by government or local authorities should be thoroughly researched in the planning stages, with measurable outcomes set and evaluation of the effectiveness completed at the end of the intervention.

With some exceptions, the under 25 age group are generally not motorcycle enthusiasts. There is no research available to advise road safety practitioners on how these young people can be reached (for example, advertising at motorcycle venues would be ineffective), what messages

31 IAM RoadSmart 2019 Manifesto, https://www.iamroadsmart.com/docs/default-source/default-document-library/iam-roadsmart-manifesto-2019.pdf?sfvrsn=6b4a15a6_0

they may respond to, or how to influence their choices and behaviours.

A completely different approach is required for young riders, but without research to determine the correct way to do this, many road safety practitioners are resorting to leaflets and posters, in the belief that anything is better than nothing. This is not the best use of scarce resources.

A national research project to ensure future campaigns are targeted correctly and that the messages can be delivered effectively, is much needed. The MCIA, working with others, will develop a specification for this important research and attempt to identify a funding stream.

As part of the aim to encourage better road user behaviour, MCIA will also work to encourage those riding on CBT only to take a full Category A test (A1, A2 or A).

This group of riders is of varying age and they predominantly use their PTW for commuting or to facilitate employment as delivery riders.

To reach the young riders in this group will require findings from the research mentioned above, and riders of small PTWs will potentially require different incentives to motivate them to progress to test.

Hard to reach riders

Where education doesn't work, enforcement may be the only option. The RiDE (Rider intervention Developing Experience) course has been designed for motorcyclists, as one of the groups most likely to be involved in a serious injury collision, whose behaviour has brought them to the attention of the police. This course is based in the classroom and addresses the behaviour of those motorcyclists whose riding could be described as thrill or sensation seeking. It also caters for those who, by the very nature of their riding, could be perceived as anti-social or careless. The use of this scheme should be extended.

Encouraging the use of Personal Protective Equipment (PPE)

TfL State:

> *"Research shows that the probability of protective clothing preventing an injury ranges from 17 per cent to 26 per cent for injuries to the upper torso, from 20 per cent to 45 per cent for the upper extremities, from 11 per cent to 39 per cent for the lower torso and from 21 per cent to 45 per cent for the lower extremities. This supports the need for an increased focus on the use of protective clothing which could result in a reduction in the extent and seriousness of motorcyclist injury in the Capital, in the event of collisions occurring."*[32]

PPE covers all types of PLV clothing; purpose-made protective gloves, jackets, trousers, helmets and boots all help reduce the severity of injuries sustained by riders. Kevlar, Gore-Tex and Lorica are examples of modern textiles that can be used as an alternative to traditional leather clothing and will offer good abrasion resistance. Garments can be lightweight, comfortable, waterproof and breathable, while being warm in winter and cool in summer.

Airbag technology offers riders the opportunity to protect themselves further with some leading manufacturers offering the ability to cover the spine from the cervical vertebrae to the coccyx with an airbag that inflates in just 80 milliseconds. Some manufacturers offer this technology built into vests or jackets to cover the thoracic area to protect the ribcage and vital organs such as the heart and lungs.

32 Transport for London Motorcycle Safety Action Plan, Page 16, March 2014

Clothing, body armour and airbag protectors must meet approved EU standards to be classified as PPE and must carry the appropriate CE logo.

One of the barriers to the use of PPE is price. Currently only helmets are VAT exempt by law, but extending this benefit to all items of PPE would create net savings by reducing the burden on the NHS, as well as supporting a greater take up of approved PPE.

Government action

With industry taking responsibility for the riders whose skills, attitudes or behaviours can be improved by further training; government has responsibility to educate drivers and other road users to raise awareness of PLVs. There are many collisions where the primary cause is inattention or failure to see the PLV user. This is often the case with vehicles turning right across the path of the oncoming rider or emerging from a junction, violating the rider's right of way.

Government has highlighted PTW riders as a vulnerable user group in the British Road Safety Statement. To improve the safety of all PLV users, government must take action to ensure that the road infrastructure is safe, but also importantly that other road users are aware of PLVs. The general awareness and understanding of the characteristics of PLVs among drivers is currently low, and increasing this would go a long way to improve safety.

