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EU Urban Mobility state of play

Accompanying the document

**Communication from the Commission to the European Parliament, the Council, the
European Economic and Social Committee and the Committee of the Regions**

The New EU Urban Mobility Framework

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GLOSSARY of key terms, abbreviations and acronyms

<i>Term, abbreviation or acronym</i>	<i>Meaning or definition</i>
Active mobility (or transport)	Transport of people or goods through non-motorised means, based on human physical activity (e.g. walking, cycling)
CEF	Connecting Europe Facility
CIVITAS	An acronym of CItY-VITAlity-Sustainability, an initiative of the EU to implement sustainable, clean and (energy) efficient urban transport measures, co-ordinated by cities
CO ₂	Carbon Dioxide
COVID-19	Coronavirus disease 2019 (COVID-19), a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
Digitalisation	Conversion of information into a digital format
E-bike	A bicycle with an integrated electric motor to assist pedalling
EC	European Commission
E-commerce	Buying and selling goods and services over the internet
EIB	European Investment Bank
ELTIS	European Local Transport Information Service, www.eltis.org (European Urban Mobility Observatory)
EMW	European Mobility Week, EU awareness-raising campaign on sustainable urban mobility
EU	European Union
ERDF	European Regional Development Fund

ESI	European Structural and Investment Fund
EGUM	Member States Expert Group on Urban Mobility set up by the European Commission
FUA	Functional urban area, consisting of a city and its commuting zone
GHG	Greenhouse gas
HDV	Heavy Duty Vehicle, a freight vehicle of more than 3.5 tonnes (lorries) or passenger transport vehicle of more than 8 seats (buses and coaches)
ITS	Intelligent Transport Systems, transport solutions utilizing state-of-the-art information and telecommunications technologies
LDV	Light duty vehicle, a passenger car or van for up to 8 passengers
LEZ	Low Emission Zone (a type of urban vehicle access regulations), an area where access by some polluting vehicles is restricted or deterred with the aim of improving air quality
MaaS	Mobility as a Service, the integration of various forms of transport services into a single mobility service accessible on demand
Micromobility	Transportation using lightweight vehicles such as bicycles or scooters, especially electric ones that may be borrowed as part of a self-service scheme in which people hire vehicles for short-term use
Mobility management	A concept to promote sustainable transport and manage the demand for car use by changing travellers' attitudes and behaviour, in particular at the level of companies, organisations and institutions
Multimodality	Transportation of people and goods using at least two different modes of transport (e.g. cycling and public transport)
NGO	Non-governmental Organisation

NO _x	Nitrogen oxides, collective term used to refer to nitrogen monoxide (nitric oxide or NO) and nitrogen dioxide (NO ₂), air pollutants produced during combustion including by motor vehicles
OPC	Open public consultation
P+R, park&ride facility	A measure for reducing urban traffic congestion, where drivers leave their cars in 'park and ride' area (parking facility) usually on the outskirts of a city and travel to the city centre on public transport or other means
PM	Particulate Matter, a collective name for fine solid or liquid particles added to the atmosphere by processes at the earth's surface, a pollutant considered to be one of the most harmful to human health
Shared mobility	It refers in this document to shared use of transport modes, such as sharing of vehicles for rental (e.g. bikes, scooters, cars), ride-sharing/car-pooling (i.e. shared space within a vehicle) as well as transport-on-demand services (e.g. ride hailing services like taxis)
SWD	Staff Working Document, preparatory/auxiliary document of the European Commission, usually accompanying legislative proposals
SULP	Sustainable Urban Logistics Plan
SUMI	Sustainable Urban Mobility Indicators, a set of indicators developed by a pilot project funded by the European Commission to support cities to perform a standardised evaluation of their mobility system and to measure improvements
SUMP	Sustainable Urban Mobility Plan, a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life
TEN-T	Trans-European Transport Network, Europe-wide network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports and urban nodes

UMP	Urban Mobility Package, an EU policy basis of 2013 comprising the Communication "Together towards competitive and resource efficient urban mobility" and annexes
Vision Zero	In road safety, a goal to reduce road deaths and serious injuries to almost zero
UVAR	Urban Vehicle Access Regulation, a form of traffic management that regulates access in specific urban locations according to vehicle type, age, emissions category – or other factors such as time of day or day of the week
VRU	Vulnerable road users; non-motorised road users, such as pedestrians and cyclists as well as motor-cyclists and persons with disabilities or reduced mobility and orientation
WHO	World Health Organisation

1. Introduction

This Staff Working Document accompanies the Communication from the Commission on the European Union (EU) urban mobility framework, which sets out the actions needed to ensure that transport in cities supports long-term prosperity of European urban areas, delivers the goals of the European Green Deal¹ and of the Sustainable and Smart Mobility Strategy² (hereafter referred to as the Strategy). The Communication sets out actions and recommendations for Member States, regions and cities in order to make urban mobility fit for the future and in particular safer, accessible, inclusive, affordable, smart, resilient and clean.

Smart and resilient transport services and infrastructure, for both people and goods, are vital to make full use of the economic strengths of all regions of the European Union, to support the Single Market, recover from the COVID-19 pandemic and stimulate future sustainable growth. Transport in, to and between cities is vital to enable economic, social and territorial cohesion, underpins our global competitiveness and our international connectivity.

The transport sector is also a major factor for employment in Europe. In 2020 the transport sector in the EU-27 employed more than 10 million workers and comprised around 1.1 million enterprises, providing services to people and businesses within the EU and globally³. The results of the evaluation⁴ of the EU Urban mobility package of 2013 concluded that EU action on urban mobility is needed, even more now than in 2013. The evaluation also described a need to go beyond voluntary actions in order to achieve European climate, digital and societal objectives.

The new Leipzig Charter⁵ called for urban transport and mobility systems to be efficient, carbon-neutral, safe and multi-modal. Active and low-carbon forms of mobility and logistics should be promoted including a modal shift to public transport, walking and biking. Public transport should be accessible, affordable, clean, safe and attractive for all.

