



SUOMEN MOTORISTIT RY + FINLAND

# NATIONAL STRATEGY FOR POWERED TWO-WHEELERS

Suomen Motoristit ry Strategy and Position Paper

This page intentionally left blank

# NATIONAL STRATEGY FOR POWERED TWO-WHEELERS

## Suomen Motoristit ry Strategy and Position Paper

### DESCRIPTION

This document contains the strategy of Suomen Motoristit ry (SMOTO) regarding the future of motorcycling and moped use in Finland and the sustainable development thereof.

The document discusses powered two-wheelers from the perspectives of the individual, traffic and movement, roadway infrastructure, environment, the industrial and business sectors, technologies, and intelligent transport and public guidance.

This page intentionally left blank

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	PURPOSE.....	1
1.2	POWERED TWO-WHEELER .....	1
1.3	CURRENT SITUATION.....	1
1.4	OBJECTIVE .....	2
1.5	PARTICIPANTS.....	2
1.6	MOBILIZATION.....	3
1.7	FINNISH AND EUROPEAN COOPERATION.....	3
<b>2</b>	<b>INDIVIDUAL .....</b>	<b>6</b>
2.1	CHILDREN AND YOUTHS ON THE ROAD .....	6
2.2	APPROACH TO SAFETY .....	7
2.3	HUMAN FACTORS.....	7
<b>3</b>	<b>TRANSPORT .....</b>	<b>8</b>
3.1	POWERED TWO-WHEELERS AS A MODE OF TRANSPORT .....	8
3.2	MOTORCYCLES AND MOPEDS AS RECREATIONAL EQUIPMENT.....	10
3.3	TRANSPORT PLANNING .....	10
3.4	UTILIZATION OF TRAFFIC SPACE.....	11
3.5	PARKING .....	12
3.6	TRAFFIC FLOW .....	12
3.7	TRAFFIC MANAGEMENT.....	13
3.8	SERVICE PLATFORMS.....	13
3.9	ROAD SAFETY.....	14
<b>4</b>	<b>INFRASTRUCTURE.....</b>	<b>16</b>
4.1	DESIGNING AND BUILDING THE TRANSPORT INFRASTRUCTURE .....	16
4.2	DETERIORATION AND MAINTENANCE OF THE INFRASTRUCTURE .....	18
4.3	TRAFFIC SIGNS AND SIGNALS .....	18
4.4	MAPS AND GEOGRAPHIC DATA SERVICES.....	19
4.5	CIRCUITS AND TRAINING AREAS.....	19
<b>5</b>	<b>ENVIRONMENT.....</b>	<b>21</b>
5.1	ENERGY CONSUMPTION AND EMISSIONS.....	21
5.2	NOISE.....	22

5.3	LIFECYCLE.....	23
5.4	ALTERNATIVE MEANS OF PROPULSION.....	24
<b>6</b>	<b>INDUSTRIAL AND COMMERCIAL SECTOR .....</b>	<b>25</b>
6.1	POWERED TWO-WHEELERS IN THE FUTURE .....	25
6.2	RESEARCH AND PRODUCT DEVELOPMENT .....	26
6.3	MANUFACTURING, IMPORT, AND SALES .....	27
6.4	REPAIRS AND MAINTENANCE.....	27
6.5	INSURANCE.....	28
6.6	FABRICATION, TESTING, VEHICLE INSPECTION, AND MODIFICATION INSPECTION .....	29
6.7	EDUCATION AND TRAINING .....	30
6.8	SERVICES AND OTHER SECTORS .....	31
<b>7</b>	<b>TECHNOLOGIES AND INTELLIGENT TRANSPORT .....</b>	<b>33</b>
7.1	IN GENERAL .....	33
7.2	VEHICLE CONTROL SYSTEMS .....	34
7.3	GUIDANCE AND ENTERTAINMENT SYSTEMS.....	35
7.4	COMMUNICATION BETWEEN VEHICLES AND VEHICLES AND THE INFRASTRUCTURE .....	36
7.5	AUTONOMOUS VEHICLES.....	36
7.6	AUTOMATED 112 EMERGENCY SERVICE, eCall .....	38
7.7	DATA.....	39
7.8	DATA SECURITY .....	40
7.9	SERVICES AND SERVICE PLATFORMS.....	40
<b>8</b>	<b>PUBLIC GUIDANCE .....</b>	<b>41</b>
8.1	REGULATION .....	41
8.2	TAXATION .....	42
8.3	SURVEILLANCE.....	44
<b>9</b>	<b>FUTHER MEASURES .....</b>	<b>45</b>
9.1	ACTION PLAN FOR STRATEGY DEVELOPMENT .....	45
9.2	INTERACTION WITH AUTHORITIES .....	45
9.3	NORDIC AND EUROPEAN INTERACTION.....	46
	<b>APPENDIX 1 POWERED TWO-WHEELERS, PTW .....</b>	<b>47</b>
	<b>APPENDIX 2 SOUND PRESSURE LEVEL PRODUCED BY POWERED TWO-WHEELERS.....</b>	<b>55</b>
	<b>APPENDIX 3 COMPARING THE DETERMINATION OF THE VEHICLE TAX .....</b>	<b>57</b>

---

# 1 INTRODUCTION

## 1.1 PURPOSE

SMOTO has more than 100 membership associations and more than 18,000 members. SMOTO protects the interests of all 500,000 Finnish motorcyclists and moped users. This document comprises the proposal of Suomen Motoristit ry (SMOTO) for the national strategy for powered two-wheelers in Finland. This PTW strategy presents SMOTO's positions on the various aspects related to PTW vehicles and their operation. The PTW strategy also provides SMOTO's view on the motorcycle and moped strategy being prepared by the public officials at the Ministry of Transport and Communication. The PTW strategy covers all powered two and three-wheeled vehicles that require vehicle insurance (vehicle categories L1C–L5) and the various aspects related to their operation, the traffic, traffic infrastructure and environment, as well as the regulations and taxation from the perspective of motorcycling and moped use in Finland.

## 1.2 POWERED TWO-WHEELER

In this context, **powered two-wheeler** (PTW) refers to **motorcycles and mopeds** powered by a combustion engine or an electric motor. The scope excludes other powered two-wheelers, such as pedal-assisted electric bicycles, Segways, and other such vehicles that do not require vehicle insurance (maximum design speed of less than 25 km/h). These are closer to cycling or walking with respect to their usage.

Until 2017, there existed a clear division between motorcycles and mopeds:

- **Motorcycle** (L3e and L4e) is a two-wheeled motor-driven vehicle, without a sidecar (L3e) or with a sidecar (L4e), and which is equipped with an engine whose cylinder capacity exceeds 50 cm<sup>3</sup> in the case of a combustion engine, or whose maximum design speed exceeds 45 kilometers per hour.
- **Moped** is a two-wheeled (L1e) or three-wheeled (L2e) motor-driven vehicle, whose maximum design speed is 45 kilometers per hour. Mopeds have a maximum allowed cylinder capacity of 50 cm<sup>3</sup> when powered by a combustion engine, or a maximum net engine power of 4 kW when powered by an electric motor.

The classification of vehicles included in the L category changed partially at the beginning of 2017 with the adoption of EU regulation No 168/2013. At this point, sub-categories were introduced, which:

- divided motorcycles into three power bands to support the driving license reform (A1, A2, and A),
- created categories for enduro (AxE) and trial motorcycles (AxT), where x refers to the above power bands,
- drew a distinction between the above-mentioned mopeds and motorized bicycles and three-wheeled people- and goods-carrying mopeds.

## 1.3 CURRENT SITUATION

Finland does not have a comprehensive national strategy for powered two-wheelers. As the leading advocate for motorcyclists, SMOTO pointed out the need for a PTW strategy in 2016 and began the related preparations. The parliamentary transport working group of the Parliament of Finland raised the subject

again in the fall of 2017 as it delivered its interim report to the Parliament, calling for a decision regarding the need for a PTW strategy.

In June 2018, the Ministry of Transport and Communications convened a meeting of experts where the various actors had the opportunity to present their opinions on the scope and contents of a national PTW strategy. In the meeting, the approach favored by the public officials in charge of the preparatory work differed considerably from the views of the leading experts on motorcycles and motorcycling in Finland. However, the ministry called for the Finnish experts and interest groups for motorcycles and mopeds to provide their input in writing and submit it to the public officials in charge of the preparatory work at the ministry. Similarly, the ministry made a commitment to read all feedback received and take it into consideration in the preparation of the proposal for a national strategy for motorcycles and mopeds.

The motorcycling and motorcycle industry expects the Ministry of Transport and Communications to organize a hearing and consultations in early fall 2018 regarding the drafted strategy it has drawn up.

## 1.4 OBJECTIVE

The objective of this document is to publicize SMOTO's strategic views and opinions related to powered two-wheelers. The strategy highlights aspects that should be taken into consideration in the development of the legislation and the operational environment related to motorcycles, mopeds, and the traffic environment. This document presents SMOTO's priorities on various aspects, including but not limited to:

- the use of PTW vehicles as a mean of transport within traffic and as recreational and competitive equipment,
- the impact of operation on traffic, environment, commerce and industry, and service production,
- the effects of roadways, their equipment and maintenance, as well as taxation and regulation on the use of powered two-wheelers,
- qualifying for and obtaining a driving license as well as the available further training opportunities,
- maintenance, repairs, manufacturing, and fabrication of powered two-wheelers.

SMOTO encourages the readers to review this strategy document and to utilize it in their operations. SMOTO will send this strategy to its interest groups and hopes to receive constructive feedback and suggestions for improvement to update and develop this strategy further.

## 1.5 PARTICIPANTS

The following people from SMOTO have contributed to the PTW strategy:

- Marja Kuosmanen, Chairman of the Board, head of project
- Jari Kielinen, Vice Chairman, Advocacy Manager – national affairs,
- Veli-Pekka Ratinen, Partnership Manager,
- Harri Forsberg, Organizational Secretary,
- Jussi Katajainen, Advocacy Manager – international affairs,
- Antti Kemppainen, Development Manager.

The secretary for the strategy work was Aki Lumiaho, leading expert, ITS and relations with the authorities, SMOTO.



---

## 1.6 MOBILIZATION

SMOTO presents the PTW strategy to the general public on its website and social media, to its members in general meetings and specific events, to domestic and European partners in bilateral meetings, future motorcycling industry events in Finland and Europe, and in the Motoparliament events intended for the authorities.

SMOTO engages in active and constant discussions with interest groups regarding the PTW strategy.

## 1.7 FINNISH AND EUROPEAN COOPERATION

SMOTO is an association formed of Finnish motorcyclists, motorcycle clubs, and associations established in 1989 and a cooperative body whose purpose is to monitor and promote the interests of Finnish motorcyclists. SMOTO is an innovative, impartial, pro-active, and responsible developer of motorcycling, working actively to further the agenda of all Finnish motorcyclists and motorcycling in general. The objectives of SMOTO's interest representation are as follows: The motorcycle is a substantial part of the Finnish traffic system and an equal form of transport with other vehicles. The specific characteristics arising from the nature of motorcycling must be recognized and taken into consideration in the development of road traffic legislation, traffic infrastructure, taxation, and safety-related matters.

SMOTO cooperates extensively with its membership and European umbrella and associate organizations. SMOTO's membership consists of approximately 18,000 motorcyclists, of whom approximately 600 are individual members and the rest belong to the member associations of SMOTO. SMOTO has more than 100 member associations, which are distributed comprehensively throughout the country. SMOTO is a national operator and advocate for motorcyclists.

In Finland, in addition to the above-mentioned member associations, SMOTO's partners include public sector operators, such as the Ministry of Transport and Communications, the Ministry of Finance, the Finnish Transport Agency, The Finnish Transport Safety Agency (Trafi), and the Parliament of Finland and its committees (statutes) and sub-committees (budget matters) on transport, communication, and economic affairs.



SMOTO is a member and associated partner of Suomen Moottoriliitto (SML), the Finnish Red Cross, the Finnish Road Safety Council, the Finnish Hostel Association, ITS Finland, and the national *Motorcycle Cooperation Forum*. In addition to the above, SMOTO also engages in close cooperation with the Motorcycles section of the Association of Finnish Technical Traders, for example. SMOTO was one of the founding members of the *Motorcycle Cooperation Forum* (MCF) mentioned above, which comprises SMOTO, the Motorcycles section of the Association of Finnish Technical Traders, Suomen Moottoriliitto, and Finnish motorcycle dealers.



SMOTO is also part of the European constituency of motorcyclists and motorcycling. The most significant of our international partners is the *Federation of European Motorcyclists' Associations* (FEMA), which is the umbrella organization for European motorcyclist associations, and whose member SMOTO is. In addition to Finland, FEMA has member associations in Belgium, France, Germany, Sweden, Norway, Denmark, Iceland, the Netherlands, Spain, Great Britain, Czech Republic, Greece, and Switzerland, among others.

FEMA represents the interests of approximately 350,000 European motorcyclists and engages in ongoing dialog with the European Commission, the European Parliament, and organizations operating on the national level on significant issues affecting motorcyclists. FEMA publishes, individually and in cooperation with the International Motorcycling Federation (FIM), *Policy Statements* and *Position Papers* on transport- and taxation-related issues that are significant to motorcyclists. In recent times, FEMA has drafted various publications on such topics as median and shoulder edge barriers, autonomous cars, intelligent transport solutions, motorcycle noise, speed limitations, roadways and their maintenance, taxation and tax-like fees, driving license training, visibility of motorcycles and motorcyclists, type approval, and the role of motorcycles in social interaction.

