



Guidance note

ELECTRICALLY POWERED TWO-WHEELED VEHICLES

Introduction

This document is intended to provide clarity for UK Fire Service personnel of the issues around Electrically Powered Two-Wheeled Vehicles. (EPTWs).

This guidance is relevant as of the date of this note; however, personnel should be mindful that this is a fast-moving industry. The intent is to capture the subject to date with a view to regularly updating the information within the guidance and adding to it as the industry progresses.

Due to the differing types of EPTWs and the vast range available within each type it is not the intention of NFCC to attempt to supply technical detail but rather to give an overview on this emerging subject that we can build upon.

There are many differences in the technical specification of the vehicles themselves, and differences in taxation, licencing, training and PPE requirements. In some cases, the lines between types of vehicles can be somewhat blurred.

Electric bicycles and motorcycles have been around for many years, however improvements in battery technology, and the government's vision for green personal transport have encouraged the development of other forms of similarly powered vehicles such as electric scooters.

The significant increase in the use of EPTWs has significant implications for our road safety agenda. Whilst Police colleagues will have the task of enforcing the various laws and regulations regarding their construction and use, should EPTWs begin to appear in road traffic collision statistics there is a potential need for them to be factored into FRS prevention activities.

Electric Scooters (e-scooters)

[The government is currently running localised trials of electric scooters in Great Britain.](#)

Where these trials are running, they only involve e-scooters that are rented, NOT privately-owned. Currently, it is illegal to use a private e-scooter on a public road, cycle lane or pavement. The can only be used on private land with the landowner's permission.

The trials will end by the 1st September 2021, unless extended.

After these trials are complete, it is possible that the final specifications, laws, etc regarding these e-scooters may change.

Current legislation dictates the following:

- Electric scooters are officially designated as 'e-scooters'
- Riders must be 16 or over and have a UK provisional licence for categories AM, A or B
- There is no requirement for e-scooters to be registered or taxed

- Insurance is required but will be provided as part of the rental agreement during the trials
- Helmets are recommended, but not a legal requirement
- No mandatory training is required, though hire companies may offer this to renters

Designation as an e-scooter

- Is fitted with no motor other than an electric motor with a maximum continuous power rating of 500W and is not fitted with pedals that are capable of propelling the vehicle
- Is designed to carry no more than one person
- The maximum speed permitted is 15.5 mph
- Has two wheels, one front and one rear, aligned along the direction of travel
- Has a mass, including the battery, but excluding the rider, not exceeding 55kg
- Has means of directional control via the use of handlebars that are mechanically linked to the steering wheel
- Has means of controlling the speed via hand controls and a power control that defaults to the 'off' position

The government originally stipulated that these scooters have 'no provision for seating' but have changed this to allow seated variants, provided they meet the other requirements.

Where e-scooters can be ridden for the purpose of the trials

On the road (not motorways) and in cycle lanes. NOT on the pavement. Local authorities may need to update their local Traffic Regulation Orders for these trials.

How will the trials be evaluated?

Primary aim – to build robust evidence about the safety, benefits, public perceptions and wider impacts of e-scooters in order to inform legal changes that may be necessary after the trial period ends.

Secondary aim – to understand how the local transport systems are working, what factors support or hinder this, and learn lessons for future rollout, to include;

- Safety outcomes for e-scooter users and what influences these
- Interaction with, and effect on, other road users
- Public perceptions of e-scooters, including people with disabilities and related groups
- Nature of modal shift and new journeys that have been enabled
- Characteristics of users and how uptake and outcomes differ for different groups
- Local authority perception of effects on their transport systems
- Lessons for future rollout
- What a future regulatory system should include, such as speed, vehicle standards, or licensing
- Any other unexpected outcomes

- Overall costs and benefits to society



Figure 1: E-scooters ridden on pavements - common practice that contravenes the law

Electric bicycles

- Officially designated as 'Electrically Assisted Pedal Cycles' (EAPCs)
- Rider must be 14 or over (certain requirements apply)
- No requirement for a licence to ride and it does NOT need to be registered, taxed or insured.
- Helmets are recommended, not mandatory
- No training is required