This Staff Working Document gives an overview of the Commission services' assessment of the challenges that urban mobility faces as well as analysis and data underpinning the new urban mobility framework. With that, it aims to support cities, regions and Member States in the transformation of the way people and goods move in and around the EU urban areas.

2. Background and context

2.1 Cities and urban mobility

Cities remain the principal hubs of economic and social activity in the EU, where people live, work, do business, have access to educational, health, cultural and commercial services, and

¹ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>

³ For statistical information, unless otherwise indicated (e.g. EU-27 is mentioned), EU data relating to the period before the withdrawal of the UK from the Union (i.e. 31 January 2020) includes the UK

⁴ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021SC0047>

⁵ Adopted at the Informal Ministerial Meeting on Urban Matters on 30 November 2020:

https://ec.europa.eu/regional_policy/en/information/publications/brochures/2020/new-leipzig-charter-the-transformative-power-of-cities-for-the-common-good

interact with others. The majority of Europeans (70.9%, up from 50% in 1950) live in urban areas⁶, making Europe one of the most urbanised regions in the world. The growth of the rate of urbanisation in Europe is expected to continue, with the proportion of the population residing in urban areas projected to reach 83.7% in 2050.⁷ Competitive and sustainable transport services are vital to accommodate the mobility, logistics and delivery needs within and around the metropolises areas in the EU.

Some cities in the EU, however, will face declining populations⁸, and all cities have to accommodate needs of an ageing EU population that will require further adaptation of urban infrastructure and services⁹ and in particular better accessibility¹⁰ for persons with disabilities or reduced mobility.

Indeed accessibility of urban transport for persons with disabilities is essential for their inclusion in society. The accessibility requirement in the European Accessibility Act (Directive 2019/882)¹¹ concern certain transport services. They also are to be used in public procurement and when using EU Funds that contain obligations on accessibility. In addition, they can serve for inspiration for Member States to improve accessibility in areas of urban mobility under their competences.

Prior to the COVID-19 pandemic, urban and suburban public transport services carried 180 million passengers on an average working day across the EU¹², providing the backbone of urban mobility in many EU cities. According to the estimates of the stakeholders¹³, the public transport sector is amongst the largest employers at local level, employing 2 million people in the EU.

But while serving its vital role for society, transport is still a source of significant environmental concern. Given their economic role and population share, cities are a prime source of greenhouse gas emissions with a significant contribution from transport¹⁴ (urban areas account

⁶ Eurostat (2020) Urban and rural living in the EU, <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20200207-1>

⁷ United Nations, Department of Economic and Social Affairs, Population Division (2019): 'World Urbanization Prospects 2018: Highlights (ST/ESA/SER.A/421)'. <https://population.un.org/wup/Publications/Files/WUP2018-Highlights.pdf>

⁸ Some cities in the EU have a relatively high proportion of older people because of an outflow of younger people, reflecting in some cases the high cost of property (for rent or to buy) in many city centre locations and in other cases limited educational and/or employment opportunities. Statistics on European cities, https://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_European_cities#Population

⁹ The Future of Cities, <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/future-cities>

¹⁰ For the purposes of this document the term “barrier-free accessibility” will be used to describe accessibility for persons with disabilities or persons with reduced mobility

¹¹ Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L0882>

¹² UITP (2021): UITP, EMTA, EPTO, POLIS, EPF Joint Open Letter, https://cms.uitp.org/wp/wp-content/uploads/2021/06/UITP_Make-2022-the-European-year-of-rail-and-public-transport.pdf

¹³ UITP (Union Internationale des Transports Publics), <https://cms.uitp.org/wp/wp-content/uploads/2020/08/PUBLIC-TRANSPORT-MOVING-EUROPE-FORWARD.pdf>

¹⁴ EEA Report No 18/2019, The first and last mile — the key to sustainable urban transport, <https://www.eea.europa.eu/publications/the-first-and-last-mile>

for some 23% of the EU's greenhouse gas emissions from transport¹⁵). Local air¹⁶ and noise pollution have significant impacts on citizens' health.

In 2019, 38% of road fatalities in the EU occurred in urban areas, and the majority (70%) of deaths are vulnerable road users¹⁷ such as pedestrians and cyclists.

At the same time, walking, cycling and other forms of active mobility can substantially increase personal health. Physical activity in the EU is at an alarmingly low level, with 6 in every 10 people above 15 years of age never or seldom exercising or engaging in other kinds of physical activity, such as cycling¹⁸. According to the World Health Organisation (WHO), physical inactivity is one of the leading risk factors for health and is estimated to contribute to one million deaths (about 10 % of the total) in Europe per year¹⁹.

The resilience of urban transport networks has been severely tested during the COVID-19 pandemic. But the crisis also opens new opportunities to re-think urban mobility and make it more sustainable, inclusive, affordable and safer while at the same time promoting active and healthy lifestyles.

Urban mobility will remain vital for a good quality of life for each and every citizen and a prosperous economic future for Europe.

2.2 Urban mobility game changers

Important societal, scientific and technological developments impact urban mobility, in particular²⁰:

- A further increase in the economic and political importance of cities and urbanised areas coupled with migration (to the EU and into cities);
- The shift towards low- and zero emission fuels, with its consequences for existing infrastructure (e.g. electricity grids) and needs for new infrastructure (e.g. hydrogen but also electric charging points for all vehicles (including e-bikes, delivery vehicles etc.)) with adequate access throughout the city;
- Digitalisation and the emergence of new business models for freight and passenger transport, integration platforms for existing and new mobility offers (e.g. Mobility as a Service MaaS²¹), platforms for freight exchange or on-demand ride-hailing services. This brings together customers and providers in new ways such as car sharing (with a focus on free-floating schemes), cycle sharing, ride hailing services, ride-sharing, electric scooters;

¹⁵ Estimates based on the PRIMES-TREMOVE model developed by ICCS- E3M-Lab.