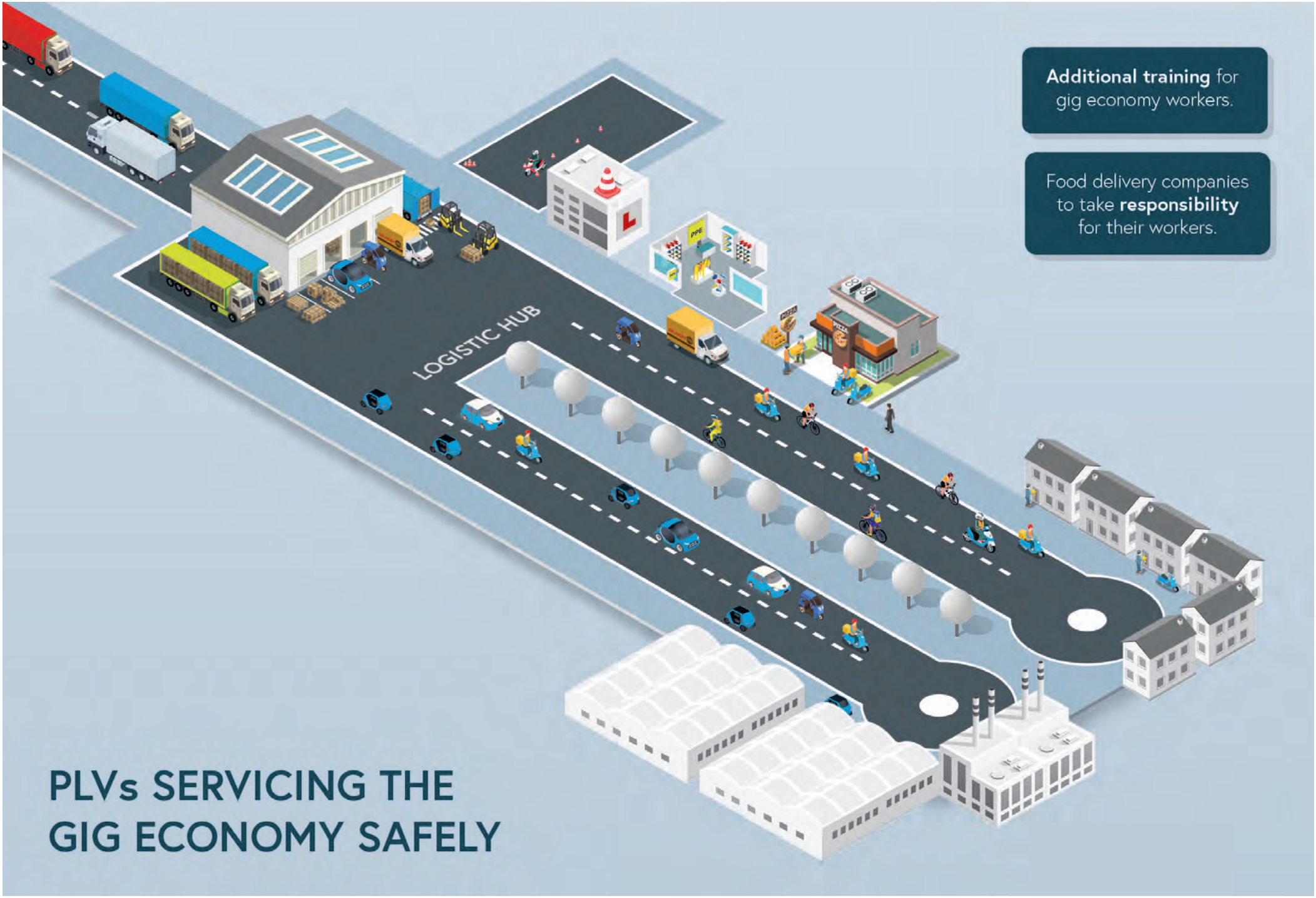
There are a number of ways in which this can be done including:

- **Think! brand advertising campaign** - there have been some highly successful awareness campaigns used and this is a way to ensure that drivers and others look out for vulnerable road users. It is important that any creative does not feature shock tactics, which could alienate those considering PLVs.
- **Driving instructor guidance** - ensuring that safety messages about other road users are taught as part of car lessons.
- **Information portals** – providing easy to understand advice and guidance. A good example of this is the Highways England Driving Hub.[33]
- **Hazard Perception test** – ensuring that a range of clips are used featuring various PLVs.