SMOTO also closely monitors the activities of the *European Association of Motorcycle Manufacturers* (ACEM). ACEM is a cooperative body of European motorcycle manufacturers, whose membership comprises nearly all manufacturers of motorcycles and mopeds sold in Europe.



SMOTO also actively monitors the *Connected Motorcycle Consortium* (CMC), another community launched by manufacturers. CMC is an association of manufacturers, equipment suppliers, research institutes, and motorcycle industry associations, whose objective is to incorporate motorcycles in the connective and cooperative mobility of the future.



The third cooperative forum SMOTO is a member of is *Nordisk Motorsykkkel Råd* (NMR) – the Nordic Motorcycle Council. NMR was established in the mid-1970s. NMR supports cooperation between Nordic motorcyclists. The membership of NMR includes nearly 150,000 members within seven different associations, and it represents the interests of approximately 850,000 Nordic motorcyclists. The major motorcycling organizations of Finland, Sweden, Norway, Denmark, and Iceland are members of the NMR. One fairly extensive form of NMR's operation has consisted of providing joint Nordic statements to the national authorities. Perhaps the best and most publicized example of this is the joint statement on the development of the road safety of motorcyclists delivered to the Nordic Transport Ministers.

SMOTO's motorcycling-related national partners within the Nordic countries include *Sveriges Motorcyklister* (SMC), *Danske Motorcyklister* (DMC), and *Norsk Motorcykkell Union* (NMCU).



SMOTO represents Finland in the Touring and Leisure Commission (CTL) of the International Motorcycling Federation (FIM) under SML's mandate.

## 2 INDIVIDUAL

### 2.1 CHILDREN AND YOUTHS ON THE ROAD

>> SMOTO takes the position that the culture of road safety education for children and youths should be reinforced further, and that, in addition to the home, road safety education and training should be provided to children and youths in nursery schools, clubs, and lower and upper comprehensive education.

Children become road users gradually over time. Initially, children walk short distances holding the hand of a parent. Then they are walked or taken on a bicycle to nursery school or club and back home, or they start walking or cycling to school. Road safety education and training should be a life-long process, and it should begin as soon as the child becomes an independent road user. Naturally, road safety education begins at home and the guidance and example provided by the parents are the most significant influences on the child becoming a responsible road user.

But the homes cannot be made solely responsible for road safety education. In other environments the child is influenced by the habits, statements, actions, and behavior of other people and especially their peers. This applies just as well to nursery schools, clubs and schools, and the people within their sphere of influence. For this reason, the principles of life-long learning and best practices should be collected and made available to all groups and teachers, minders, and other people who work in the fields of children's education and safety.

>> SMOTO proposes that young people should be provided road safety education and training throughout their youth, before and after driving education, even if the youth does not obtain a driving license.

Young people under the age of 18 are considered in many contexts as disrupting factors in traffic due to their behavior, which may be difficult to predict. Alongside children, youths are the most vulnerable group of road users.

The abnormal behavior of youths in traffic is largely caused by the fact that they lack experience or competency related to traffic behavior, and because their sense of responsibility and impulse control are still quite undeveloped. Moreover, youths cannot learn or develop their road safety skills if, in addition to the education provided at home, schools, clubs, and educational institutions aren't prepared to provide even a basic level of guidance and behavioral models for safe and independent operation in traffic while also taking other people into consideration. Road safety education for youths should be designed such that it facilitates

---

teaching, provides education, and influences attitudes with regard to operation in traffic, interacting with all road users.

## 2.2 APPROACH TO SAFETY

>> SMOTO's position is that an approach based on road safety in all its forms should be the guiding principle for all traffic participants and road users. On public roadways, the focus is on adopting and emphasizing road safety and fluid movement.

When using public roadways, all behavior should be based on safe movement, safety behavior, and road safety. This is emphasized as a life-long ideology. Road safety is based on observing the Road Transport Act and the supporting regulations as well as public order, considering and respecting other road users, and following the rules, guidance, and advice.

The need for and compliance with general road safety are especially important for motorcyclists. When road safety is weakened, or safe traffic behavior breaks down, motorcyclists are in the most vulnerable position of all motorized vehicles. For this reason, it is not enough in itself that motorcyclists look after themselves, monitor and observe the surrounding traffic, ensure their visibility to the operators of other vehicles, and generally take care of their personal safety. The operators of other vehicles must also act in a manner that observes, notices, respects, and protects the movement opportunities and conditions of more vulnerable road users, including motorcyclists, on public roadways.

## 2.3 HUMAN FACTORS

>> SMOTO emphasizes that traffic accidents often involve human factors.

>> SMOTO's premise is that the operational traffic environment is not liable to feed the creation and occurrence of human errors.

Human errors are part of human nature. People are not infallible machines. People make mistakes that may be caused by several concurrent occurrences or observations. People cannot always and at each time process even identical things without errors. In fact, from the perspective of human factors, identically repeated occurrences or matters may cause lapses of attention and thus make way for errors and incorrect interpretations or observations.

---

All too often, after an accident that has caused a fatality and/or disability and/or serious injury we hear the same three words that are the most depressing and frustrating that a person can say in a traffic context: “I did not notice you”.

## 3 TRANSPORT

### 3.1 POWERED TWO-WHEELERS AS A MODE OF TRANSPORT

>> SMOTO considers that motorcycles are a sustainable part of the traffic system and an alternative to cars that can be used to satisfy peoples’ needs regarding safe and reliable mobility on road networks that are increasingly susceptible to congestion.

Powered two-wheelers are administratively and legally equal. They should be treated as equal means of transport with other motorized vehicles, and that they should be treated equally and fairly.

**As vehicles and means of transport**, motorcycles and mopeds are easy and flexible to operate, and they only take up a small amount of space on the road. Riding them is invigorating, calming, and provides time and an opportunity to enjoy the environment and nature. In traffic, motorcycles and mopeds have the lowest emissions and are the most environmentally friendly motorized vehicles.

According to a survey concluded by SMOTO in 2017, the typical Finnish motorcyclist is an approximately 50-year-old male, who owns an average of 1.7 motorcycles, who rides a touring or cruiser motorcycle, and whose annual riding kilometers are approximately 8,200. Approximately 70% of motorcyclists use motorcycles for commuting, accumulating approximately 1,700 commuting kilometers on average.

>> SMOTO considers that powered two-wheelers are a diverse and versatile mean of transport, and their area of application and potential uses are almost limitless.

**Urban traffic** highlights the features of powered two-wheelers that enable smooth movement. Motorcycles and mopeds do not cause congestion or long lines. Setting off from a traffic light is more fluent than with other motorized vehicles, which means that other vehicles have more room and improved circumstances. Reacting to changes in the flow of traffic is smooth while riding a motorcycle. The small size of the vehicle makes it easy to handle and operate in traffic. The rider's unimpeded view in all directions is an essential factor from the perspective of safe movement and riding. Fluid and flexible riding skills of the motorist

combined with good maneuverability of the vehicle cap off a pleasant riding experience in urban traffic as well.

**Commuting** is another area where motorcycles and mopeds are extremely practical. Mopeds are at their best for shorter journeys of 10–15 kilometers, while motorcycles are excellently suited for longer commutes as well. In the summer of 2017, SMOTO concluded a commuting traffic flow test during the European Mobility week, in peak morning traffic in Helsinki. The test clearly showed that motorcycles and mopeds were the most effective and flexible vehicles for commuting. The comparison included a bicycle, pedal-assist bicycle, passenger car, and of course public transport. With mopeds, their suitability for commuting is emphasized by the fact that they can be used to drive on bus lanes and that they can be parked more freely than other motorized vehicles. Mopeds are subject to the same parking regulations as bicycles.

**In sparsely populated areas**, public transport services have been increasingly reduced, which means that the residents' mobility opportunities are significantly worse than in sub-urban and urban areas. For young drivers in particular, motorcycles and mopeds may be the only available motorized vehicles in sparsely populated areas. In rural areas, tractors and working machinery that are eligible for road transport are also used for movement and running errands.

In addition to motorcycles used for everyday transport, motorcyclists also engage in motorcycle touring, restoring and repairing old vehicles, as well as competitive activities for motorcycles and mopeds in specially dedicated areas and tracks.

>> SMOTO considers that powered two-wheelers are versatile means of transport, that are also suitable for touring, adventure, and leisure use, as well as competitive sports. All reasonable efforts should be made to facilitate these activities.

**Motorcycle touring** is characterized by riding long distances and the movement of large amounts of capital. While touring on a motorcycle, travelers use services provided by cafés, restaurants, and tourist accommodations, instead of carrying provisions or "living in their car". According to the survey concluded by SMOTO, approximately 90% of Finnish motorcyclists ride long distances, accumulating on average 3,600 kilometers per year. Correspondingly, motorcyclists spend around €1,300 on tourism each year. In addition to the motorcycles, monetary transactions are naturally produced by fuel and lubricant purchases, maintenance and repair services, acquiring equipment and accessories, accommodations, café and restaurant services, and insurance and financing expenses.

**Adventure touring** takes enthusiasts beyond the trunk road network, on to the excellent rural roads of Finland and to nearly road-free areas. The wide popularity of adventure touring is based on its undeniably positive qualities: controlling and developing both the mind and body.

---

### 3.2 MOTORCYCLES AND MOPEDS AS RECREATIONAL EQUIPMENT

>> SMOTO demands that recreational activities organized for motorcycles and mopeds must be supported in cooperation by the society, associations, commercial actors, and the private sector due to the technical and social benefits they produce.

**As a recreational pursuit**, motorcycling and moped use is an active and versatile activity that maintains the technical skills of the participants, provides substance for life, and supports social activity and framework. Recreation provides an opportunity, for young people in particular, to participate in a shared activity and “keeps people away from mischief”.

This is particularly reflected in the refurbishment and restoration of old motorcycles and mopeds. Old motorcycles are repaired for everyday use, restored for exhibition or museum use or used to create independently manufactured motorcycles.

**Competitive activity** mostly includes motorcycles and mopeds that are not registered for road use. Competition types include, among others, motorcycle racing, motocross, enduro, supermoto, endurance, trial, ice racing, speedway, long track, and classic competitions (road racing, motocross). Each of these includes several competition classes, which are based on the engine capacity, the size of the vehicle, and the age of the motorcyclist. This sector has strongly invested in versatile personal development and awareness among young people and those who are not yet old enough to obtain a driving license. Competitive activities provide young people the opportunity to develop their mental and physical qualities and handling skills as well as to ride safely and freely within a closed environment regulated by rules. Finnish racing motorcyclists have claimed several world, European, and Nordic titles in various competition types and classes and achieved international success among the top talents in their events. These achievements are based on the widespread interest in the sport, excellent skills, and Finnish tenacity.

Participation in recreational and competitive activities is liable to improve the social skills and behavior of young people in particular and emphasizes the social aspect of the activity and social cohesion among people. Motorsports are also an effective way of reducing social exclusion among young people.

### 3.3 TRANSPORT PLANNING

» SMOTO demands that powered two-wheelers must be taken into consideration in transport planning equally and similarly to passenger cars and other motorized vehicles, and that the specific characteristics of PTW vehicles must be recognized.



---

Motorcycles and mopeds belong on the road and are an essential part of traffic. For this reason, powered two-wheelers must be treated equally with other means of transport with regard to transport planning. Transport planning must be used to ensure appropriate, favorable, and safe conditions for motorcycles in traffic. The accessibility of roads is paramount, as are the placement and design of traffic signs, posts, and barriers.

### 3.4 UTILIZATION OF TRAFFIC SPACE

>> SMOTO emphasizes that powered two-wheelers take up considerably little space in traffic, and that as a transportation mean they are agile and fluent.

Within the transport system, motorcycles and mopeds are shorter and narrower than other motorized vehicles. For this reason, they take up less space. The distances to vehicles driving in front and behind are the same as with other vehicles. Due to their narrow shape, the width of one traffic lane can fit two PTW vehicles, positioned in a zipper-like fashion with one on the right and one on the left side of the lane. Even though motorcycles and mopeds are agile in traffic and are capable of maneuvering quickly, this benefit should not be negated by other road users causing hazardous situations to motorcyclists and moped users. All too often, we have to read news stories of motorcyclists being killed in traffic accidents when the operator of another vehicle did not notice them.

>> SMOTO considers that there are many legitimate reasons for also allowing motorcycles to use bus lanes on roads and streets, as has become commonplace in Europe.

Motorcycles should be allowed to use bus lanes within street and road networks, like mopeds are. With regard to the roads, the matter belongs under the area of responsibility of the Finnish Transport Agency, while the street network is the responsibility of the town or municipality in question. Policy makers in Sweden, Norway, the Netherlands, Switzerland, Spain, Greece, Austria, Great Britain, Australia, and New Zealand, among others, have increasingly allowed motorcycles on bus lanes. The decision to open up the bus lane network to motorcycles has been based on experimentation. The most frequently used justification has been the improved flow of traffic and reduced traffic emissions, i.e. the exact opposite of what those against the move have claimed. Motorcycles in general, but specifically using bus lanes, can reduce congestion, improve the flow of traffic, and thus reduce the production of emissions.

---

For motorcyclists, allowing use of the bus lanes means improved fluidity and reduced fuel consumption and emissions, but also increases road safety as motorcyclists are not constantly exposed to hazardous situations and traffic accidents while driving slowly in line with other vehicles, stopping constantly due to other vehicles on the road.