¹⁶ <https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report>; figure 3.4 shows that transport is an important, but not the largest factors in several air pollutants

¹⁷ Source: CARE database. Available at: https://ec.europa.eu/transport/road_safety/specialist/statistics_en

¹⁸ https://ec.europa.eu/sport/news/2018/new-eurobarometer-sport-and-physical-activity_en

¹⁹ <https://www.euro.who.int/en/health-topics/disease-prevention/physical-activity/data-and-statistics/10-key-facts-on-physical-activity-in-the-who-european-region>

²⁰ Based, inter alia, on Policy Paper developed by the CIVITAS Advisory Group on Game Changers (https://civitas.eu/sites/default/files/CIVITAS_satellite_policy_paper_advisory_group_game_changers.pdf)

²¹ Mobility as a Service, the integration of various forms of transport services into a single mobility service accessible on demand

- The appearance of automated vehicles (and related infrastructure) and use of Cooperative Intelligent Transport Systems (C-ITS), enabling digital communication between vehicles and between vehicles and related infrastructure;
- E-commerce has been growing steadily over the recent years and COVID-19 lockdown measures have greatly accelerated this trend. Globally, we have witnessed a 25% rise in consumer e-commerce deliveries in 2020²², and part of the increased demand can be expected to last beyond the pandemic.

Furthermore, working arrangements and habits are changing, accelerated by the COVID-19 pandemic and facilitated by digital work solutions. Remote and more flexible work arrangements have become more widespread and might, at least partially, remain in place for the longer term, requiring more flexible and adapted mobility offers. Public transport has been particularly impacted by the COVID-19 pandemic, both by dramatic changes in travel patterns and fears over the safety of travelling on buses, trams or trains. The public transport ridership level is still well below the pre-pandemic levels whilst transport by private car is back to pre-pandemic levels. Measures taken by cities included prioritising public and active transport as well as different redistribution of public space²³.

The experience of the pandemic has shown that transport and mobility – of all types – are key to the resilience of urban areas. Due to the various lockdown measures, the pandemic has also resulted in significant reductions in pollution from urban transport²⁴.

2.3 2013 Urban mobility package

In 2013 the Commission presented its Urban Mobility Package (UMP). It consists of the Communication “Together towards competitive and resource-efficient urban mobility”²⁵ as well as the accompanying annex “A Concept for Sustainable Urban Mobility Plans”²⁶ and four Commission Staff Working Documents²⁷ addressing respectively action in four main areas: urban logistics, urban road safety, urban vehicle access regulations and Intelligent Transport Systems in cities. Based on the 2013 impact assessment, a choice was made to proceed with a non-binding option instead of legislative alternatives. The framework focused on catalysing joint action towards more sustainable urban mobility and reinforcing the support provided to European cities through coordinated measures at EU level and in the Member States. Responsibility for the implementation of the UMP objectives was allocated to the European Commission and the Member States, within their respective fields of competence.

According to the results of the evaluation published in February 2021²⁸, the package generated EU added value especially thanks to EU funding and supporting awareness-raising, capacity building, sharing of good practice and experience, and fostering collaboration and cooperation.

²² <https://www.weforum.org/press/2021/04/covid-19-has-reshaped-last-mile-logistics-with-e-commerce-deliveries-rising-25-in-2020/>

²³ European Parliament, Rapid-response briefing ‘COVID-19 and urban mobility: impacts and perspectives’, September 2020. Available at:

[https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/652213/IPOL_IDA\(2020\)652213_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/652213/IPOL_IDA(2020)652213_EN.pdf)

²⁴ European Environment Agency: Air quality in Europe – 2020 report,

<https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report>

²⁵ COM(2013)913, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0913>

²⁶ COM(2013)913-annex, https://eur-lex.europa.eu/resource.html?uri=cellar:82155e82-67ca-11e3-a7e4-01aa75ed71a1.0011.02/DOC_4&format=PDF

²⁷ ‘A call to action on urban logistics’, ‘Targeted action on urban road safety’, ‘A call for smarter action on urban access regulations’, and ‘Mobilising Intelligent Transport Systems for EU cities’.

²⁸ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021SC0047>

The central element of the package, the concept of sustainable urban mobility planning (SUMP) and related European guidelines²⁹ have been relatively widely used and proved effective and useful for local authorities, planners and stakeholders. However, there are wide variations in uptake and quality of the SUMP. Urban mobility data collection and availability require additional attention to ensure that SUMP remain effective tools towards achieving the EU decarbonisation, transport and connectivity objectives, including on the TEN-T Network. In that regard, capacity and expertise, especially in small and medium-sized cities, remain an issue, as well as often lacking national level involvement and support.

2.4 Urban mobility and other policies

Urban mobility has important links and interactions with general transport policies and other policy areas.

The “Fit for 55” package³⁰ adopted on 14 July 2021 includes relevant policies for the future of urban mobility. Among them, the proposed revision of the Energy Efficiency Directive³¹ (EED) provides a higher energy efficiency target and encourages Member States to take up schemes that accelerate the uptake of new, more efficient vehicles or policies fostering a shift to better performing fuels that reduce energy use per kilometre. The revision of the CO₂ emission performance standards for road transport vehicles will help accelerate the transition to low and zero-emission vehicles. The roll-out of a growing number of zero-emission vehicles will require appropriate recharging and refuelling infrastructure, including in urban areas. In light of this, the Commission published a proposal for the revision of the Alternative Fuels Infrastructure Directive³² as part of the package.

With its Communication of 14 January 2020 on a 'Strong Social Europe for Just Transitions'³³, the Commission reaffirmed that the green and digital transitions should be socially fair and just. Good working conditions, reskilling opportunities, and attractive jobs should be promoted in line with the European Pillar of Social Rights³⁴. Mobility is a critical aspect of social inclusion and an important determinant of human well-being, especially for disadvantaged groups. Transport, recognised as an essential service in the European Pillar of Social Rights, fulfils a basic need in enabling citizens to integrate into society and the labour market, but also constitutes a significant part of household expenditure. Enhanced connectivity and market opening has contributed to linking transport networks, bringing the EU together and making it more tangible and accessible for travellers.