How to develop better, safer road users?

- The PLV industry to develop and promote a campaign to improve rider safety by encouraging more riders to take up post-test training, through the DVSA's relaunched Enhanced Rider Scheme (ERS), IAM RoadSmart or RoSPA.
- Prior research and post-event evaluation of industry activity to ensure ongoing effectiveness.
- Convene a group of stakeholders to develop a national research project to identify the motivations, communications channels and behaviour change techniques needed to reach and influence young riders (under 25 years).
- Government to allow VAT exemption on all PPE clothing.
- Government to ensure that a safety action plan to raise awareness of PLV users is established.

33 www.drivinghub.co.uk



Additional training for gig economy workers.

Food delivery companies to take **responsibility** for their workers.

PLVs SERVICING THE GIG ECONOMY SAFELY

The opportunities that PLVs can offer to gig workers delivering goods has been explained on page 28. However, in order for these opportunities to be fully realised, the safety considerations must be understood and actioned.

The UCL Centre for Transport Studies carried out a study with the aim of 'exploring the experience of risk and risk management among drivers, riders and managers, to understand how safety is taken into account in driving or riding for work for those engaged in the gig economy.'

The report found that:

> *"The emergence of the gig worker as a way to work to satisfy the public's appetite for fast delivery of goods, food and people could give rise to a perfect storm of risk factors affecting health and safety not just of the people who work in the economy but for other road users".*[34]

As part of the study, PTW users were interviewed and felt less pressured than those who made deliveries in cars and vans. This may be due to the fact they do not have to sit in traffic. Some of the interviewees admitted to taking safety risks in order to carry out more deliveries.

Some of the respondents in the study also reported being incentivised for going out to deliver in adverse weather conditions.

In terms of training for riders the report states that:

> *"Several participants observed that the companies they worked for were actually recoiling from providing any form of safety training because they did not want to be perceived as acting like an employer."*[35]

Many of the riders using small PTWs (up to 125cc/11kW) are doing so after taking only Compulsory Basic Training (CBT certificate). They are often young, sometimes with English as a second language and are riding on a provisional licence. There are calls by some safety organisations to stop this practice so that unlicensed riders cannot use their PLVs for work. The DVSA have consulted on changes to ensure that anyone wishing to take a CBT must first pass the theory test. This will ensure they have a thorough understanding of the Highway Code and Hazard Perception awareness. A reduction in rider casualties can be expected with this change.

Tailored courses, such as those designed for TfL, would help prepare these riders for carrying out their duties and include specific skills such as riding with a satellite navigation system, securing loads and how to cope with the pressure of timed deliveries.

If managed with safety in mind, PLVs offer a great opportunity for businesses. For example, the Government recently announced the provision of up to £2 million in support for businesses purchasing e-cargo bikes. The funding will contribute 20% of the purchase price of new e-cargo bikes up to the first £5,000. This gives a maximum grant of £1,000 per bike, regardless of the purchase price of the bike.

Many EU member states already offer subsidies and tax breaks for electric vehicles, including PLVs, and this makes them more attractive for use within the gig economy. In the case of the UK, these incentives would help government and industry towards goals of improving urban health and environment while ensuring the smooth flow of deliveries to business and residential properties. TfL should be commended for their development of a course aimed specifically at improving the skills needed by delivery riders. TfL work with MCIA RIDE schools to offer this course to delivery riders.