This is based on the fact that motorcycles and mopeds do not slow down traffic on the bus lanes. They are smoother and more swift than other motorized vehicles in traffic. By using bus lanes, motorcycles are eliminated from the lines of vehicles in cities and on access roads during peak traffic. Thus, motorcycles would not contribute to increasing the length of the lines, allowing for more fluid movement of other motorized vehicles.

### 3.5 PARKING

>> SMOTO considers that  
a sufficient amount of free parking opportunities should be designated solely  
for motorcycles near public and commercial services.

Instead of cars, motorcycles are increasingly used for commuting and running errands. Promoting a mode of transport that replaces cars would contribute directly to the common good in many ways. Due to their small size, providing safe, appropriate, and free parking for motorcycles is one of the most important and least demanding things that public operators could do to promote the use of motorcycles in urban transport.

With regard to parking, powered two-wheelers take up considerably less space than cars. Mopeds can be parked similarly to bicycles. Motorcycle parking in urban and sub-urban centers requires just a fraction of the space demanded by cars. Angled parking spaces at the side of the street or smaller parking spaces or dedicated areas in parking facilities for motorcycles significantly reduce the time and energy spent on searching for a parking space and decrease unnecessary circling around in search of a free parking space. Well-organized parking opportunities for motorcycles also reduce car traffic in urban and sub-urban centers.

### 3.6 TRAFFIC FLOW

>> SMOTO considers that  
with regard to traffic flow and flexibility, powered two-wheelers are the best  
motorized vehicle to use for everyday transport. For this reason, the use and  
purchase of powered two-wheelers should be supported and promoted by all  
available means.

---

There are many ways to improve traffic flow. One of the most effective methods is to promote the use of vehicles and means of transport that replace car traffic. Many international studies and surveys have proven that the motorcycle is the smoothest and fastest mean of transport, particularly in urban settings, where effective transport system and smooth traffic flow are requirements for a well-functioning society. The test conducted by SMOTO in Helsinki also demonstrated that motorcycles and mopeds are the best and fastest means of transport in urban traffic that is congested or liable to congestion.

### 3.7 TRAFFIC MANAGEMENT

» SMOTO demands that motorcycles must be taken into consideration in the design and implementation of traffic management on equal terms with other means of transport.

The purpose of traffic management is to ensure that the traffic flows in an acceptable manner, in line with the specified targets in both normal and congested as well as exceptional traffic circumstances. Observation and identification of motorcycles and mopeds by the sensors and systems used for traffic management must be ensured. Identical level of service and benefits provided by the transport system must be secured for motorcycles and mopeds.

The devices and equipment used for traffic management must be placed in such a way that they do not cause unnecessary hazards or risks to motorcyclists or moped users in normal traffic conditions. The matter becomes even more relevant when traffic begins to congest, weather conditions worsen or the difference in speed of vehicles increases. Signals and signs must also be clearly visible in all weather and lighting conditions through the visors of helmets worn by motorcyclists and moped users.

### 3.8 SERVICE PLATFORMS

>> SMOTO considers that motorcyclists must be taken into consideration in the development and implementation of services, service platforms, and servitization as an equal user group with other road users.

All other transport users and pedestrians are able to use various transport services and service platforms while on the move. The user interfaces of devices have been primarily designed to be used on means of transport or while walking. The most commonly used devices for accessing transport services are smart phones and devices specifically designed for the service in question.

The former devices are used with bare hands and usually in an environment protected from the elements. The outdoor use of smart phones is limited by poor weather conditions, overly bright sunshine, and the use of gloves and warm clothing. These are all constantly present with the riders of motorcycles and mopeds.

The latter group already includes some items that can also be used with motorcycles. These include such devices as entertainment and navigation units installed to motorcycles in the factory and/or by authorized wholesalers and/or the users. Entertainment and navigation units designed for motorcycles are closed systems, which do not, in principle, support service platforms and/or services produced by third parties.

For these reasons, the needs of motorcyclists and moped users must be considered from the planning phase to ensure that all groups of road users have equal opportunities to use service platforms and services as well as to produce content that provides additional value for them.

However, technical development cannot reduce the usability of older vehicle technologies in traffic. Existing PTW vehicles must remain usable without mandatory service platform connections. The spread of technologies within the transport system must be carefully considered and controlled; the power to make choices with regard to mobility must always remain with the user.

SMOTO considers it unlikely that a single universal service platform would appear in the market, as the service platforms are manufacturer-specific. Instead of investing in service platforms, the usability of the devices should be emphasized along with paying attention to the conditions the devices are used in.

### 3.9 ROAD SAFETY

>> SMOTO's position is that investments should be made to the development of road safety as well as information and education of motorcyclists and moped users to ensure that positive and verifiable short and long-term results are achieved.

For its part, SMOTO engages in versatile, long-term and continuous work to improve the road safety of powered two-wheelers. Improving the road safety of motorcycles has significant effects from a national perspective. It is evident as improved fluidity of transport, reduced traffic accidents, fewer and less serious injuries, reduced and lowered insurance compensations, lowered insurance payments, and improved position of powered two-wheelers as well as wider acceptance as part of the transport system and equal treatment in traffic.

Member states can reduce regulation through national actions that improve road safety. In this case, measures that develop the road safety of motorcycles provide member states the opportunity, justification, and means to retain the exemption of powered two-wheelers from periodical vehicle inspections. The improvement of road safety and periodical vehicle inspections have been set against each other by the European Union. When road safety is improved through national measures, we can avoid revenue transfer worth millions of euros from private citizens to foreign enterprises operating in Finland that targets a single mean of transport. We should remember that safe transport for motorcycles means safe transport to all road users.

---

The resources allocated to the improvement of road safety for motorcycles are a fraction of those available to other vulnerable road users. On this matter, SMOTO is tasked with convincing the road and transport authorities, the insurance industry, the media and education sectors, as well as companies, communities, and individuals to significantly increase their investments into the road safety of powered two-wheelers. SMOTO compels the public and private sectors to engage in constructive cooperation and to significantly increase resources and allocate them more effectively.

The Finnish Road Safety Council and Motiva are the only recipients of public financing engaged in the planning and implementation of development and information activities related to the road safety of motorcycles. Road safety has been productized and does not as such serve the big picture or increase perceived road safety. Within the activities of the aforementioned operators, motorcyclists and moped users are placed in a considerably undervalued position and suffer from the lack of effective, correctly focused, correctly allocated, and motivational development and information activities.

>> SMOTO is concerned  
about the road safety of motorcyclists and moped users and takes the position  
that properly planned information, awareness-raising, and educational  
activities that reach the target group should urgently be allocated to this issue.

The behavior of motorcyclists and moped users in traffic generates lively discussions in some contexts. Traffic behavior is a question of attitude and learning. It requires active and interactive operation to create positive and long-lasting effects and development. This, in turn, requires sufficient resources.

## 4 INFRASTRUCTURE

### 4.1 *DESIGNING AND BUILDING THE TRANSPORT INFRASTRUCTURE*

>> SMOTO starts from the premise that the specific characteristics of powered two-wheelers must be taken into consideration in the planning of transport infrastructure regarding the design of roadways and their equipment.

SMOTO is concerned about the design of the Finnish transport infrastructure and the related equipment as well as the construction of roadways. Roads that are safe for motorcycles are safe for all road users. Transport corridors are designed almost blindly, based only on the requirements of the roadway's functional class, dimensioning traffic volume, design vehicles, geometry, hills, and visibility. The characteristics of passenger cars, heavy vehicles, and buses are used as the design elements. In addition to these, powered two-wheelers must be taken into consideration, with particular attention paid to their riding dynamics and dimensions that differ from other vehicles.

SMOTO is not alone with its concerns regarding the transport infrastructure and motorcyclists. Of the Nordic countries, Sweden and Norway are the top European promoters of motorcycling safety. Related to Sweden's VisionZero, a fruitful dialog has been established between the Swedish motorcyclist association SMC and the ministry in charge of the infrastructure, the transport authority, and various other leading operators in the field. FEMA – often in cooperation with FIM – has drafted and issued statements to policy-makers, legislators, and its member associations, which it has consistently presented to the European Parliament and Commission, and which has been met with a good and appreciative reception. The statements have discussed issues such as shoulder edge and median barriers, improving accident cluster points, development of intelligent transport systems, utilization of motorcycles for mobility, accessing bus lanes, maintenance and road repairs, safety systems for motorcycles, as well as training and requirements aimed at obtaining a driving license. In addition, motorcyclists' associations in Germany, France, Italy, and Spain – the largest PTW countries in Europe – as well as in the Netherlands, Belgium, and, of course, in the other Nordic countries campaign for the same issues as SMOTO in Finland. This shows that safe transport infrastructure does not just concern the 500,000 motorcyclists and moped users in Finland. The concern is shared, the measures consistent, and the target groups the same throughout Europe.

During planning, attention should be paid to the geometry of the roadway and proper design of the curves (clothoids and standard curve radius), sufficient visibility, and the positioning of intersections. The surface structure of roadways and its homogeneity are very significant with regard to two and three-wheeled vehicles. For example, roundabouts sometimes include two different surface materials (asphalt, oil gravel, cobblestones, even wood), which introduces specific challenges to powered two-wheelers due to the varying friction and traction characteristics, for example. Road markings and their increased size and material

thickness are also liable to create hazardous situations, particularly in wet conditions. A wet, flat, and homogeneous road surface does not as such pose a safety risk, but sudden changes in the road surface do.

Shoulder edge barriers and posts as well as curb stones, which may be beneficial or merely non-hazardous to other road users, can be outright life-threatening to motorcyclists: motorcyclists are not surrounded by a protective metal body, motorcycles always fall down in an accident, and motorcyclists are never within their vehicle, protected from injuries and impairment. When planning transport corridors, the required equipment is positioned and their requirements and specifications, such as their dimensions and shapes, are determined. The most concerning of these equipment, are the median and shoulder edge barriers as well as the various posts and pillars. The barriers must be designed such that a collision with the barrier does not cause undue damage or injury to a powered two-wheeler or its operator. All barrier posts, pillars, posts used for traffic signal devices, and marker posts must be designed such that they do not place motorcyclists or moped users in a more vulnerable or disadvantageous position compared to other road users.

>> SMOTO starts from the premise that motorcyclists and moped users must be taken into consideration in the construction and equipment of roadways to such extent that they have equal opportunities to use the roadways safely.

The construction of roadways complies with the relevant construction and equipment plans. Solutions that could compromise the opportunities of motorcyclists or moped users to safe operation within traffic cannot be used for construction and equipment. Construction must be carried out in manner that ensures that the roadway equipment does not cause undue hazards to motorcyclists and moped users.

As junctions of transport corridors, intersections and level crossings should be paid special attention to. The planning, placement, and design of intersections should ensure that the operators of vehicles can see powered two-wheelers clearly and from a sufficient distance and that the motorcyclists can see other road users unobstructed. Roundabouts, especially lower down in the road network where the curve radii can be quite demanding for many motorcyclists, particularly less experienced ones, provide their own challenge. Another challenge is caused by the habit of some local communities to build various structures to the center circle of roundabouts that connect highways with the street network, as these can often cause obstructed views to the other entry directions of the roundabout. Planning and construction should be carried out in a way that ensures that undue hazards are not caused to motorcyclists by structures that are not essential parts of the transport infrastructure. These structures include various decorations, monuments, and tourism advertisement signs. They cannot incorporate sharp edges, unprotected railings, large rocks, protruding pillars/beams or any other such structure that could cause a hazard or an obstructed view.

Road operators have begun to use various types of milling with road markings. Road markings produced using thermoplastic or similar coating materials can cause a potential hazard for motorcyclists, as during rain and when the road surface is wet they are liable to decrease the traction of the tires of the motorcycle and can thus cause the motorcycle to fall down. Road operators should test the utilized milling methods and forms together with motorcyclist associations before putting them to use.

---

## 4.2 DETERIORATION AND MAINTENANCE OF THE INFRASTRUCTURE

>> SMOTO emphasizes that the deterioration of the roadway (surface), maintenance operations or the materials used cannot cause hazards to motorcyclists or moped users.

In general, sufficient friction level of the road surface must be guaranteed throughout all sections of the road, including the road markings. The road cannot have grooves, holes, etc. that may impact the handling of two-wheeled vehicles. The wear of the roadway can be seen as broken surfacing, development of grooves, cracks, depressions, bulges, loose oil gravel/rocks and loose gravel (on surfaced roads). Repairing these damages should be carried out taking into consideration the requirements of powered two-wheelers regarding the used maintenance and repair materials and methods.

The used repair and maintenance materials and methods cannot cause deviations in traction or friction compared to the rest of the surfacing or longitudinal or lateral differences in the surface level of the surfacing and the repair materials. These can cause hazardous situations that are sudden, unexpected, and unforeseen to motorcyclists. All road surface markings and milling of the center and border lines must be carried out in a way that ensures that no danger whatsoever is caused to motorcyclists by them. Maintenance must also take note of the fact that roadside plants or trees cannot be allowed to create visual obstructions or collision risks. Any moving done on the hard shoulder must be performed in good time and in such a way that the moved grass is not left on the surface of the road.

The Finnish Transport Agency and the Centres for Economic Development, Transport and the Environment have outsourced the roadway maintenance operations to third parties. As a result, motorcyclists have had bitter experiences caused by carelessness, neglect, and irresponsible operation throughout the country. Motorcyclists have been involved in fatal accidents and faced serious injuries and significant material damages caused by such things as incorrect instructions provided by authorities to the companies performing the maintenance operations, material choices and working methods with bitumen patching, milling, spreading dust-binding agents, and thick road surface markings. The authorities lay the blame on private subcontractors who operate according to the instructions provided by the authorities, but without adequate quality assurance, quality control or liability for acts in office.