Due to the rise of electric mobility, the fields of energy and mobility are becoming more intertwined with each other, while the potential impacts of rapid electrification on the grid in

²⁹ <https://www.eltis.org/mobility-plans/sump-guidelines>

³⁰ https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3541

³¹ https://ec.europa.eu/info/files/proposal-directive-energy-efficiency-recast_en

³²

https://ec.europa.eu/info/sites/default/files/revision_of_the_directive_on_deployment_of_the_alternative_fuels_infrastructure_with_annex_0.pdf

³³ COM(2020)14 final

³⁴ COM(2020) 789 final - https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/european-pillar-social-rights/european-pillar-social-rights-20-principles_en

an urban context need to be considered³⁵. This is also relevant in the area of digitalization and the smart cities concept.

Urban mobility is also relevant for cross-border and transnational cooperation platforms provided inter alia by the online platform Border Focal Point Network³⁶ and by the EU macro-regional strategies, where relevant.

Many activities related to urban mobility at European level have been financed through Research and Innovation activities. R&I on urban mobility is included in the new Framework Programme for R&I, Horizon Europe which has a more holistic approach covering “climate, energy and mobility”³⁷.

Mobility is also a key element of the more holistic approach driven by the Mission on climate-neutral and smart cities³⁸ launched in September 2021. The Mission’s goal is to help at least 100 cities become climate neutral by 2030 and to make them experimentation and innovation hubs to enable all other cities to follow suit by 2050. In this context, the Net Zero Report of the IEA points out that the decarbonisation of the transport sector it will have to rely on policies that promote modal shift (to public transport and active mobility), more efficient operations across passenger transport modes, and improvements in energy efficiency. It also depends on two major technology transitions: shifts towards electric mobility (electric vehicles [EVs] and fuel cell electric vehicles [FCEVs]) and shifts towards higher fuel blending ratios and direct use of low-carbon fuels (biofuels and hydrogen-based fuels). These shifts are likely to require interventions to stimulate investment in supply infrastructure and to incentivise consumer uptake³⁹.

Cohesion policy has an increasingly strong sustainable urban development dimension in the 2021-2027 period. Implemented through shared management, the strategic choices of Member States and regions remain central, but the five policy objectives of cohesion policy focused on Smarter, Greener, More Connected and More Social Europe and a Europe closer to Citizens are expected to mobilise substantial investments in urban areas. The new Policy Objective ‘a Europe closer to Citizens’ has been introduced to the main policy framework as an enhanced commitment to integrated territorial development and includes a specific objective to foster sustainable urban development.

The European Urban Initiative will be set up to provide coherent support to cities with the aim of supporting innovative actions, capacity and knowledge building, territorial impact assessments, policy development and communication. The URBACT IV programme will continue to build the capacities of cities through transnational networking, learning from experiences and identifying good practices to improve sustainable urban development policies and strategies.

³⁵ TRIMIS Horizon scanning alert ”Urban e-mobility and impacts on energy consumption“ JRC124704 https://trimis.ec.europa.eu/sites/default/files/documents/jrc124704_jrc124704_trimis_hs_alert_final.pdf

³⁶ <https://futurium.ec.europa.eu/en/border-focal-point-network/b-solutions>

³⁷ https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/cluster-5-climate-energy-and-mobility_en

³⁸ https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe/climate-neutral-and-smart-cities_en

³⁹ Net Zero by 2050, International Energy Agency, May 2021

Finally, the EU has a long history of intergovernmental engagement with its cities, most recently in the New Leipzig Charter⁴⁰ adopted in November 2020 that is a key policy framework document for sustainable urban development in Europe. The Charter highlights that cities need to establish integrated and sustainable urban development strategies and ensure their implementation for the city as a whole, from its functional areas to its neighbourhoods. Member States agreed to implement the Charter in their national or regional urban policies. Furthermore, the Urban Agenda for the EU⁴¹, which was launched by the Pact of Amsterdam⁴² in 2016, is considered as a key vehicle for the implementation of the New Leipzig Charter.

3. Challenges and existing measures

3.1 Congestion

The high levels of road traffic compared with road capacity at certain locations and times of day lead to congestion, substantial time losses, waste of energy and a lack of travel time reliability⁴³. The most common indicator of traffic congestion relates to the difference in average speed between free-flow conditions (usually recorded at night) and those observed at different times of day, converted to an increase in average travel time. Congestion undermines productivity and liveability in a large and growing number of cities.⁴⁴ It has very considerable costs to the society⁴⁵, and represents the second single most significant negative externality of road transport, after the cost of crashes.

In that regard, the situation across EU cities has not improved since 2013 and, in many places, has worsened. As put by the Court of Auditors in their report⁴⁶, *‘In the absence of a significant shift to other forms of transport, rising congestion is an indication that urban mobility is deteriorating for road users’*. The Court has confirmed that congestion has worsened in the cities from four Member States it analysed⁴⁷ as well as in 25 out of 37 urban nodes. Also, according to the European Environment Agency (Report No 18/2019), the hours spent by the average driver in road traffic congestion, annually, have increased for 16 EU countries between 2015 and 2017. The problem is more acute at the level of cities, with as many as 254 hours lost in congestion annually in Rome, 246 in Dublin and 237 in Paris.

⁴⁰https://ec.europa.eu/regional_policy/en/information/publications/brochures/2020/new-leipzig-charter-the-transformative-power-of-cities-for-the-common-good.

⁴¹ <https://futurium.ec.europa.eu/en/urban-agenda>

⁴² https://ec.europa.eu/futurium/en/system/files/ged/pact-of-amsterdam_en.pdf

⁴³ EEA Report No 18/2019, <https://www.eea.europa.eu/publications/the-first-and-last-mile>

⁴⁴ International Transport Forum, Decongesting our Cities, <https://www.itf-oecd.org/sites/default/files/docs/decongesting-our-cities.pdf>

⁴⁵ Evaluation of 2013 Urban mobility package (<https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021SC0047>). Urban congestion costs are estimated to account for EUR 180 billion per year in terms of delay costs and about EUR 32 billion per year in terms of deadweight loss at EU-27 level. The delay cost gives a value of the travel time lost relative to a free-flow situation. The deadweight loss costs is the part of the delay costs which is regarded as a proper basis for transport pricing. Source: DG MOVE Study ‘Sustainable Transport Infrastructure Charging and Internalisation of Transport Externalities’ (June 2019) based on: CE Delft (2019), ‘Handbook on the External Costs of Transport. Version 2019’. <https://op.europa.eu/en/publication-detail/-/publication/9781f65f-8448-11ea-bf12-01aa75ed71a1>.