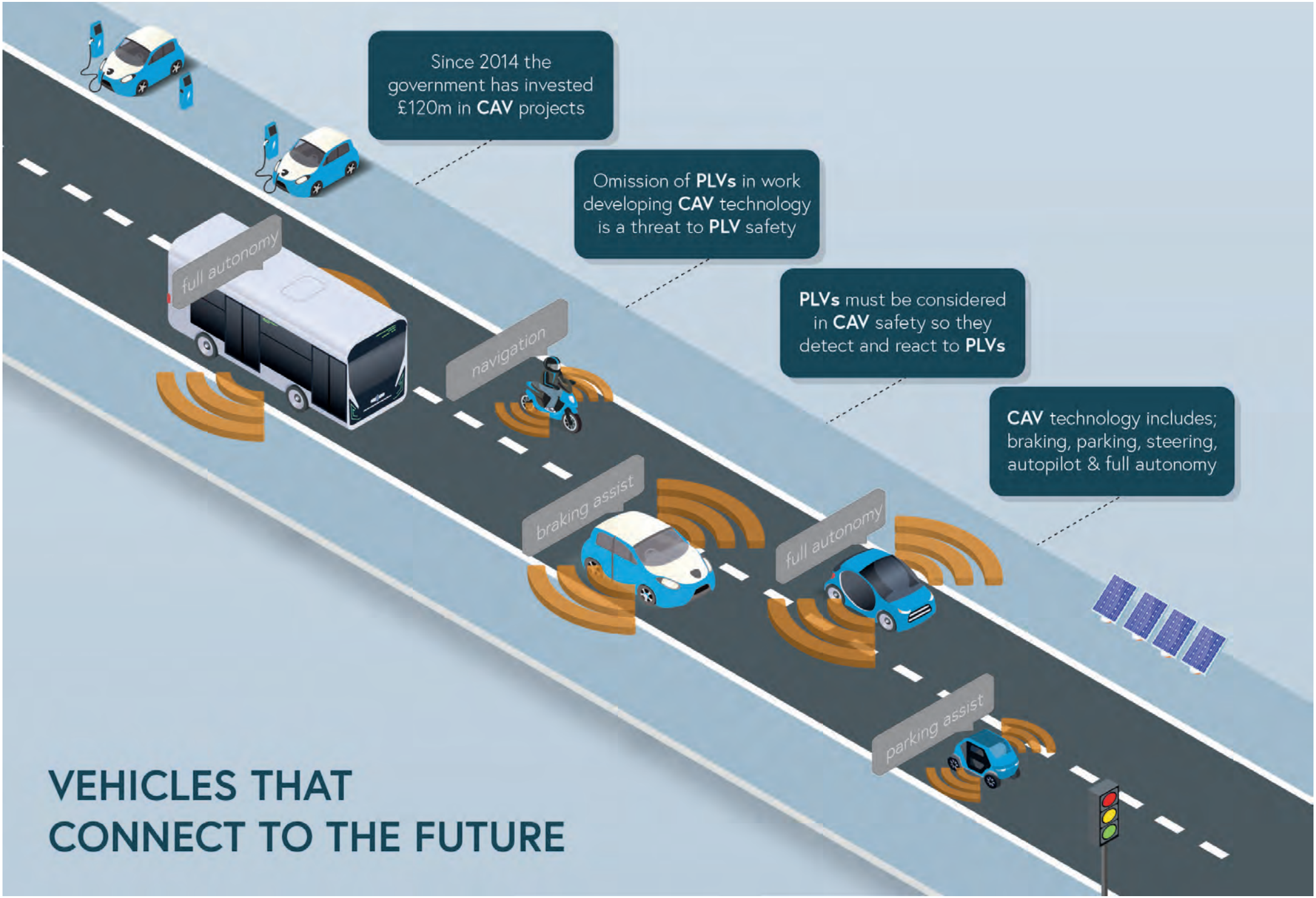
34,35 The emerging issues for management of occupational road risk in a changing economy: A survey of gig economy drivers, riders and their managers, UCL

It is important that those who ride for a living receive high quality training to ensure they are well prepared. Not all training schools are of the same quality. A course such as that developed by TfL and the MCIA could easily be utilised elsewhere and offered through MCIA RIDE centres nationwide.

Employers and those employing the services of gig PLV users need to take responsibility in this area and require their staff to take these extended courses.

How can PLVs service the gig economy safely?

- More pressure on food delivery companies by Government to consider their duty of care to gig economy riders and ensure that they are adequately trained and are using appropriate PPE.
- Additional training must be required by employers for riders with only a provisional licence.