## 4.3 TRAFFIC SIGNS AND SIGNALS

>> SMOTO demands that the positioning of traffic signs and signals as well as the portals and posts used for the placement cannot pose danger to motorcyclists or moped users due to their materials, visibility or placement.



---

For traffic signs and signals and their posts and portals, the road operator can only use materials that are clearly visible to all road users in all weather and lighting conditions. These devices intended for controlling traffic must be placed in such a way that they do not pose danger to motorcyclists or moped users in the event of veering off the road.

#### 4.4 MAPS AND GEOGRAPHIC DATA SERVICES

>> SMOTO considers that maps, map services, and geographic data services intended for road users must be designed and implemented in such a way that they are easy to use for motorcyclists and moped users, and that their use does not pose danger or undue disadvantage to motorcyclists and moped users.

Motorcyclists use (electronic and printed) maps primarily while wearing riding gloves. Motorcyclists use maps, map services, and geographical data services that have been designed for the needs of motorcyclists and which they can use without removing their riding gloves. Particularly with regard to electronic maps and map/geographical data services, usability and safe operation are a basic requirement for use. In addition to these, smart phone applications are increasingly used for navigation and to search services that are suitable to motorcyclists.

#### 4.5 CIRCUITS AND TRAINING AREAS

>> SMOTO proposes that in addition to tracks and dedicated closed-off training areas, motorcyclists and moped users should be allocated designated areas where they could engage in spontaneous or organized riding training.

Training areas are necessary for learning to ride a motorcycle or a moped and to learn and practice handling. Training is needed to successfully pass the riding and handling test that is required to obtain a driving license, but also to improve the personal safety and skills of the motorcyclist or moped user. The current Road Traffic Act restricts potential training areas to ones that are closed off from other traffic. This means that young, novice, and beginning motorcyclists and moped users cannot use areas like empty parking lots or outside areas of companies or facilities because they cannot be completely closed off from traffic. Novice motorcyclists and moped users may find it hard to find suitable places to practice handling their vehicles

---

before entering traffic. For this reason, the authorities and local actors must ensure the sufficient availability of training areas for riding training.

## 5 ENVIRONMENT

### 5.1 ENERGY CONSUMPTION AND EMISSIONS

>> SMOTO emphasizes that  
due to the low energy consumption and emissions, powered two-wheelers are the best and most environmentally friendly option to use for commuting and running errands in urban, sub-urban, and sparsely populated areas.

As long as combustion engines are used for transport, motorcycles are the most environmentally friendly motorized vehicle. Catalytic converters were introduced to motorcycles in 2003. The average consumption and emissions of motorcycles can be assessed using a relatively small dataset, that still includes products from various motorcycle manufacturers. In this context, we present consumption and emission figures that have been divided into three categories based on engine capacity, and which are based on the products of eight (nine) manufacturers (each category includes 13–24 motorcycles). The categories under review include less than 125 cm<sup>3</sup>, 250–599 cm<sup>3</sup>, 600–999 cm<sup>3</sup>, and 1000–1900 cm<sup>3</sup>. The motorcycle brands include Aprilia, KTM, Honda, Suzuki, Piaggio, Liberty, Vespa, and Yamaha. The largest category also includes Harley-Davidson in addition to the ones mentioned above. The enclosed table presents the average consumption and CO<sub>2</sub> emissions for the categories. Table 1 includes the consumption and emission figures for new 2018 models.

Table 1: Average fuel consumption and emission data for motorcycles.

Engine capacity [cm <sup>3</sup> ]	Average fuel consumption [liters/100 km]	Average CO <sub>2</sub> emissions [g/km]
Less than 125	2.4	56.3
250–599	3.5	81.4
600–999	4.4	103.0
1000–1900	5.6	131.2

>> SMOTO emphasizes that  
the motorcycle industry has committed globally to significant reduction of total emissions through various solutions including technologies, software, and alternative means of propulsion.

---

Motorcycle manufacturers have committed to compliance with the EURO 4 emission standards beginning with the 2018 models. It should be noted that the EURO 4 for motorcycles corresponds to the EURO 5 emission standard for passenger cars with regard to its strictness. These figures show why motorcycles have the lowest fuel consumption and the smallest CO<sub>2</sub> emissions of all motorized vehicles.

In 2019, the manufacturers of powered two-wheelers will begin negotiating with the EU Commission on the next, tightened emission standard EURO 5, which will correspond to the EURO 6 level for passenger cars and is supposed to come into effect at the beginning of 2020.

## 5.2 NOISE

>> SMOTO states that  
the noise levels of powered two-wheelers are specified under EU regulations.

It is SMOTO's opinion that Finland should not draw up national regulations on sound pressure for motorcycles that are stricter than the EU regulations. The same applies to noise level. The VIN plates of EC type-approved motorcycles provide the indicative level of sound pressure for the model in question and the RPM it was measured at. This sound pressure value may be exceeded by a maximum of 5 dB(A). The sound pressure limits for motorcycles have been determined using a drive-by test and a static test (on a stationary vehicle).

The sound of a motorcycle is not considered a disturbing noise by all or even the majority of people. When an individual vehicle generates a noise disturbance, the authorities can measure the sound pressure level in traffic. The entire population of users of powered two-wheelers should not be punished by the fact that individual machines generate debate. Nearly 500,000 motorcyclists and moped users should not have to suffer because of the actions of a single individual. The relevant measures and sanctions should be targeted appropriately.

The authorities have the opportunity to engage in on-the-road surveillance. Methods have been developed for measuring and monitoring the sound pressure, which are suitable for road-side surveillance and which are also used for traffic control. In addition to this, specifications exist for a drive-by test, but those mostly serve testing by the manufacturers and are primarily related to type-approval. The monitoring of sound pressure levels has only been extended to a single group of road users: motorcycles and mopeds. Similar testing is not applied to cars, and thus motorcycles are treated unequally in this matter.

Neither is sound an appropriate factor for instituting vehicle inspections for motorcycles. Sound-related monitoring activities can be performed effectively and successfully during regular traffic control. With respect to sound, vehicle inspections prove that the sound pressure level of the motorcycle is similar to the original level on a single day chosen by the user. As a way of monitoring the road safety, noise levels or emissions of motorcycles, this is not cost-effective to anyone – especially to the users or the authorities.

---

### 5.3 LIFECYCLE

>> SMOTO endorses  
a responsible lifecycle model for powered two-wheelers.

The lifecycle of powered two-wheelers consists of *manufacturing* (also includes material choices, manufacturing methods, distribution), *operating* (also include maintenance, service, repairs, recycling of used parts, restoration of vehicles), and finally *scrapping* (also includes recycling, final decommissioning). Each phase should be carried out in compliance with responsible handling of materials and the generated waste should be processed appropriately.

On average, the lifecycle of motorcycles is longer than that of cars, which in itself is quite long by European standards. The lifecycle is extended by fabrication, after-market parts manufacturing, and the number of parts crafted by hobbyists. As a whole, this is an example of quite sustainable development.

>> SMOTO endorses  
the recycling of powered two-wheelers and their parts, and in particular  
collecting and re-using parts and materials used in less common vehicles.

We must ensure that the available opportunities for re-using powered two-wheeler parts for independent maintenance, repairs, fabrication, and restoration are retained. In addition, we must insure that the use of parts does not incur additional costs, besides the purchase price, to the owners and holders of the powered two-wheelers. This would dramatically reduce the opportunities for recycling parts and engaging in independent maintenance and fabrication of powered two-wheelers.

>> SMOTO considers that  
the current final decommissioning process for motorcycles should be  
maintained.

Controlled final decommissioning from traffic use provides access to original parts from less common motorcycles in particular, which can be recycled and re-used. When a motorcycle is permanently decommissioned from traffic use, the reclaimed parts can be used to repair, maintain, and build motorcycles

---

intended for traffic use as well as for independently manufactured motorcycles and small series without limitations. By recycling parts and equipment, we can avoid having usable and, in some cases, rare parts end up in a landfill or as scrap metal.

#### 5.4 ALTERNATIVE MEANS OF PROPULSION

>> SMOTO proposes that conversion subsidies for vehicles powered by combustion engines, purchase subsidies for electric vehicles, and the scrapping premium for motor vehicles financed by the government are extended to also cover powered two-wheelers.

The purchase and conversion subsidies paid by the government as well as the scrapping premium only apply to passenger cars. As the availability of powered two-wheelers that use alternative sources of energy increases and the distribution infrastructure expands, purchasing an electric powered two-wheeler is becoming an increasingly realistic option for many people. Electric mass-produced motorcycles have been on the market for a few years now. It has also been estimated that a significant number of electric mopeds will enter the market in the next two years. At the latest, by then we should be able to apply the purchase subsidy from the government to purchases of powered two-wheelers.

Permanently decommissioning a vehicle from traffic use should be a sufficient requirement for payment of a scrapping premium for motorcycles and mopeds, but it must be possible to use the reclaimed parts as spares and for fabrication and independently manufactured individual motorcycles and small series.

---

## 6 INDUSTRIAL AND COMMERCIAL SECTOR

### 6.1 POWERED TWO-WHEELERS IN THE FUTURE

>> SMOTO considers that powered two-wheelers will remain a popular mean of transport and vehicle that is well-suited for transport.

Powered two-wheelers must also be recognized and treated equally in the future. There are many reasons why powered two-wheelers will remain diverse and popular vehicles in the future as well. Here are a few examples:

- With respect to their emissions and environmental impact, they are the most appropriate vehicle for transport.
- They take up the least amount of space within transport corridors and while parked.
- They are best-suited for tasks and transport activities that target congested circumstances or areas, such as various emergency and rescue operations, blood and organ transport, as well as courier and food delivery services.
- They facilitate traffic flow and reduce congestion and do not contribute to traffic jams.
- They have the lowest purchase price of any category of motorized vehicle.
- They are excellently suited for recreational or competitive activities.

>> SMOTO considers that the expansion of motorcycling should be promoted in cooperation by commercial, non-profit, general interest, and public operators.

Legislators and other public operators should facilitate and ensure opportunities to engage in motorcycling to a similar extent that the public operators support other forms of movement and transport. In this context, the operational environment of non-commercial and commercial actors should be retained such that it is not encumbered with regulation that is not based on researched and justified improvement of road safety.

The number of parties operating within the powered two-wheeler sector is quite limited. Thus, the industrial and public operators must cooperate to promote the use of powered two-wheelers for commuting and

---

running errands as well as to develop motorcycling and moped use as a recreational and competitive activity.

## 6.2 RESEARCH AND PRODUCT DEVELOPMENT

>> SMOTO considers it necessary to increase the availability of resources for research and development of motorcycles and motorcycling in Finland as part of the R&D activities related to the transport system.

Powered two-wheelers are an essential part of the Finnish and European transport system. Significant amounts of money and labor are spent annually on research, development, and experimentation related to the transport system and various modes of transport. Research and development resources must be allocated for powered two-wheelers in proportion to their share. A research, development, and experimental program should be launched for powered two-wheelers, prioritizing road safety, development of riding skills, advanced rider assistance systems, traffic automation, road design and construction that recognizes powered two-wheelers, road user interaction, and a feedback channel for road users.

Powered two-wheelers must be paid particular attention to in the development of urban transport, where priorities are currently allocated to the development of circumstances related to public transport, walking, cycling, and car traffic. Powered two-wheelers must be considered as a transport mean that has the potential to replace passenger cars, and by improving the relevant circumstances we can improve flow of traffic and road safety in urban areas as well as reduce emissions.

Powered two-wheelers must also be taken into consideration in the allocation of funds for research, development, and experimental projects related to the digitization and automation of transport; powered two-wheelers should be included in these research, development, and experimental projects, because they operate in the same traffic environment as all other modes of transport and vehicles. In the context of intelligent transport and automated driving, the powered two-wheeler sector should be particularly included in the development in Finland as well, as even the current short period of development and experimentation on autonomous cars has produced concrete and fatal evidence of how poorly automated vehicles are able to observe and identify powered two-wheelers in traffic or correctly process the related observations. Some progressive initiatives and projects have mentioned motorcycles, but even in these cases, research and development resources have not been allocated to work regarding PTW vehicles in Finland.

The entire motorcycle industry and leading car manufacturers globally have unanimously stated that all electronic, hydraulic and/or pneumatic systems used in motorcycles should be developed specifically for motorcycles and not just transfer devices and solutions developed for cars to motorcycles.



---

### 6.3 MANUFACTURING, IMPORT, AND SALES

>> SMOTO considers that the manufacture, import, and sales of motorcycles and mopeds should not be restricted by public sector interventions, but instead the circumstances and conditions of these operations should be improved.

Powered two-wheelers are manufactured outside of Finland, so import and sales are the domestic lines of business with regard to market entry. The operational environment of this sector should not be restricted or regulated with actions that could be impossible or unduly burdensome to respond to.

For manufacturing, the industry takes note of global and European provisions and acts. These should not be restricted further with respect to the Finnish PTW market. Such public interventions would be impossible to adapt to on reasonable financial conditions by operators who manufacture, import and/or sell powered two-wheelers; the Finnish market is simply too small to be able to compensate for any solo initiatives by the public authorities that deviate from the European policy. This applies to all authority actions related to import and sales-

### 6.4 REPAIRS AND MAINTENANCE

» SMOTO demands that maintenance and repairs of all powered two-wheelers must remain permissible for private individuals as well.