⁴⁶ Special report 06/2020: Sustainable Urban Mobility in the EU: No substantial improvement is possible without Member States’ commitment, <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=53246>

⁴⁷ Leipzig, Hamburg, Naples, Palermo, Warsaw, Łódź, Madrid and Barcelona. For example, in the last city the accessibility within 30 minutes driving time during rush hours dropped from 620 km² in 2012 to 389 km² in 2019.

Levels of congestion around and in urban areas are very high, in particular during peak hours. Commuting traffic, largely by a single person occupying a car⁴⁸, represents a major share of the daily congestion⁴⁹. Another source of congestion is freight transport, in particular the one generated by increasing e-commerce and home deliveries with short time windows, which lead to more empty runs, less capacity use and higher emissions. It should also be noted that – if not properly integrated in the multi-modal transport system – some of the new technologies can further exacerbate car dependency and thus congestion⁵⁰.

Congestion is also a significant problem for the respondents that took part in the open public consultation conducted during preparation of the current initiative⁵¹. 123 of them indicated that congestion (and resulting delays) is the most important challenge negatively affecting their daily mobility. More details are provided in Annex - Synopsis consultation report.

Dealing with congestion in urban areas is a complex issue which usually requires a combination of measures, including provision of viable and attractive alternatives to private motorised transport and managing the influx of individual cars. In that regard, urban vehicle access regulations (UVARs), in particular congestion charging (urban tolls), are tools used by a few cities. However, as indicated by the Court of Auditors, *‘Only very few cities applied congestion charges, despite their potential benefits in terms of reducing congestion, increasing sustainability and providing added income. This can be partly explained by the specific contexts of individual cities. For example, a city might be reluctant to consider a congestion charge if that made it less attractive to citizens and businesses compared to neighbouring cities without a congestion charge’*. It is worth noting that citizens tend to be reluctant toward urban tolls before they are implemented. However, once the pricing scheme is in place and the revenues are used to improve transport or support social policies, the citizens’ approach usually change, as seen in Oslo and London.⁵²

3.2 Air and noise pollution, health aspects

In the EU, despite important improvements over the last decades, every year over 400 000 premature deaths are attributed to ambient air pollution⁵³, and 48 000 cases of ischaemic heart disease as well as 6.5 million cases of chronic sleep disturbance to noise. High levels of air pollution (especially PM and NO₂) in urban areas are of particular concern, with majority of EU Member States and over 100 cities in the EU in breach of EU air quality standards. Road transport contributes about 39% to emissions of nitrogen oxides (NO_x) and 10% and 11% to emissions of fine particulate matter (PM_{2.5}) and coarse particulate matter (PM₁₀) respectively in the EU⁵⁴, with these emissions primarily linked to energy use. The contribution of road transport to ambient NO₂ and PM concentrations, especially in urban areas, is higher than its share of emissions, because the emissions from road transport take place close to the ground

⁴⁸ Average car occupancy is estimated at 1.5 person per trip; EEA Report No 19/2020, ISSN 1977-8449 Train or plane? (<https://www.eea.europa.eu/publications/transport-and-environment-report-2020>)

⁴⁹ e.g. in Toulouse, the UIA project Commute has estimated that around 70% of the daily congestion is due to commuting

⁵⁰ JRC, The Future of Road Transport, <https://publications.jrc.ec.europa.eu/repository/handle/JRC116644>

⁵¹ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12916-Sustainable-transport-new-urban-mobility-framework/public-consultation_en

⁵² <https://www.sciencedirect.com/science/article/pii/S0965856421001555?via%3Dihub>

⁵³ European Environment Agency: Air quality in Europe – 2020 report

⁵⁴ European Environment Agency: Air quality in Europe – 2020 report

and are dispersed over densely populated areas⁵⁵. Poor air quality is also of high concern for citizens, ranking among the top 3 most important challenges negatively affecting urban mobility with 158 replies (out of 592 respondents replying to the question in open public consultation).

Noise is the second largest environmental cause of health problems, just after the impact of air quality, according to the WHO. A study mandated by Commission services found that exposure to noise in Europe contributes to at least 10 thousand premature deaths per year related to coronary heart disease and stroke⁵⁶. When it comes to noise, road traffic noise is the most dominant source of environmental noise⁵⁷. It is estimated that 125 million people are affected by noise levels from road traffic greater than 55 decibels (dB) Lden⁵⁸. To address this challenge SUMP's are a commonly used tool to address noise⁵⁹. Transport-related noise has been also acknowledged as a challenge by 71 respondents taking part in the open public consultation.

An urban environment that encourages the use of motor vehicles and, therefore, discourages physical activity, is one of the driving forces behind population-wide trends toward overweight and obesity. Sedentary lifestyles are a key driver of non-communicable diseases and approximately two thirds of people in the EU fail to achieve the WHO recommendations for minimum physical activity⁶⁰. Europe's Beating Cancer Plan⁶¹ promotes investment in active mobility infrastructures to address sedentary lifestyles and reduce overweight and obesity levels, and also supports the reduction of air pollution due to harmful effects on citizens, especially children.

The EU Action Plan 'Towards Zero Pollution for Air, Water and Soil'⁶² sets key 2030 targets to reduce pollution. It steps up the integration of the zero pollution ambition across policy sectors, including sustainable mobility and urban development policies. It brings together key actions to reduce pollution at source, such as more stringent air pollutant emission limits for motor vehicles, and updating, where relevant, EU or international regulatory frameworks, including Euro 7 standards for road vehicles. It also aims to improve the EU noise-related regulatory framework on tyres, road vehicles, railways, aircraft, also at international level. Additionally, the Commission will review progress⁶³ in 2022 and consider whether there is a need to set noise reduction targets at EU level in the Environmental Noise Directive. The Zero Pollution Action Plan also states that noise action plans required by the Directive should be better integrated into sustainable urban mobility plans and benefit from an extension of clean public transport and from more active mobility⁶⁴.