Since 2014 the government has invested £120m in **CAV** projects
Omission of **PLVs** in work developing **CAV** technology is a threat to **PLV** safety
PLVs must be considered in **CAV** safety so they detect and react to **PLVs**
CAV technology includes; braking, parking, steering, autopilot & full autonomy
full autonomy
navigation
braking assist
full autonomy
parking assist
VEHICLES THAT CONNECT TO THE FUTURE

Connected and Autonomous Vehicles (CAVs) are arguably one of the biggest technological advances in transport for decades and can help realise the aim of working towards Vision Zero.

Since 2014 the Government has invested £120 million in CAV projects, with industry contributions accounting for an additional £68 million. Many different sectors have been involved in research, development and testing of these vehicles. In 'The Road to Zero', the Government has committed itself to working with industry to create a world-leading test environment for connected and autonomous vehicles.

Examples of automated vehicles have ranged from commercially available vehicles fitted with technologies such as Autonomous Emergency Braking or Park Assist to near full autonomy, badged as 'autopilot'[36]. In some controlled areas, fully autonomous pods such as those operated by Ultra Global PRT[37] can be seen delivering passengers from the car park to Heathrow Terminal 5.

The PLV sector offers an ideal platform for connected vehicles. There is no reason why PLVs cannot fulfil their potential role in improving air quality and congestion within the CAV model. PLVs are evolving to incorporate CAV technology and will play a part in the exciting developments that will see safer, less congested travel for all.

Including PLVs at this early stage will enable them to take their place in the traffic mix at the earliest opportunity, as replacing one million cars with one million autonomous cars, will do nothing to ease congestion. However, replacing one million cars with one million small footprint PLVs would free up considerable road space, potentially for other uses.

Sometimes transport policy changes can be implemented to improve the situation for a group of road users, but indirectly impact negatively on other modes. While there is no doubt that introducing CAVs can greatly improve road safety, this will only be possible if all modes of transport are considered together. This must include PLVs, which should be factored into the development and operation of CAVs at the earliest possible opportunity.

The first principle in the DfT's Future of Mobility: Urban Strategy is:

> *"New modes of transport and new mobility services must be safe and secure by design."*[38]

They further confirm that:

> *"Before self-driving vehicles are approved for commercial service, industry will have to clearly demonstrate to regulators that they are safe."*[39]

Several recent studies have warned that CAVs currently pose a particular safety threat to smaller road users such as PLVs. Although bicycles are frequently included in CAV safety studies, PLVs are rarely treated similarly.

However, the ongoing development of connected PLVs, including by BMW and Yamaha[40], shows how they can be integrated into a future transportation matrix and benefit from new safety technology. This will help make it safer than ever to use a PLV.

Other types of new technology, such as intelligent road studs which can communicate with suitably equipped vehicles to warn of potential hazards[41] will offer extensive safety benefits, and it is essential that PLVs are included in the current trials and testing of this technology.

36 https://www.tesla.com/en_GB/autopilot 37 http://www.ultraglobalprt.com/ 38,39 DfT, Future of Mobility: Urban Strategy, March 2019, Page 40 40 http://www.thedrive.com/tech/5219/how-will-motorcycles-fit-into-our-autonomous-connected-future, https://www.press.bmwgroup.com/global/article/detail/T0114536EN/bmw-motorrad-innovation-day-2011-bmw-motorrad-connectedride-advanced-safety-concept, https://www.forbes.com/sites/jeanbaptiste/2018/09/14/bmw-unveils-the-first-driverless-motorcycle/#5a9cf78e26ad

Highways England has recognised changing technologies and has made this one of their eight research priorities. The priority shows as *"technologies: increasing pace of change in vehicle technology and increasing connectivity and integration of vehicles with infrastructure"*.

The MCIA's European umbrella organisation, ACEM and its members, have been working closely with automotive manufacturers to develop interoperable standards for vehicles to ensure they can communicate safely and efficiently via the Connected Motorcycles Consortium (CMC)[42]. As part of this, manufacturer members of ACEM have committed to introduce at least one of their PTW models equipped with Cooperative-Intelligent Transport Systems (C-ITS) functionality by the year 2020.