Powered two-wheelers are means of recreation and mobility. Motorcyclists maintain, repair, and fabricate them according to their tastes and skills. Naturally, new PTW vehicles in particular are equipped with features that are too advanced for the personal skills, tools, or knowledge of motorcyclists. In this case, they turn to skillful and competent operators. In any case, motorcyclists should retain the possibility and right to maintain and repair motorcycles and mopeds used in traffic and as recreational equipment, and this right should not be restricted or otherwise impeded by public intervention.

---

## 6.5 INSURANCE

» SMOTO demands that  
motorcycle insurance policies continue to apply and develop insurance coverage which is tied to the person and their past record, but which also covers all motorcycles owned by the person on equal terms.

The insurance industry and motorcycle and motorcyclist associations should continue to develop motorcycle insurance policies further in cooperation, in such a way that accident-free riding would provide concrete benefits to motorcyclists. When the resulting benefits are substantial enough, it can be presumed that this would also produce tangible changes in riding habits and the amount and quality of accidents. The incentives should be devised in such a way that their terms do not include room for interpretation or conditions. The public insurance industry watch dog must continue to monitor the pricing of insurance and the allocation of insurance pay outs and insurance markup to ensure that the prices of insurance policies for powered two-wheeler are kept at a reasonable level, and that current excesses, such as with motocross bikes and other powered two-wheelers used in closed-off areas, can be avoided.

The specifications provided for closed-off areas by the Motor Liability Insurance Act and the Road Traffic Act deviate from each other, which causes problems and ambiguity among the people engaging in these activities. The interpretation of different laws should not cause contradictions. Against this background, the insurance instructions should be reviewed.

Personal vehicle insurance is well justified, as even though Finnish motorcyclists own 1.7 motorcycles on average, they can only operate one of them at a time. When someone else than the owner is riding the motorcycle, the valid insurance policy should belong to this person, as they are operating the vehicle instead of the owner. Personal vehicle insurances are used in many countries in Europe.

>> SMOTO proposes that  
a recreational vehicle insurance product is introduced for all people engaging in powered two-wheeler activities, which considers the fact that recreational vehicles are used significantly less in traffic than ordinary vehicles.

All older powered two-wheelers are not museum vehicles, even if they could be certified as one based on their age. In general, these vehicles are ridden less than motorcycles and mopeds that are in everyday use.

The insurance industry should develop a dedicated recreational vehicle insurance policy, that would apply specifically to recreational vehicles with respect to its terms, payments, and traffic-use restrictions. Recreational vehicles are used considerably less often in traffic than traditional everyday vehicles, which

---

means that their vehicle insurance should be supportive of the nature of recreational activities. The recreational vehicle insurance must be extended to cover powered two-wheelers as well.

## 6.6 FABRICATION, TESTING, VEHICLE INSPECTION, AND MODIFICATION INSPECTION

Motorcycles are not subject to mandatory annual vehicle inspections in Finland. SMOTO and its experts have debated the issue with authorities and legislators for more than 10 years. Within the past 12 years, various proposals have been put forth on making vehicle inspections mandatory for motorcycles. On three occasions, the proposal has been defeated by presenting facts and detailed justifications jointly by the entire motorcycle industry.

EU directive 2014/45/EU mentions an obligation on periodical inspections for motorized vehicles. The role of EU directives within European legislation has been less significant than EU regulations, which must be included in national law unaltered or directly referred to in legal instruments. The mentioned directive 2014/45/EU provides member states in an unequivocal manner the means to exempt two-wheeled motorcycles, motorcycles equipped with sidecars, and motorized three-wheelers from periodical vehicle inspections if road safety is improved by other measures. It is precisely this last element that supports SMOTO's operation to improve the safety of motorcycles. The exemption provided by directive 2014/45/EU with regard to vehicle inspections for motorcycles was last enacted by the Ministry of Transport and Communications on December 8, 2016: "No proposals will be made regarding the obligation of vehicles inspection for motorcycles, and instead their road safety will be improved through alternative means."

>> SMOTO starts from the premise that the fabrication and registration of motorcycles and independently manufactured motorcycles should not be restricted, unless the restriction has a positive impact on road safety that has been verified by research.

The fabrication of motorcycles should not be restricted more than is justifiably necessary with respect to safety and the environment. The fees charged by authorities, such as inspection fees, taxes, and other administrative costs, must be kept at a reasonable level to avoid undue expenses to arise to people engaging in these activities.

The measurements and tests required from motorcycles manufactured independently or in small series or modified motorcycles must be reasonable and it must be possible to conduct them in Finland. The expertise and equipment required for the testing must be available to the enthusiasts at a reasonable cost.

The modification inspection of motorcycles and its content should be developed such that it better and primarily serves the needs of the users.

The percentage table for the origin of replacement parts used in the context of fabrication requires proof that parts are not reclaimed from any single motorcycle in excess of 50%. There are no road-safety-related justifications for this. Instead, the 50% replacement ban arises from the fact that the Vehicle Administration and the Finnish Tax Administration demand that the identity of a taxed parent vehicle is retained. Even in

---

the event that it is permanently decommissioned from traffic. This maladministration must be rectified to support the common practice and facilitate fabrication.

>> SMOTO starts from the premise that investments must be made into the improvement and verification of road safety for motorcycles in a diversified and long-term manner to avoid having to implement unnecessary and ineffective mandatory vehicle inspections for motorcycles in Finland.

The national regulations on technical requirements for vehicle repairs, restoration, and structural changes or demonstrating conformity in Finland cannot be stricter than the EU directive.

The requirements on individually certified vehicles must be kept as simple as possible. They must not include requirements that are stricter with respect to environmental or road safety characteristics, which would violate the outcome of the negotiations on the so-called APU 2.1 package. The motorcycle industry considers the requirements included in the APU 2.1 package to be as strict as possible, and they should not be tightened further, as that would make even limited fabrication and production of individually manufactured motorcycles impossible. Legislators must not impose technical requirements that deviate from or are stricter than this for individually certified vehicles. Individually certified motorcycles that have been certified in other countries and imported into Finland must be approved for traffic use in Finland as is.

Alternatives to vehicle inspections are promoted using the measures mentioned in this strategy such that it can be demonstrated to the EU Commission that the road safety of motorcyclists can be improved without introducing mandatory vehicle inspections.

## 6.7 EDUCATION AND TRAINING

>> SMOTO considers that wide-ranging development of voluntary riding training and predictive riding would be in the interest of all concerned parties.

In 2016, SMOTO launched a developmental project for training motorcycle instructors who provide voluntary riding training. The work was launched because of the concerns of SMOTO's member associations that they were unable to find enough competent and available motorcycle instructors. On one hand, the issue here is insufficient availability of trained and competent voluntary instructors and on the other variation in the level of expertise of the instructors and related uncertainty.

---

The instructor training development task force supported and coordinated by SMOTO includes the leading Finnish motorcycle associations that provide voluntary riding training. More resources are required to continue and complete the development of instructor training.

We must be able to measure and assess the quality of training provided by operators that train motorcycle instructors to ensure that motorcycle training is effective and of high quality. The objective should be to ensure extensive access to and qualitative harmonization of motorcycle training.

The requirements specified for operators providing motorcycle license instruction should be recorded clearly and equally so that competent parties and people can provide motorcycle training that is targeted toward obtaining a driving license. Riding training for motorcycles should be provided and monitored such that the instructor is also riding a motorcycle. Training and testing for a motorcycle license should be completed either using a motorcycle owned by the candidate or a similar motorcycle that is suitable for the size and skill level of the candidate.

The training provided by the Finnish Road Safety Council should not automatically qualify those who complete it as instructors, as it does not invest, improve or measure the pedagogic abilities or skills of the instructor candidates. Participating in authenticated teaching skills training and successfully completing it should be the only possible way to qualify as a motorcycle instructor.

The skills and abilities of persons providing initial driving license training must be verifiable in a valid manner. Even though training that is targeted toward obtaining a driving license and revision courses require different skill-sets from the instructors, the requirements regarding the competency and teaching skills of both should be the same to ensure the quality of training and the teaching and riding skills of the instructors.

## 6.8 SERVICES AND OTHER SECTORS

>> SMOTO considers that the services related to motorcycling can and should be developed, but the developmental activities must be carried out in a user-driven manner, in cooperation with the target audience.

The open member survey conducted by SMOTO highlighted the fact that motorcyclists use various commercial services while engaging in relevant activities. The volume of service-use is distributed among services related to independent tourism (accommodation, restaurants, shipping lines, airlines, and cafés) and equipment (riding equipment, spare parts, and accessories), as well as those provided by event and travel organizers.

According to the survey, motorcyclists spend approximately 1,300 euros annually on tourism-related services. On riding equipment, motorcyclists spend an average of 1,000 euros each year. This constitutes a significant contribution to the trade of Finnish communities and service providers.

>> SMOTO considers

the Mobility as a Service (MaaS) concept to be an interesting addition to the range of mobility and transport options available to people, and that MaaS represents alternative forms of commitment toward the products of service providers in the transport industry.

Fewer young people obtain new M-class moped licenses and further A-class motorcycle licenses. Young people are also less inclined to own a passenger car. The reasons for this are varied, beginning with leaving home and becoming independent at an early age, in which case the income level of a student or an unskilled person is not sufficient to cover the cost of housing and living as well as owning a car and obtaining a driving license. In addition, keeping a car and finding parking spaces in urban and sub-urban areas can be challenging and costly, and alternative modes of transport become more popular.

However, motorcycles and mopeds are still increasingly used for commuting and running errands. This might be due to the fact that in many cases a moped or motorcycle is purchased for everyday use and recreation instead of a passenger car. Motorcycles are typically used to substitute and decrease the use of a passenger car, while mopeds are similarly used to replace bicycles (between the ages of 15 and 16, over a single summer). Mopeds are typically given up when the user reaches the age of 16.

In a transport chain, mopeds are used for the initial and final stage of the journey, which is then followed by public transport. Typical riding equipment for mopeds consists of a protective helmet and possibly gloves and shoes; moped users rarely wear riding clothes that protect them from the elements and against injuries. In this case, the helmet and gloves can be easily carried throughout the entire transport chain in different means of transport.

Motorcyclists primarily wear full protective equipment: helmet, (goggles), protective riding clothes, riding gloves and boots or shoes. Using and transporting this equipment may pose some challenges to motorcyclists in the different means of transport included in the transport chain.

The MaaS concept is conveniently becoming an option, as the number of driving licenses and ownership of motorized vehicles are decreasing. Motorcycles can become part of the service concept, similarly to (electric) passenger cars. The motorcycle-related service providers must be able to resolve and ensure the safety of motorcycle users in traffic, i.e. Providing protective equipment with the vehicle. Otherwise, the users may face undesirable consequences.

If the MaaS concept is intended to reduce the use of private cars and provide a wide range of transport means, we must ensure that people will continue to obtain driving licenses in the future. Without driving licenses, the user base for small rental and/or electric cars will disappear, and the concept will peter out with the use of public transport and taxis. When driving a car is no longer even an option within the range of services provided under the MaaS concept, it will be difficult to offer free (or even limited) access to taxis at the price level of public transport.

## 7 TECHNOLOGIES AND INTELLIGENT TRANSPORT

### 7.1 IN GENERAL

The most appreciated characteristic of motorcycling is the sense of freedom. Many dedicated motorcyclists and active enthusiasts shy away from systems that affect the riding of a motorcycle. Initially, there was hesitation regarding ABS and integrated braking systems, even though the benefits they offered were obvious. Today, technical aids are accepted widely.

The general view is that motorcycles are far behind cars in safety and rider assistance systems. This is not the whole truth. Some leading motorcycle manufacturers have already developed significant implementations for intelligent safety and support systems for motorcyclists. New electronic safety and convenience systems require the use of a CAN bus, which has become commonplace in motorcycles, and X-by-wire technologies.

In 2012, SMOTO was the first operator in its sector to seek the opinion of an expert in the field regarding the interaction between intelligent transport systems and motorcycles. This assessment was provided to the membership of SMOT in the spring of 2012. Even with the current knowledge and experience at the time, it was possible to highlight nearly 30 intelligent rider assistance solutions, that could facilitate the operation of motorcyclists in traffic without causing undue opposition. The capacity for cooperative development of intelligent transport is obvious.

The aim is to increase the awareness of motorcyclists and thus improve the acceptance of new technologies. Riding can be both fun and safe at the same time. Technology as such is not the motorcyclist's enemy.

Motorcycles are not equipped with continuous protective structures, and thus naturally provide less protection than cars. These two types of vehicle cannot be compared with each other in this sense, and therefore simpler solutions do not exist. Only by simultaneously using the latest technologies and expertise, can the safety of motorcycles be increased. These technologies have been used in cars for the past decades.

**Intelligent transport solutions** provide one possible direction toward the improvement of traffic safety and mobility from the perspective of motorcyclists. SMOTO looks at the features, functions, and usability of all such intelligent transport solutions, systems, and devices that are intended to be installed on motorcycles, other vehicles, the road infrastructure, and/or communication and data transfer solutions. The accident data related to motorcycles and mopeds must be researched further in Finland, and the causes of the accidents must be analyzed in more detail to ensure that we can participate in the development and choose technologies that can increase the road safety of motorcyclists most effectively.

>> SMOTO considers that  
all technical devices and systems affecting the operation of a motorcycle,  
behavior, connectivity to external systems, communication, and data must be  
deactivatable by the holder of the motorcycle without technical, practical or  
legal deterrents.