⁵⁵ European Environment Agency: Transport and environment report (TERM) 2019

⁵⁶ https://ec.europa.eu/environment/noise/health_effects_en.htm

⁵⁷ EEA Report No 22/2019: Environmental Noise in Europe –2020

⁵⁸ 55 dB Lden is the EU threshold for excess exposure defined in the Environmental Noise Directive and indicating an annual average level during the day, evening and night; dB=decibel;

https://ec.europa.eu/environment/noise/europe_en.htm

⁵⁹ The 2021 EU supported Phenomena Study on noise showed that mobility plans are the second most implemented tool to reduce noise (together with source and path intervention). Assessment of potential health benefits of noise abatement measures in the EU - Publications Office of the EU (europa.eu)

⁶⁰ [physical-activity-factsheets-2018-eu28_en.pdf](https://ec.europa.eu/physical-activity-factsheets-2018-eu28_en.pdf) (europa.eu)

⁶¹ https://ec.europa.eu/health/sites/default/files/non_communicable_diseases/docs/eu_cancer-plan_en.pdf

⁶² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0400&qid=1623311742827>

⁶³ Based on noise pollution trends resulting from Member State noise.

⁶⁴ COM(2021) 400.

The following 2030 targets of the Action Plan are of particular relevance for urban mobility⁶⁵:

- improvement of air quality with the objective to reduce the number of premature deaths caused by air pollution by more than 55%;
- reduction of the share of people chronically disturbed by transport noise by 30% .

The Action Plan states that Noise Action Plans (NAPs), required by the Environmental Noise Directive⁶⁶, should be better integrated within SUMP and fully benefit from an extension of clean public transport and from more active mobility.

The Naiades III action programme⁶⁷ indicated that inland waterway transport would also be used in cities for reducing emissions compared to road transport.

The dedicated SUMP guide on linking transport and health⁶⁸ acknowledges the health dimension of urban mobility, lists public health impacts of road transport, provides sustainable urban mobility planning principles for health and provides examples of health-related measures that can be included in SUMP. It has been also referenced in the Europe's Beating Cancer Plan.

3.3 Fewer road fatalities – towards vision zero

Urban road safety is becoming more important because our society is becoming more urban; more and more people live in urban areas. The EU's road safety policy is based on the so-called "safe system approach". It only works if all actors at all levels play their part in a coordinated manner to achieve a more forgiving road system that works for all, vehicle occupants and vulnerable road users (VRU - cyclists, pedestrians, motorcyclists).

Road safety needs a higher profile at local and planning level, addressing above all the concerns of VRUs. In the EU, of the 8 500 people who die annually on urban roads (2019 data), fully 70% occur to VRUs. In recent decades, cars have been made much safer and infrastructure – essentially designed for car safety – has improved significantly. While this has been a major achievement, it exposes just how much more vulnerable are road users outside the car, just at a time when cities and societies are looking to increase the share of walking and cycling and incentivise more people to engage in these kinds of active mobility.

The increased risk for VRU is mostly relative: in 2010-18, the number of pedestrian deaths in urban areas actually fell by 18%. At the same time, however, the number of car occupants' fatalities went down by 29%. This positive trend does not apply to cyclists, however: the number of cyclists being killed has gone up over this period. The numbers show that as more people are walking and cycling, they are more exposed and more at risk. They also reflect the danger of the interaction between vulnerable road users and motor vehicles.

⁶⁵ Reference years are 2005 (air) and 2017 (noise). For more information on the origin, baselines, methodologies and background on these targets: see Annex 2 of COM(2021) 400.

⁶⁶ Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32002L0049>

⁶⁷ Future-proofing European inland waterway transport - NAIADES III action plan, https://ec.europa.eu/transport/modes/inland/news/2021-06-24-naiades-iii-action-plan_en

⁶⁸ https://www.eltis.org/sites/default/files/linking_transport_and_health_in_sumps_0.pdf

Three main trends can be observed with a direct impact on road safety. Firstly, given the increasing number of pedestrians and cyclists, the share of the road network available for those active road users may not be adequate to encourage walking, cycling and the use of personal mobility devices (such as e-scooters). Footpaths may be too narrow, badly maintained and not offering barrier-free accessibility⁶⁹, cycle paths may be insufficient or too narrow etc.

Secondly, the rise in e-commerce and food delivery services has led to a big increase in delivery vehicles (including motorcycles and bicycles) in urban areas. Delivery time pressure may push drivers to take risks when driving and parking.

Thirdly, the fast deployment of micromobility devices such as e-scooters on Europe's urban roads has also been detrimental to road safety, as these vehicles are often used and parked in ways that put the safety of other road users, in particular pedestrians, at risk.

Road safety concerns are of top significance also to citizens, with 284 of respondents in public consultation indicating that 'feeling unsafe to ride a bike' is the most important challenge negatively affecting their daily mobility.

'Vision Zero'⁷⁰ for road safety in urban areas covers a number of relevant actions in that regard.

3.4 Climate-related emissions, zero-emission road traffic and associated alternative fuel infrastructure

Cities are, overall, responsible for more than 70% of global CO₂ emissions and play a pivotal role in achieving climate neutrality by 2050⁷¹. GHG emissions from the EU's transport increased in 2018 and 2019, and have not followed the EU's general decreasing emissions trend. As indicated in the introductory chapter, urban mobility is estimated to be responsible for about 23% of EU's GHG emissions from transport. This is due to combustion engine cars, vans and trucks that still dominate Europe's roads and streets. In order to reduce these emissions, the increased deployment and use of alternatively-fuelled (electric, hydrogen) vehicles has to be combined with the creation of a comprehensive network of recharging and refuelling infrastructure, and with a shift to public transport and active mobility.