The need for the CMC became apparent once it was clear that the wider global academic and public policy activity on Intelligent Transport Systems (ITS) and connected/autonomous vehicles was not taking PLV-specific aspects into sufficient account. For example, a 2018 report produced by the Dutch testing authority RDW showed that many Adaptive Cruise Control systems have trouble recognising PLVs.[43] This clearly represents a latent and growing road safety issue as well as a missed opportunity for transport policy development capitalising on the potential benefits of this technology.

How to ensure that PLVs are considered during the testing phase of CAVs:

- Researchers, R&D specialists, policy makers and regulators must ensure that new connected and autonomous vehicles detect and react appropriately to PLVs.
- Work on the development of PLV relevant CAV technology to be progressed.
- Government to commission an independent study to highlight areas of concern with reference to visibility of PLVs to connected and autonomous vehicles and suggest measures to mitigate these risks.

41 https://www.gov.uk/government/news/intelligent-road-studs-to-improve-road-safety **42** https://www.cmc-info.net/ **43** http://www.fema-online.eu/website/wp-content/uploads/Final%20Report_motorcycle_ADAS_RDW.pdf

ADDITIONAL SAFETY CONSIDERATIONS

When considering PLVs within transport strategy, there are additional safety considerations.

PLV accessibility – training and testing

The current training and testing regulations for L-Category vehicles (PLVs) are complicated by the number of sub sections and the varied vehicles within them. As an example, a sub section of the L6-Category allows for the Aixam quadricycle (which looks like a small car and is controlled by a steering wheel) to be driven either by a person with a full car licence or a moped licence. The moped licence can be obtained from age 16. The tests for these vehicle types are very different, with one involving taking a moped on and off its stand, for example. In this scenario, passing a moped test would allow someone to operate a vehicle with very different controls and handling.

In the longer term, the MCIA would welcome the opportunity to work with the DVSA to ensure that drivers and riders of the many and varied vehicles which are covered by L-Category legislation are trained and tested on appropriate skills, as vehicles which use a steering wheel and those with handlebars behave very differently.

Local government

When local governments are working to improve the safety of PLV users, which in the short term may be traditional moped, scooter or motorcycle riders, it is crucial that they promote high quality training if they are not already doing so. MCIA RIDE schools have proven as part of their rigorous quality assurance that they offer this. Local authorities should link to their local MCIA RIDE schools. In addition, local authorities should support the responsible riding campaign which will be introduced by the industry (see page 44).

Infrastructure designs should be considerate of PLVs. This means that ensuring transport and highways engineers are aware of these vehicles and their characteritsics or restrictions. Highways England's Motorcycle Working Group is keen to ensure that these vehicles are considered at the earliest stages of road design. As a direct result of the feedback from the working group and the wider PTW community, Highways England established an Infrastructure Working Group, who were responsible for the revision of the Design Manual for Roads and Bridges (DMRB). Consequently, PLVs were included in the revision of DMRB. This manual is used by Highways England staff for the strategic road network, but importantly, also by those who develop Local Authority networks.

In addition, these resources offer useful information:

- The Institute of Highway Engineers Guidelines for Motorcycling[44]
- The TfL Urban Motorcycle Design Handbook[45]

Whilst these were written to cater for just one type of PLV (L3-Category), the principles apply to many PLVs.

In order to improve congestion and air quality, it is important that the benefits of using these types of vehicles are not restricted. Changes to infrastructure have resulted in PTWs being stopped from filtering (a legal manoeuvre which reduces congestion), or have been forced into very narrow spaces between larger vehicle types, where riders can rightly feel very vulnerable and therefore discouraged.

44 http://www.motorcycleguidelines.org.uk/ 45 http://content.tfl.gov.uk/tfl-urban-motorcycle-design-handbook.pdf

Sharing schemes

Many areas have sharing schemes in place for cars and bicycles. The MCIA supports proposals to introduce sharing schemes, and urges government to consider PLVs. It is not however recommended that safety helmets are shared. Safety could be compromised if a helmet is not properly fitted to an individual user.