Designation as an EAPC

- An EAPC must have pedals that can be used to propel it
- It must either show the power output OR the manufacturer of the motor
- It must also show either the battery's voltage OR the maximum speed of the bike
- The electric motor must have a maximum power output of 250 watts and it should not be able to propel the bike when it is travelling more than 15.5mph
- Helmets are not a legal requirement

Where EAPCs can be ridden

If a bike meets the EAPC requirements it is classed as a normal pedal bicycle. This means it can be ridden on cycle paths, on the roads (not motorways) and anywhere else that pedal bicycles are allowed.

Non EAPC bikes

Any electric bike that does not meet the EAPC rules is classed as a motorcycle or moped, which means there are different requirements for registration, taxation, licencing, PPE, etc (see below).

Electric mopeds and motorcycles

To integrate electric mopeds/motorcycles into the existing licencing structure, the government have matched the power output of electric two-wheelers to that of existing petrol-powered motorcycles, except for mopeds, where maximum allowed speed is the criteria used, regardless of how it is powered.

Licence category AM is for vehicles with a speed range of 25-45kph (15.5 – 28mph), regardless of the method of propulsion.

- Minimum age 16
- Compulsory Basic Training (CBT) required
- Must be registered, taxed and insured

Licence category A1 – light motorcycle up to 11kw (and a power-to-weight ratio not more than 01kw per kg) and 125cc

- Minimum age 17
- CBT required
- Must be registered, taxed and insured
- Helmet mandatory

Licence category A2 – standard motorcycle up to 35kw (and a power-to-weight ratio not more than 02kw per kg).

- Minimum age 19
- Direct Access route – theory and practical, or Progressive Access route – two years on A1 motorbike and a further practical test
- Must be registered, taxed and insured
- Helmet mandatory

Licence category A – Unrestricted motorcycles in size/power

- Minimum age 24 (Direct access) or 21 (Progressive access)
- Must be registered, taxed and insured.
- Helmet mandatory

Non- UK standard vehicles

Until final decisions are made about some of the types of electric vehicles, it is inevitable that we will see new and different variations for sale to the public. In general, these are not necessarily illegal to own and use on private land and control of what vehicles are being used on the roads will fall to local authorities and the Police.

Examples include electric bicycles whose power output far exceeds the 250w standard for EAPCs, vehicles that have been modified by their owners to remove restrictors to allow more power and higher speeds and vehicles that meet the legislation in countries other than the UK.

Quick reference guide

	E-scooter (during trial)	EAPC	Moped	Light m/cycle	Standard m/cycle	Unrestricted M/cycle
Age	16+	14+	16+	17+	19+	21 / 24
Licence	Yes	No	Yes	Yes	Yes	Yes
Register	No	No	Yes	Yes	Yes	Yes
Tax	No	No	Yes	Yes	Yes	Yes
MOT	No	No	Yes	Yes	Yes	Yes
Insurance	Yes	No	Yes	Yes	Yes	Yes
Helmet	Recommended	Recommended	Yes	Yes	Yes	Yes
Training	No	No	Yes	Yes	Yes	Yes
Power	500W max	250W	No	11kw	35kw	No
Speed limited	15.5mph	No	28mph max	No	No	No

Useful links

- <https://www.gov.uk/government/consultations/legalising-rental-e-scooter-trials-defining-e-scooters-and-rules-for-their-use/legalising-rental-e-scooter-trials>
- <https://www.bbc.co.uk/news/uk-england-london-53823514>
- <https://www.bbc.co.uk/news/entertainment-arts-53719783>
- <https://roadsafetygb.org.uk/news/west-midlands-e-scooter-trial-set-for-launch/>
- http://www.iapsc.org.uk/assets/document/1216_S_Neville.pdf
- <https://electric-scooter.guide/safety/5-surprising-reasons-youre-more-likely-to-be-injured-riding-an-electric-scooter-than-a-bicycle/>
- https://www.researchgate.net/publication/226612929_E-bikes_and_urban_transportation_Emerging_issues_and_unresolved_questions