Based on the data included in Trafi's information services, the register of vehicles included 267,898 motorcycles at the end of 2017, of which 157,476, i.e. 59%, were registered for traffic use. Correspondingly, the register of vehicles included 332,016 moped, of which 134,807, i.e. 41%, were registered for traffic use. Respectively in June 2018, there were 193,410 motorcycles and 151,782 mopeds in traffic use. The figures show a difference of nearly +23% (MC) and +12% (mopeds) between the turn of the year and June.

Personal habits and preferences of motorcyclists and moped users vary and can be quite distinct. Riding and handling a motorcycle requires extensive skills. Due to these facts, the holder and/or primary user of the motorcycle must be able to make decisions regarding the devices and systems affecting the characteristics of the motorcycle, at least whether to use them or not.

>> SMOTO considers that  
all forward-fit or after-market technical systems must be designed specifically for motorcycles, taking into consideration the specific characteristics of motorcycles and motorcycling, as well as the operational environment and conditions.

With respect to the usability and acceptability of intelligent transport systems, motorcycles and motorcyclists must be taken into consideration and included from the beginning in the research and development of solutions targeted toward them. Another important factor in SMOTO's opinion is that intelligent transport solutions intended for motorcycles must have clearly observable, easily understood, and acceptable qualities that increase road safety and, in particular, riding comfort.

Numerous technical devices, systems, and/or software applications (=equipment) can be installed into motorcycles. Installations can be performed at the factory, by importers, retailers, and/or the user. This includes, among others, equipment that is related to vehicle control, communication, data transfer, data security, protection of privacy, and services.

The equipment intended for motorcycles must be designed specifically for motorcycles, taking into consideration the specific characteristics of motorcycles. These specific characteristics include, among others, the riding dynamics, properties of the motorcycle and the road surface, audiovisual opportunities of motorcycles, and behavior in traffic accidents.

## 7.2 VEHICLE CONTROL SYSTEMS

>> SMOTO endorses  
the developmental work for stability control systems used in motorized vehicles and their increased use in new motorized vehicle models.



---

SMOTO considers that the development of vehicle stability control systems for motorcycles should consider motorcycles and motorcyclists from the outset with regard to the testing of vehicle stability control systems. The vehicle stability control systems intended for motorcycles must provide features that clearly facilitate riding, are intuitively understood, and have been proven to improve road safety.

There have been positive developments in the safety of vehicles in recent years. For motorcycles, this means significant steps toward brakes that are more effective and usable, tires that provide improved traction and better resistance to wear, and versatile engine and stability control systems. This is particularly evident in improved riding characteristics and handling of motorcycles.

With respect to stability control systems, it is particularly important that their design includes considerations for the riding dynamics of motorcycles that deviates from other vehicles.

Typical vehicle stability control systems used in motorcycles include advanced systems that affect traction and braking. Systems that affect the traction include cruise control, adaptive cruise control, traction control, pitch sensors that prevent wheelies, and systems that influence the engine power charts. With regard to brakes, anti-lock braking systems (ABS), pitch sensors to prevent stoppies, cornering ABS, emergency brake-power assist units, and coupled and/or connected brake systems where operating at least one of the brakes affects both wheels have become more widely used.

### 7.3 GUIDANCE AND ENTERTAINMENT SYSTEMS

>> SMOTO considers that all forward-fit or after-market guidance and entertainment systems must be designed specifically for motorcycles, taking into consideration the specific characteristics of motorcycles, such as driving dynamics, operational environments, and road safety.

Various guidance and entertainment systems are available for motorcycles today. These include trip computers, navigators, audio and entertainment equipment, and mobile phone functionalities. As factory-installed equipment, they have been developed to better match the needs of and use by motorcyclists than similar equipment intended for cars. Their user interfaces have been designed to be functional in all weather conditions and while wearing riding gloves. After-market devices and systems are also available.

---

## 7.4 COMMUNICATION BETWEEN VEHICLES AND VEHICLES AND THE INFRASTRUCTURE

>> SMOTO considers that new motorcycles should be equipped with devices that facilitate communication between vehicles (V2V) as well as between the vehicles and the infrastructure (V2I) in a similar manner and with a similar schedule than cars.

In the near future, the general development of intelligent transport will lead to motorized vehicles connecting to information networks and being able to communicate with background systems and/or other vehicles.

Motorcyclists must have equal access to connected transport data as drivers. New car models will be equipped with devices that facilitate communication between vehicles (V2V) as well as between the vehicles and the infrastructure (V2I) within the same time frame as passenger cars. The development is delayed by the fact that road operators and the automobile industry have different views on the use data transfer technology. With these devices, cars and infrastructure devices can transmit and receive data, such as information on interoperable transport, traffic disturbances, driving direction, location, and speed of on-coming vehicles, intersection characteristics and permissible driving and turning directions, as well as green wave speed recommendations.

When an agreement is reached on the data transfer technology and thus the actual development of the services begins, the V2V and V2I data transfers can be used to provide so-called Day 1 services.

## 7.5 AUTONOMOUS VEHICLES

>> SMOTO considers that the reformation of the regulation regarding traffic responsibilities must be continued so that the ability of autonomous cars to observe and identify powered two-wheelers can be ensured.

Developmental projects for automated driving are beginning to result in experiments where partially autonomous cars are tested in traffic on public roadways. The development of technologies and systems is progressing completely on the terms of the automotive environment. Some research programs funded by the EU have also included developmental work within the motorcycle environment, but these have only lead to concept testing. There is a distinct lack of actual demonstrations and usability testing. Commercial implementations are still waiting to be realized.

---

The legislator must review all legal information with regard to the wide implementation of autonomous vehicles. It must be assessed, who is the driver of the vehicle (or the person responsible) when the vehicle is used in a partially autonomous state, and who is responsible when an autonomous car causes an accident. In the future of automated driving, the only thing that the driver has to do in traffic is to avoid boredom.

>> SMOTO considers that  
the road safety of motorcyclists and moped users will deteriorate significantly, and motorcyclists and moped users will be jeopardized when autonomous vehicles enter traffic.

Before fully autonomous cars have completely taken over traffic, the positive development of motorcyclists' road safety will be at risk. The sensors of automated cars cannot reliably observe and identify motorcycles, and the car's systems are unable to avoid a collision with a motorcycle. Particularly on automation Level 3 (conditional automation), it is characteristic to steering and controlling cars that the human and machine share the responsibilities of the driver. The human should be able to immediately claim control of the car in situations where the artificial intelligence is no longer able to drive the car safely. In this case, the human driver is unable to handle the situation if they have not been paying attention to the traffic. This eventuality is approaching faster than the legislator has estimated. New car models that are equipped for automation Level 3 are already in production and entering the market by groups such as BMW, Daimler, VAG, General Motors, Nissan, and Toyota, in other words, the largest car manufacturers by volume.

>> SMOTO considers that  
the current legislation has clear shortcomings with regard to the allocation of civil and criminal liability in case of an accident involving an autonomous car and an unprotected road user.

The legislator must investigate and clearly demonstrate where the civil and criminal liability lies when the car control interface between human and the machine has "only some automated vehicle control". In the same context, it should be investigated what type of new minor and major offenses are introduced with regard to "the behavior of autonomous cars" and the hazardous situations they cause to other road users, such as pedestrians and other unprotected road users, including motorcyclists. It must also be investigated how vulnerable road users can be protected from road safety risks posed by autonomous cars.

This will become an especially difficult question when Level 3 autonomous cars enter traffic use. Already in March 2017, a report by the Science and Technology Select Committee warned that partially autonomous cars may reduce the driver's attention and make them too dependent on technology and that the risks posed by Level 3 may be too great to tolerate. At the same time here in Finland, we are told that there is no need to amend legislation.

## 7.6 AUTOMATED 112 EMERGENCY SERVICE, eCall

>> SMOTO starts from the premise that devices and user interfaces designed for motorcycles that are intended and able to connect automatically to the pan-European 112 eCall emergency service, must be designed in collaboration with motorcyclists.

The development of the 112 eCall emergency service must be carried out in collaboration with motorcyclists. This is the only way to ensure that these devices can ensure equal and identical access to emergency services in case of an accident as drivers and passengers of cars have.

One of the most critical aspects of the implementation of the 112 eCall system is the ability to reliably detect and identify PTW accidents and to separate them from other riding occurrences. The manufacturers of motorcycles, equipment, and components have stated that accident detection and accurate identification are the biggest challenge in the field with regard to the development of a PTW eCall system. Investigations performed by them did not provide unambiguous solutions to the above aspects. The development of an eCall system for motorcycles has substantial gaps.

>> SMOTO endorses further research, development, and testing regarding the 112 eCall emergency service.

The installation of pan-European 112 eCall devices on motorcycles is possible under certain conditions. The 112 eCall system cannot impose equipment or installation costs to motorcyclists that are higher than the corresponding costs pertaining to cars. The implementation should take place on voluntary basis.

Unlike with cars, riding behavior, riding conditions as well as the conditions of the motorcycle and the accident have a significant effect on the result (i.e. the injury to the motorcyclist). The measurement of the motorcycle's position, direction of movement, and deceleration/acceleration is not sufficient in itself to detect and identify accident situations. We must also have data regarding the changes in the position of the motorcyclist and the velocity of those changes, the position in respect to the motorcycle, and the intensity of the changes in kinetic energy. These are the best factors to assess the condition of a motorcyclist in the event of an accident.

The durability and usage requirements for motorcycle equipment are significantly more demanding than in cars. The relatively low price of powered two-wheelers presents substantial challenges to the costs associated with an eCall device.

---

## 7.7 DATA

» SMOTO demands that data pertaining to the movement and traffic behavior of a motorcyclist or a moped user is their personal property and that they alone decide on how the data is used, distributed, and published.

In the future, data will mean currency and power. The owner of the data decides on its use, distribution, and publicity. Powered two-wheelers can be used in a very wide range of conditions and environments. Data pertaining to the movement is the sole property of the person moving.

» SMOTO demands that data pertaining to motorcyclists and moped users on their movement and traffic behavior can only be transferred when the user so decides and specifically allows. Motorcyclists and moped users will decide by themselves what data pertaining to them can be transferred and used, as well as how and when.

It is SMOTO's opinion that ITS solutions and services cannot be used, without the express consent of the motorcyclist, to collect, store or process data that would breach the data security or privacy of the user or any information that would require maintaining a personal data register. Data in general can be used to conduct business activities and produce services that support mobility, but transfers of data pertaining to the movement and traffic behavior of motorcyclists is governed by the motorcyclists themselves. Data may only be transferred to background systems and service providers where and to the extent that the motorcyclist decides to do so and consciously allows the transfer and in particular the use of the data.

» SMOTO demands that the governance and management of data pertaining to motorcyclists and moped users is organized in such a way that the individual rights are protected in each case.

Data management is extremely challenging. It combines the collection, analysis, storage, distribution, and use of data. However, the most critical factors today are the protection of privacy, data security, and the

---

right of an individual to manage their data under the new European General Data Protection Regulation (GDPR).

## 7.8 DATA SECURITY

» SMOTO demands that data security and protection of privacy related to these is ensured in the management of data pertaining to motorcyclists and moped users.

The data security regarding motorcyclists and moped users – as with all other citizens – is a question of maintaining the availability, confidentiality, and integrity of the data. Data security must be a requirement for all digital and physical recordings and human knowledge regarding the movement, traffic behavior, and decisions of motorcyclists and moped users. The maintenance of data security is also required during data transfers. The data pertaining to movement, behavior, and decisions must be protected from malicious software and denial-of-service attacks within cloud services and wireless (local) networks. The data security threats that motorcyclists and moped users are subjected to include unauthorized access to data, unauthorized use of data, disclosure of confidential data, inspection of confidential data, copying data, and destruction of data.

## 7.9 SERVICES AND SERVICE PLATFORMS

>> SMOTO endorses the development of services and service platforms aimed at road users where motorcyclists and moped users have been able to participate in their definition and development.

SMOTO endorses making dynamic traffic and other services available to motorcyclists and accessible for use in various ITS service platforms, when the above-mentioned factors have been taken into consideration. For motorized vehicles, only such intelligent transport solutions whose design and development also recognizes all other road users, such as pedestrians, cyclists, and motorcyclists, and which also take note of vehicles without similar equipment are acceptable.

---

## 8 PUBLIC GUIDANCE

### 8.1 REGULATION

>> SMOTO starts from the premise that we must devise a widely accepted roadmap for the improvement of norms and regulations governing motorcycles and mopeds to make them more user-driven and to improve their user-friendliness and the ability to serve the users.

A widely accepted, clear, and extensive roadmap must be introduced in Finland, which can be used to guide a long-term and structured process of deregulation and dismantling of norms related to motorcycles and mopeds in such a way that they are user-friendly, serve the users, and increase safety.

The legislator must engage in continuous and active dialog with operators from the motorcycle and moped sector on the regulation-related factors, which it has considered appropriate for preparation and discussion. Without a genuine dialog, the two parties will be set up against each other, which has no positive impact on the equity of the regulation or the equal treatment of the targeted community.

All regulation must consider the fact that ultimately the users will demonstrate and determine with their behavior how they are prepared to respond to regulatory measures regarding motorcycling and moped use.

>> SMOTO takes the position that motorcycles or motorcycling should not be subjected to regulation or acts that do not have a verified, positive impact, whether direct or indirect, on the road safety of motorcyclists.

## 8.2 TAXATION

» SMOTO demands that  
the vehicle tax on motorcycles is reduced to the same (tax rate) level as the tax on passenger cars with similar emission levels, and that the vehicle tax on motorcycles is reduced annually at the same pace, with the same percentages, and in a similar manner than with passenger cars.