The training that PLV riders receive can vary significantly across the country and it is therefore important to ensure that when introducing new users, high quality training is available. This should also be considered before adopting sharing schemes. MCIA RIDE ATBs have proven that they deliver high quality training and satisfy rigorous quality assurance standards every year, backed by positive customer feedback. Encouragement by government for PLV users to take up high quality training would help ensure safe and responsible road use.

Healthy Streets

The intended consequence of encouraging Healthy Streets is to see a rise in pedestrian and cycle activity. It has been suggested that pedestrians should always have a greater right of way. This changing transport mix could see a rise in KSIs as the road user groups will not necessarily be behaving as expected. Street design and awareness campaigns should have the safety of all road users, including PLVs, in mind.

Highways England has highlighted this in their Accessibility Strategy, which looks to improve accessibility of the Strategic Road Network to vulnerable road users.[46]

Moving people to work

PLVs can offer opportunities to help those on lower incomes, for example apprentices, to travel to work; where walking, cycling or public transport are not options. This can be particularly useful for those living in rural locations. Schemes such as the Wheels to Work (W2W) charity, provide small capacity PLVs to customers, along with CBT training, insurance, road tax, a helmet and other PPE. W2W providers report that their customers have a good safety record and many customers go on to purchase their PLV after the initial leasing term has ended, ensuring them cost effective and efficient transport.

Companies make sizable investments in their apprentices and have a duty of care for their wellbeing, therefore it is vital that any scheme that provides commuter PLVs to them is supported by quality training. This can be delivered by an MCIA RIDE provider with additional training, a condition of a PLV loan.

Any schemes designed to help people to access employment via PLVs should include more than the legal minimum requirements for safety clothing and equipment. It is also crucial to ensure that high quality training is available for these road users, and that other road users are aware of them and identify them on the roads.

46 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/526226/S150749_Accessibility_Strategy_4pp_V3.pdf

TO SUMMARISE:

This policy document highlights the many benefits and significant contributions that PLVs can offer in meeting the challenges to modernise transport throughout the UK and in several settings (urban, suburban and rural). The benefits have been explained in full, including the impressive results of the Congestion Impact and Air Quality Study. Encouraging people to choose the right vehicle for the right journey will be key to meeting some of the upcoming challenges. Both national and local government can deliver real improvements and should look at PLV strategies within their wider transport policies. Healthy Streets ambitions can be realised while still allowing people to make their own choices about the right vehicle for them. This policy has demonstrated clearly how PLVs can improve access to employment, in particular apprenticeships and give rural communities enhanced mobility, especially where public transport infrastructure is limited. Equally, PLVs provide obvious answers where long established cities present insurmountable challenges for public transport development.

This policy also embraces road safety in a realistic and workable manner, that allows for development that can quickly realise real change of the transport landscape.

There is much work to do and the MCIA looks forward to working with all partners and stakeholders in order to meet the "Grand Challenges" set out by the Government earlier this year.

To find out more please call us on **02476 408000**.

We look forward to hearing from you soon.

GLOSSARY

ACEM	European Association of Motorcycle Manufacturers
BEIS	Department for Business, Energy and Industrial Strategy
CAVs	Connected and Autonomous Vehicles
CAZs	Clean Air Zones
CBT	Compulsory Basic Training
C-ITS	Cooperative Intelligent Transport Systems
CMC	Connected Motorcycles Consortium
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DPD	Direct Parcel Distribution
DVSA	Driver and Vehicle Standards Agency
ERS	Enhanced Rider Scheme
FORS	Fleet Operators Recognition Scheme
HGV	Heavy Goods Vehicle
IAM	Institute of Advanced Motorists
IMI	Institute of the Motor Industry
KSI	Killed or Seriously Injured
NPCC	National Police Chiefs Council
OLEV	Office of Low Emission Vehicles
PLVs	Powered Light Vehicles
PPE	Personal Protective Equipment
PTWs	Powered Two-Wheeler
SME	Small or Medium Enterprise
TfL	Transport for London
UCL	University College London
Ultra-Global PRT	Ultra-Global Personal Rapid Transit
VAT	Value Added Tax
VED	Vehicle Excise Duty
W2WA	Wheels 2 Work Association

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47 https://www.local-transport-projects.co.uk/

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