For the time being, the deployment of such infrastructure is uneven across the EU⁷² and it is not fast enough to meet the increasing demand from the fast-growing number of new zero-emission vehicles, including in urban areas. This is a major barrier for the uptake of electric vehicles. Other issues include interoperability and communication standards, and the need for more transparent consumer information and common payment systems. All this negatively affects user acceptance of zero-emission cars.

The EU has fixed a climate neutrality target for 2050 which will have huge impact in sectors such as road transport which is currently heavily dependent on fossil fuels; one of the milestones defined in the Sustainable and Smart Mobility Strategy indicates that, by 2050, almost all vehicles on EU roads should be zero-emission. Electrification has started and is picking up speed to reach this ambitious target; both battery electric and fuel cell hydrogen vehicles will

⁶⁹ Of particular importance for persons with disabilities, reduced mobility and for the elderly

⁷⁰ An EU goal to reduce road deaths to almost zero by 2050, following the example of the most successful countries in terms of road safety (https://ec.europa.eu/transport/road_safety/what-we-do_en).

contribute to this transition in different segments. In urban areas, recharging infrastructure for the public transport fleet should be a priority for public funding, accompanying and enabling the deployment of zero tailpipe emission / clean buses in cities. As regards recharging points with public access, support should target equipping park and ride (P+R) facilities, intermodal hubs etc. with alternative fuels infrastructure, possibly in cooperation with market players. City authorities should play an important role in planning and coordinating efforts by the public and private sector.

With a significant number of electric vehicles already on the road and their share of new vehicle sales rapidly increasing, the widespread deployment of electric chargers and, to a lesser extent, hydrogen refuelling, has already started. The proposal for a new Alternative Fuels Infrastructure Regulation (AFIR)⁷³ and the “Recharge and Refuel” flagship initiative⁷⁴, will help ensure that recharging/refuelling networks will rapidly expand to allow zero-emission mobility to reach its full potential. The AFIR proposal, adopted as part of the “Fit for 55” package on 14 July 2021, sets mandatory fleet-based targets for recharging points for LDVs in each MS, as well as distance-based targets on the TEN-T network for both electric charging points and hydrogen refuelling stations (for LDVs and HDVs), and a requirement to provide a minimum amount of recharging and refuelling points in urban areas. The revised Clean Vehicles Directive⁷⁵ sets a long-term procurement framework for the purchase, lease or rent of buses and certain other vehicles by public authorities.

Commuting and traffic flows, availability of private parking, options to provide overnight charging, as well as specific operational requirements of the urban freight and logistics sector will have to be considered while designing the cities’ recharging infrastructure. For instance, logistics operators can charge electric trucks most cost-effectively at the depot, considering optimal charging scenarios based on estimates of the combined costs for charging and grid use.

The Revision of the Regulation setting CO₂ emission performance standards for cars and vans⁷⁶, adopted 14 July 2021, will contribute to the achievement of the climate goals, stimulate innovation in zero-emission technologies, strengthen technological leadership of the automotive industry and stimulate employment in the EU. Additionally, the sharp increase in demand for batteries foreseen in the coming years will give a significant boost to employment⁷⁷. The Commission has launched the Clean Bus Deployment Initiative to speed up the introduction of clean buses across Europe. As a support tool, the Clean Bus Europe Platform⁷⁸ has been set-up: it is the strategic line of action to develop, implement and support the transition towards clean bus fleets.

⁷³

https://ec.europa.eu/info/sites/default/files/revision_of_the_directive_on_deployment_of_the_alternative_fuels_infrastructure_with_annex_0.pdf <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0094>

⁷⁴ https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1658

⁷⁵ Directive 2009/33/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of clean road transport vehicles in support of low-emission mobility: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02009L0033-20190801>

⁷⁶ <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12655-Revision-of-the-CO2-emission-standards-for-cars-and-vans-en>

⁷⁷ This is complemented by the EU’s European Battery Alliance (EBA), launched in October 2017, which aims to ensure that all Europeans benefit from safer traffic, cleaner vehicles and more sustainable technological solutions. All this will be achieved by creating a competitive and sustainable battery cell manufacturing value chain in Europe – which will require significant workforce training.

⁷⁸ <https://cleanbusplatform.eu/>

In addition, a dedicated co-programmed partnership “Towards Zero Emission Road Transport (2Zero)⁷⁹” has been launched in June 2021 under the new Framework Programme for R&I, Horizon Europe with a total budget of € 615 million. The main objective is to accelerate the development and deployment of zero tailpipe emission road transport in Europe with a systems approach including recharging infrastructures. The 2Zero partnership will implement an integrated system approach covering Battery Electric Vehicles (BEV) and Fuel Cell Electric Vehicles (FCEV). With the support of five Technology Platforms (ERTRAC, EPoSS, ETIP-SNET, ALICE and Batteries Europe), it will continue investigating new vehicles technologies and will extend its scope to cover the integration of the zero tailpipe emission vehicles in their eco-system contributing to boost the EU competitiveness and technological leadership.

In addition, in line with the objectives of the Green Deal, the EU Strategy “A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives”⁸⁰ adopted in October 2020 integrates climate, energy and environmental objectives, industrial strategy and circularity objectives, as well as skills, consumer welfare and fair and social transition goals. In the revision of the Energy performance of Building (EPBD)⁸¹ which is linked to the Renovation Wave Strategy, one of the proposed actions is to make buildings healthier, greener, interconnected within a neighbourhood district, more accessible, resilient to extreme natural events, and equipped with recharging points for e-mobility and bike parking.

3.5 Cities as an important element of a well-functioning TEN-T network

The TEN-T network plays a key role for the internal market by ensuring a well-functioning multimodal cross-border network for the transport of goods and passengers. Cities are often the starting and/or ending points for these transport flows. Up until now, the integration of the TEN-T policy perspective into urban and regional mobility policy and vice-versa has not been sufficiently ensured.

Urban nodes have a crucial role in the TEN-T network not only because they are often the starting and/or ending points of transport flows, but also because important bottlenecks and missing links on the network are located in these urban nodes.