**The vehicle tax on motorcycles** must be phased out, and this must happen, at minimum, at the same pace as the vehicle tax on passenger cars. The elimination of the vehicle tax on motorcycles would increase sales in a struggling trade, including the related services, accelerate the renewal of the motorcycle stock, and introduce more low-emission and electric motorcycles and mopeds with better fuel economy to traffic. The increased number of users would provide a sorely needed shot in the arm of the trade and service sector, which would have a positive impact on the social economy exceeding its costs within a short period.

The flat-rate vehicle tax on motorcycles is calculated based on the engine capacity or (electric motorcycles) motive force for vehicles commissioned after January 1, 2016. The vehicle tax on passenger cars is based on emissions. Due to the different criteria, there is a clear deficiency in the tax treatment of passenger cars and motorcycles. A comparison of the emission levels and tax rates demonstrates the glaring nature of this imbalance.

SMOTO has assessed the tax treatment of motorcycles using a sample of 101 motorcycles, see the below figure.

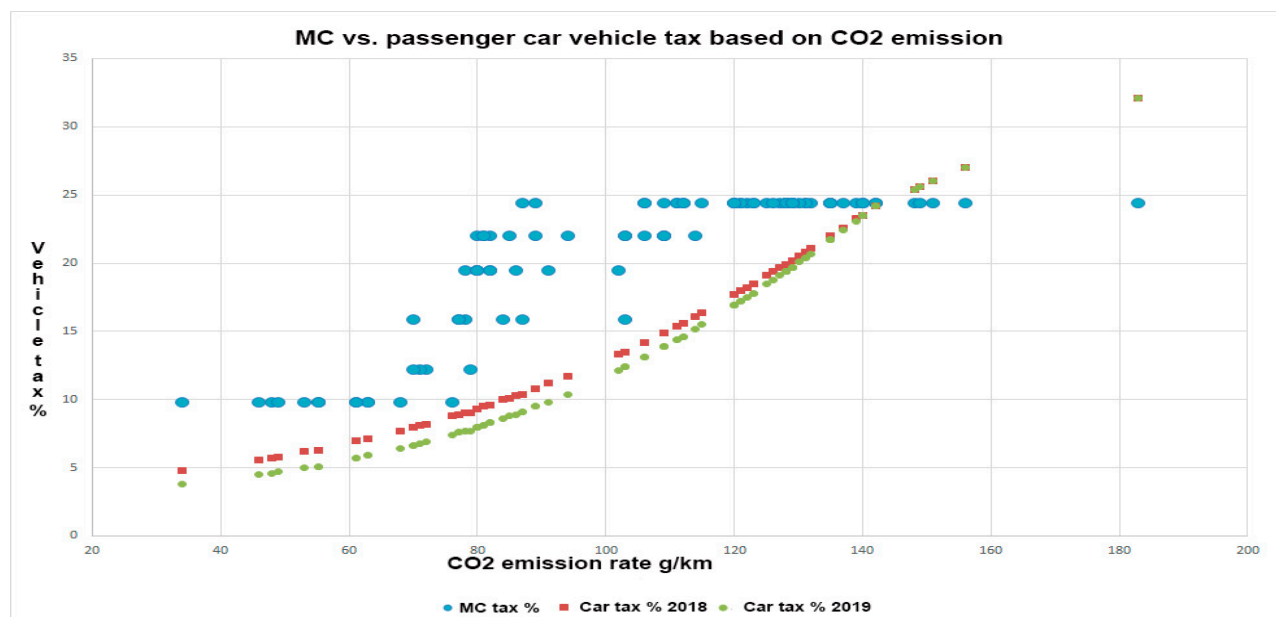


Figure 1: The difference between the tax rates based on the emissions of motorcycles and passenger cars.



According to the sample, the tax rate on motorcycles was on average 5.6 percentage points higher than on passenger cars in 2018, and the difference between the tax rates will increase to 6.5 percentage points in 2019. At its highest, the difference between tax rates in the sample is 14 percentage points, increasing to 15.3 percentage points in 2019. Only some high-performance or heavy motorcycles have a lower vehicle tax rate than passenger cars with a similar emission level; the tax rate is higher for 95% of motorcycles.

Two examples summarize the shocking imbalance in tax rates. The vehicle tax rate imposed on a motorcycle that produces 103 g/km of emissions is 24.4%, while the tax rate on a passenger car with similar emissions is only 15.8%. Low-emission vehicles provide another example. A mid-sized motorcycle produces an approximate 81 g/km of emissions, which means that the imposed vehicle tax rate is 22%, whereas the corresponding tax rate for a passenger car is 12.2%. The vehicle tax rate on an electric motorcycle (9.8%) is nearly four times the vehicle tax rate of an electric passenger car (2.7%). Motorcycles and mopeds and the related services should not be subjected to any other taxes or tax-like fees. Additional information is available in appendix 3.

» SMOTO demands that  
the taxation of purchasing motorcycles must be fair and equal compared to  
the taxation of passenger cars.

**Taxation of motorcycle usage** is largely based on taxes on fuel and electricity and the related VAT. The use should not be subjected to other taxes or tax-like fees, even if they are temporary in nature.

» SMOTO demands that  
the preparation of duties imposed on motorcycles is abandoned altogether.

The preparation of **duties imposed on motorcycles** must be abandoned and they cannot be furthered in any way. According to a survey conducted by SMOTO in 2016, the vehicle tax on motorcycles will destroy motorcycling and the related business operations and services.

The **taxation rules pertaining to modification inspections and independently produced motorcycles and small series** must be transparent and fair, and they must not be used to guide the modification and fabrication of motorcycles.

Taxation that favors powered two-wheeler will lead to improved traffic flow and a better outcome for all road users. Motorcycles and motorcycling are constantly subjected to pressure, which is used to justify why tax-like fees targeted toward them should be increased or raised. These are often grounded on untenable, ill-argued, and false justifications.

---

According to the EU White Paper on Transport, the EU demands concrete actions to ensure the implementation of the “user pays” and “polluter pays” principles. This does not cover duties imposed on a single category of vehicles. The EU also demands that under the sustainable mobility policy of the Union, ensuring equal facilities for different transport means must be based on a wider range of policy instruments. This range can be used to move toward more environmentally-friendly means of transport, particularly on longer journeys, in urban areas, and in congested transport conditions.

### 8.3 SURVEILLANCE

» SMOTO demands that  
the surveillance of powered two-wheelers is not increased without  
sustainable, transparent, and widely acceptable justification.

New intelligent transport solutions cannot be used for surveillance without appropriate cause. Intelligent transport solutions that are used or can be used for any form of surveillance of road users by the authorities or third parties should not be developed or implemented. Solutions that are specifically intended for surveillance should be developed for this purpose, but they must be transparent, sustainable, and widely accepted with regard to their use and justification.

With regard to motorcycles and mopeds, telemonitoring, remote diagnostics, remote management, remote monitoring, and stolen vehicle tracking are only allowable using devices or services which have been approved for this specific purpose by the motorcyclist or moped user, and the devices and services cannot be used for surveillance purposes.

No form of telemonitoring or remote monitoring of a motorcycle's location, movement, use, and user cannot be accepted without the express and specific consent of the motorcyclist or moped user.

---

## 9 FURTHER MEASURES

### 9.1 ACTION PLAN FOR STRATEGY DEVELOPMENT

SMOTO constantly engages in extensive discussions with its interest groups and membership in the course of its advocacy work. The national PTW strategy that has now been outlined will be incorporated in these interactions as part of advocacy, information, and contacts. The strategy will be discussed in Motoparliaments, general meetings of the association, club conferences, events organized by member associations, and motorcyclist events throughout the country, as well as with businesses, such as PTW importers, retailers, repair shops, and service stations. The strategy will also be presented in Nordic and European events related to the advocacy of motorcyclists, research, and development, as well as other cooperative events. Discussions with our partners, such as SML, the Finnish Road Safety Council, ITS Finland, and Autoliitto are naturally included in the further measures.

The strategy will guide SMOTO's operation in the long term, but also in our daily advocacy work. However, the strategy is not a cross-section of the needs, concerns, worries, hopes, and dreams of Finnish motorcyclists and moped users set in stone. The strategy will be updated along with changes in the surrounding society, as things are implemented, or new issues are highlighted amongst motorcyclists and moped users.

### 9.2 INTERACTION WITH AUTHORITIES

SMOTO is committed to the mobilization of the outlined national PTW strategy to authorities, policy-makers, legislators, and those responsible for implementing measures. The mobilization process will give due regard to an open and transparent dialog, for example with regard to the preparation of acts and taxation. In practice, this means engaging in discussions with the relevant ministries, such as the Ministry of Transport and Communications, Ministry of Finance, Ministry of Economic Affairs and Employment, and Ministry of Education and Culture.

In addition to these, the PTW strategy will be presented from the legislative perspective to at least the Transport and Communications Committee, but also to the Finance Committee, Social Affairs and Health Committee, Committee for the Future, and Environment Committee where necessary. The areas related to the general budget will be presented to the subcommittees on Transport, Economic Affairs and Employment, Taxation, and Culture and Science.

The immediately implemented areas that have no direct effect on legislation or the general budget will be discussed with transport sector agencies, cities, and other public operators. In these bilateral discussions, we will highlight the related areas of the national PTW strategy for the sector of each operator. The purpose of this is to launch development of the areas mentioned in the strategy, along with refinement and procedure in an appropriate order right through to implementation.

SMOTO is prepared to continue to pursue the areas covered by this strategy that are important and significant to all Finnish motorcyclists and moped users in the long term, until we have reached a satisfactory end result.

---

### 9.3 *NORDIC AND EUROPEAN INTERACTION*

SMOTO also engages in active cooperation with international partners outside of Finland. Our Nordic partners include the national umbrella organizations for motorcyclists. They largely deal with the same issues as SMOTO does in Finland. In each Nordic country, the national associations pursue identical areas from their own starting points, reflecting them through legislation and the society. Similarly, our partners operating in Europe, i.e. European motorcyclist umbrella organizations such as FEMA and global umbrella organizations such as FIM, pursue the same areas, but with their own premises and against the prevailing background.

Strategic matters are discussed with the international partners mentioned at the start of this document. The dialog is ongoing, regular, and fruitful. The best possible results can be reached by each operator working independently and supporting each other. Domestic measures are afforded the sought-after weight, diversity, and depth. Similar issues can often be resolved by similar measures. By gathering data from others, we can create best practices that can most effectively be used to contribute to highlighting disparities, developing and implementing measures, and achieving objectives.

Processing and promoting the same strategic issues with the authorities, policy-makers, legislators, administrations, and public officials in different countries will provide the best, the most sustainable, and the most appropriate results. Together, we are greater than the 100 member associations and more than 18,000 members of SMOTO and the 500,000 Finnish motorcyclists and moped users.

---

## APPENDIX 1 POWERED TWO-WHEELERS, PTW

Powered two-wheelers (PTW) are vehicles and means of transport as much as cars. PTW categories include motorcycles and mopeds powered by combustion engines and electric motors. They can be used for transport, recreation or competition, or they may be restored or museum-registered.

The following pages include examples of various motorcycle types to provide a general view of the motorcycle as a vehicle, and on the other hand to highlight the diverse nature and opportunities of motorcycles and motorcycling.

### Classic models

These motorcycles are characterized by an upright riding position, low-tuned engines, normal brake power, moderate range of technical aids, and exposing the rider to wind and weather conditions without protection. The engine typically has 1–4 cylinders, with sizes ranging from 75 cm<sup>3</sup> to 1,400 cm<sup>3</sup>.



### Sports bikes

These motorcycles are characterized by the forward-leaning position of the rider, high-tuned engines, increased braking power, a wide range of technical aids, and fairings that protect the rider from wind and weather conditions. The engine typically has 2, 3, 4 or 6 cylinders, with sizes ranging from 125 cm<sup>3</sup> to 1,000 cm<sup>3</sup>.



---

### Touring motorcycles

These motorcycles are characterized by a fairly upright or slightly forward-leaning riding position, quite high engine power, increased braking power due to the greater weight of the motorcycle, a very extensive range of technical aids, and very good protection for the rider against wind and the elements. The engine typically has 2, 3, 4 or 6 cylinders, with sizes ranging from 600 cm<sup>3</sup> to 1800 cm<sup>3</sup>.



### Touring enduro motorcycles

Touring enduro motorcycles are also known as adventure bikes due to the versatile handling, extended suspension travel, adjustable chassis, and extensive range of available equipment and accessories. These motorcycles are characterized by a fairly upright riding position, the option to ride while standing on foot pegs, high engine power, the ease of attaching even quite large pannier and top cases, increased brake power due to the greater weight of the motorcycle, a very extensive range of technical aids, and good protection for the rider against wind and the elements. The engine typically has 2, 3 or 4 cylinders, with sizes ranging from 600 cm<sup>3</sup> to 1,300 cm<sup>3</sup>.





---

### Cruiser motorcycles

These models are known as cruisers due to the relaxed riding position and construction that is particularly suited for leisurely cruising. These motorcycles are characterized by an upright riding position, with foot pegs or floorboards positioned quite near the front end, moderate performance with respect to engine size, high torque, fixed or removable pannier and top cases, normal braking power due to the moderate performance, low center of gravity, quite extensive range of technical aids, and some form of protection for the rider against wind and weather conditions. The engine typically has 2, 4 or 6 cylinders, with sizes ranging from 750 cm<sup>3</sup> to 1,900 cm<sup>3</sup>.



### Motorcycle scooters

These motorcycles are characterized by an upright, seated riding position, spacious leg room behind the front fork assembly, very low-tuned engine, normal braking power, a limited range of technical aids, and moderate or good protection for the rider against wind and weather conditions. The engine typically has 1 or 2 cylinders, with sizes ranging from 75 cm<sup>3</sup> to 600 cm<sup>3</sup>.

The first mass-produced hybrid motorcycle in the world with two front wheels was introduced in the motorcycle scooter category.



---

### Independently manufactured motorcycles

Motorcycles that are manufactured independently or in small series may incorporate a maximum of 50% of parts reclaimed from a single mass-produced model, and the parts used for fabrication must be individually manufactured or significantly altered mass-produced parts. Such individually manufactured motorcycles, motorcycles equipped with sidecars, or trikes (class L vehicle) may be granted an individual vehicle identification number by Trafi on application.

The VIN application must specify and identify the origin of the used parts based on nine areas and the related sub-sections to indicate the mass-produced vehicle part or after-market part or a significantly altered part or independently manufactured part in question. The parts list included in the application provides weighting for each area, which are used to calculate whether the vehicle meets the independent manufacturing eligibility standard. The VIN issued by Trafi remains valid for five years from the date of issuance. The vehicle must be registered in Finland during this time.



These types of motorcycle do not have general or shared characteristics. They conform to the creator's vision and are often either greatly simplified or remarkably complex with regard to their construction and equipment. The riding position may range from a forward lean to a backward slant, the engine power, torque and tuning vary widely, brakes meet the requirements specified for motorcycles, technical stability control systems and other aids are used only marginally, and there is large variation in the protection provided for the rider against wind and weather. They may be equipped with three wheels, with the third incorporated into a sidecar or with two wheels at the front or the back. The engine may have anything between one and eight cylinders and its size is usually larger than 750 cm<sup>3</sup>.



### Off-road motorcycles

The off-road category includes various types of motorcycle. Some examples include motocross, trial, and enduro motorcycles. These motorcycles are characterized by an upright and relaxed riding position, which is easy to adjust and shift along the seat, normal placement of foot pegs apart from the higher than normal position, extended ground clearance, option to ride while standing on foot pegs, high center of gravity, low engine performance, normal braking power, very limited range of technical aids, and lack of protection for the rider against wind and weather conditions. The engine typically has 1 or 2 cylinders, with sizes ranging from 70 cm<sup>3</sup> to 500 cm<sup>3</sup>.



### Racing motorcycles

Racing motorcycles are designed for surfaced and gravel/off-road tracks. Motorcycles that have been specially designed for road or drag racing are used on the surfaced tracks. **Road racing bikes** are based on or have been the inspiration for the previously mentioned sports bikes equipped with fairings. They are characterized by a pronounced forward leaning riding position, extremely tuned engines, highly refined aerodynamics, significant amount of parts made from the latest, light and durable materials such as carbon fiber, very powerful electronically assisted brakes, very extensive range of technical aids intended to ensure traction, and good protection from wind and weather conditions for the rider hugging the bike.

Racing motorcycles used in the most advanced MotoGP classes represent the absolute top of the field, incorporating the latest advancements, each built completely individually. The advanced technical stability control systems developed for these motorcycles often eventually end up being used in mass-produced and type-approved motorcycles intended for road use. The racing motorcycles used in the MotoGP series are comparable to Formula 1 racing cars as mobile development and testing laboratories, from which technologies are gradually transferred to motorcycles approved for road use. Their engines typically have 2, 3 or 4 cylinders, with sizes ranging from 125 cm<sup>3</sup> to 1,000 cm<sup>3</sup>.

**Motocross and enduro motorcycles** are used on gravel and off-road tracks. They are characterized by an upright and mobile riding position that can be adjusted and shifted along the seat, normal placement of foot pegs apart from the higher than normal position, extended ground clearance, high center of gravity, low engine performance, normal braking power, very limited range of technical aids, and lack of protection for the rider against wind and weather conditions. Light weight and easy handling are the most important features of these bikes. Their engines typically have 1 or 2 cylinders, with sizes ranging from 70 cm<sup>3</sup> to 500 cm<sup>3</sup>.



### Mopeds and moped scooters

The specifications regarding the engine size and power as well as the maximum design speed of mopeds are quite strict. A moped is a two (L1e) or three-wheeled (L2e) motorized vehicle, whose maximum design speed is 45 kilometers per hour. Mopeds have 1-cylinder engines, with a maximum cylinder capacity of 50 cm<sup>3</sup> when powered by a combustion engine, or maximum power output of 4 kW when powered by an electric motor. They do not incorporate technical aids. These vehicles are also characterized by the fact that their design includes many similarities with both light motorcycles and the larger models.



### Electric powered two-wheelers

**Electric motorcycles** are increasingly entering the market. The first vehicles built from the ground up as electric motorcycles were introduced to the market around 2013. Many large motorcycle manufacturers have subsequently brought their first electric motorcycles to the market or presented initial preproduction models. These electric motorcycles – similarly to electric cars – are characterized by being free of emissions within their operational environment as well as having significant engine torque, fast and direct acceleration, and a simplified structure (compared to vehicles equipped with combustion engines). The manufacturers of electric motorcycles have released or announced various examples of this motorcycle type.



**Electric mopeds** are also entering the market in a significant way, along with motorcycles. They may include any of the types mentioned above, even ones designed for competitive use. Wider introduction to the market still requires reduction in the price of the battery technology, as the vehicle itself is relatively affordable. It has been estimated that electric mopeds will rise to the top of the sales figures within the next couple of years.





---

### Museum-registered and restored two-wheelers

The minimum age requirement for Museum-registered powered two-wheelers is 30 years after the end of the vehicle manufacturing year, and their technical features and appearance are equivalent to the original condition or have been restored correspondingly. Before approval as eligible for museum registration, the vehicles are thoroughly inspected by museum vehicle inspectors.



The primary purpose of restored motorcycles, which are not necessarily registered for road use is to preserve motorcycle history and technology. They are only used in traffic in exceptional circumstances and very occasionally, and even in those cases generally only for exhibition purposes, often in closed-off areas.



## APPENDIX 2 SOUND PRESSURE LEVEL PRODUCED BY POWERED TWO-WHEELERS

### Static measurement method for operational sound pressure level

During the measurement, a minimum of three consecutive measurements must be performed. The measurement result is the largest produced sound pressure value produced from three consecutive measurements. The maximum allowable difference between measurement results is 2 dB. The measurement results must be recorded in the measurement report.

The measurement is performed at half of the number of revolutions per minute at the maximum output of the engine. If reliable information on the RPM at maximum output is not available, 90% of the maximum RPM can be considered as the RPM at maximum output. If the vehicle is not equipped with a tachometer, the measurement must be performed using a separate device to determine the RPM during measurement. A sound pressure level meter conforming to the IEC standard 60651, Class 2, included in the equipment requirements specified for inspection stations is also considered to be a sufficiently accurate measurement device for measuring the operational sound pressure level.

The below diagram presents the measurement set-up. The measurement must be performed on a hard surface. The motorcycle must be surrounded by 3 meters of empty space. This area may only contain the "rider" of the motorcycle and the measurer. If the outlet of the exhaust pipe is directed more than 45 degrees to the side, the sound pressure level meter is angled 45 degrees backward from the outlet of the exhaust pipe.

The model-specific sound pressure level of a motorcycle is recorded in the VIN plate of the vehicle if sound pressure level was required at the time. This figure is compared with the level resulting from the measurements.

This method is used by authorities in roadside inspections.

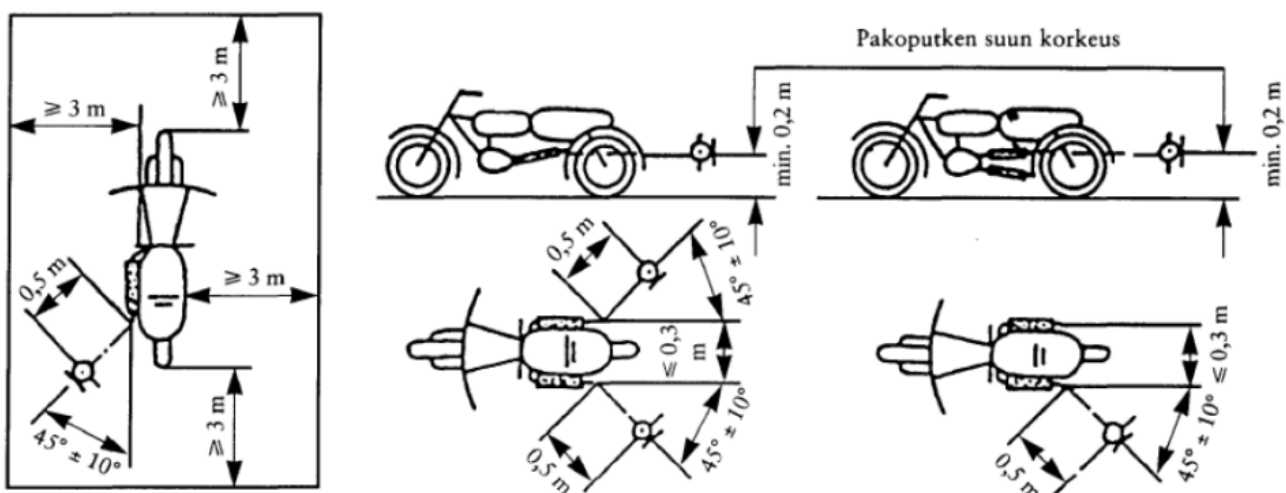


Figure 2: The position of the sound pressure level meter for static sound level measurement. MTC (1078/2010), Trafi (32515/2011).

### Drive-by sound level test for operational sound pressure level

The drive-by sound level test can be substituted for the static measurement of sound pressure level. The test is performed in an open area covered by pavement. During the drive-by test, the test subject drives past the measurement point with the throttle fully opened as demonstrated by the below figure.

Vehicle inspector's qualifications are sufficient for performing the measurement. The specific measurement set-up is provided in Chapter 9 of Directive 97/24/EC (the Directive describes the measurement procedure for mopeds and motorcycles separately). Instructions for a four-gear motorcycle with an engine capacity of more than 175 cm<sup>3</sup> are provided below. The microphone used for the measurement must be placed at a height of 1.2 meters.

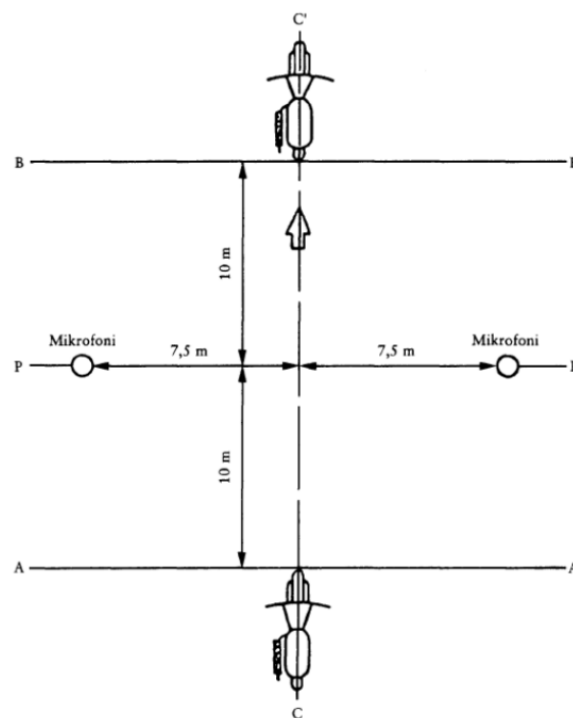


Figure 3: The set-up for a drive-by test of the sound level of a motorcycle, MTC (1078/2010), Trafi (32515/2011).

## APPENDIX 3 COMPARING THE DETERMINATION OF THE VEHICLE TAX

The flat-rate vehicle tax on motorcycles is calculated based on the engine capacity or (electric motorcycles) motive force according to the below table for vehicles commissioned after January 1, 2016.

Table 2: Vehicle tax rate determined on the basis of the engine capacity of motorcycles. (Trafí, excluding the middle column.)

Engine capacity [cm <sup>3</sup> ]	(Unofficial average CO <sub>2</sub> emissions, no effect on tax rate)	Tax rate [%] From January 1, 2016
Maximum of 130	56.3	9.8
131–255	81.4	12.2
256–355		15.9
356–505		19.5
506–755		22.0
Minimum of 756	103.0	24.4
Electrically driven L class vehicle	0	9.8

The vehicle tax for passenger cars is calculated based on the (means of propulsion, mass of the vehicle, and) emissions. The enclosed comparison table includes the features of a passenger car powered by a combustion engine, which correspond to the tax rate for motorcycles during the 2016 tax period. Even passenger cars with a mass of less than 980 kg produce more emissions than the largest motorcycles on average.

Table 3: Vehicle tax rate determined according to the emissions of passenger cars that reduces (changes) annually. (Trafí)

Mass [kg], other than diesel	CO <sub>2</sub> [g/km]	Tax rate [%] January 1, 2016, ->	Tax rate [%] January 1, 2017, ->	Tax rate [%] January 1, 2018, ->	Tax rate [%] January 1, 2016, ->
619–627	64	9.9 (cf. MC 9.8)	8.6	7.3	6.0
733–781	81	12.2	10.8	9.5	8.1
971–979	103	15.8 (15.9)	14.7	13.5	12.4
1133–1141	121	19.5	18.7	18.0	17.2
1241–1249	133	22.1 (22.0)	21.8	21.4	21.1
1332–1340	143	24.4	24.4	24.4	24.4
Electrically driven	0	4.4	3.8	3.3	2.7