There is also the specific case of cross-border urban areas where the lack of cross-border public transport services has been identified as an important issue. For example, it has been estimated that only 44% of EU border residents have access to rail services. This pushes cross-border commuters away from sustainable collective travel options towards single occupancy vehicle use.

As identified by the TEN-T Common Progress Report⁸² of the European Coordinators, there is a need to “progressively encourage, integrate and blend other innovations through transport policy initiatives such as green corridors and intelligent traffic management systems. Investigation of interoperability and inter-modality as core concepts for the development of urban nodes, ports, airports, rail-road terminals and inland waterways will be intensified”.

⁷⁹ <https://www.2zeroemission.eu>

⁸⁰ https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en

⁸¹ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12910-Energy-efficiency-Revision-of-the-Energy-Performance-of-Buildings-Directive_en

⁸² https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/brochures_images/20150429_final_common_progress_report_final.pdf

According to the European Court of Auditors special report on urban mobility, between 2013 and 2018, congestion worsened in 25 of the 37 urban nodes for which data was available. “Congested urban areas can also hamper the efficiency of the wider European transport network”, says the report⁸³. The report recommends that funding is linked with the existence of a robust SUMP. “An efficient public transport network, integrating surrounding areas and involving different transport options, is key for encouraging citizens to shift from private cars to cleaner means of travel such as walking, cycling, and public transport”, say the auditors.

According to a European Parliament transport briefing⁸⁴, there is a need to have a better integration of urban nodes within their region, including the integration of long-distance TEN-T traffic with the local transport flows, more collaborative planning at different policy levels and more emphasis on inter-modality.

A closer coordination of TEN-T projects with cities’ SUMPs can ensure that those projects do not hamper local mobility and limit negative effects on citizens’ quality of life as much as possible. By having a robust SUMP that includes the whole functional urban area (FUA), a city/region can plan for and anticipate large infrastructure development and link these with their own local projects.

The development of multimodal passenger hubs with multimodal digital mobility services urban nodes can facilitate first and last mile connections. Useful information also include the availability of alternative fuels recharging and refuelling infrastructure, the digital exchange of information between traffic management centres and with stakeholders providing information services and the availability of freight terminals with sufficient capacity. Development of urban consolidation centres (including micro-consolidation) as well as terminals, can improve the connection between the TEN-T and urban nodes. When developing the comprehensive network there is also potential of such consolidated centres for production as well as for deployment of alternative fuels infrastructure and other innovation deployment.

Finally, it is necessary to recall the importance to ensure that TEN-T is inclusive for all passengers and that its accessibility obligations are well implemented so that persons with disabilities or reduced mobility as well as other uses disadvantaged by discrimination are able to use the TEN-T infrastructures on an equal basis with others.

3.6 Resilience of urban mobility

Transport infrastructure is vulnerable to climate change and other natural or human-made disruptions such as pandemics, flooding, extreme temperatures, extreme weather events, terrorist attacks, vandalism, etc..

Some guidance is already available to cities. As described in the respective SUMP guidance⁸⁵, resilience in the context of urban mobility is the capacity of various interconnected systems (i.e. a transport infrastructure network, its maintenance crew, financing arrangements, contracts etc.) to prevent heavy impacts in the first place, and to cope with disturbance when it occurs. This means to maintain essential functions and structure, while adapting to changes and

⁸³ <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=53246>

⁸⁴ [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI\(2020\)659430](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2020)659430)

⁸⁵ SUMP Topic Guide: Planning For More Resilient And Robust Urban Mobility: https://www.eltis.org/sites/default/files/sump_topic_guide_planning_for_more_resilient_and_robust_urban_mobility_online_version.pdf

transforming. Urban mobility resilience entails the identification of key resources for mobility, and the consequence of a potential reduction of these resources, for whatever reason or crisis.

A good practice example is a Smart and Resilient Mobility Plan of Thessaloniki, based on meteorological scenarios and the national adaptation plan for climate change. Climate change is expected to negatively impact Thessaloniki's transport system, either through direct effects on the built environment or through indirect effects linked to adaptation measures. The city has developed a strategy to prioritise measures, policies and actions to reduce transportation systems vulnerability, increase their resilience and secure safe-proof investments. Thessaloniki's resilience vision focuses on cooperation between authorities, the development of monitoring systems, data collection, revision of the design specifications of current transport infrastructure, use of 'smart' technologies and systems and the promotion of the use of energy-efficient vehicles. Other measures include the conversion of parking places into outdoor catering areas for restaurants.

The pandemic affected mobility patterns through waves of lockdowns but also challenged transport-related policymaking and resource reallocation. There are indications that cities with a SUMP were able to implement change more easily than those with no existing plan to support their response. In many cases, emergency and resilience procedures as described in the SUMP were activated.

3.7 Inclusiveness

Principle 20 of the European Pillar of Social Rights⁸⁶ considers transport as an essential service to which all citizens have a right. Cities in the EU face an ageing population that will require further adaptation of urban infrastructure and services. The ageing of the population is also linked with a rising number of persons with disabilities or reduced mobility. Better accessibility is needed for those groups as well as the provision of safe, secure, reliable and adaptable transport services with appropriate solutions for all users.

Mobility precariousness can take different forms such as mobility poverty, transport poverty, transport disadvantage, transport affordability, accessibility poverty⁸⁷. Mobility precariousness in an urban context mainly relates to availability, affordability, accessibility, adequacy and reliability of transport and affects differently the mobility of different groups. Groups most affected by mobility precariousness include low-income and unemployed people, people living in rural and deprived areas lacking urban links, as well as migrants and ethnic minorities, young people and children, who are most likely to rely on urban public transport.

Equality and inclusiveness are among the EU's core values. International initiatives such as the United Nations' New Urban Agenda⁸⁸ and the 2030 Agenda for Sustainable Development⁸⁹ push forward the objective of 'making cities inclusive, safe, resilient, and sustainable'⁹⁰. Urban

⁸⁶ https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/european-pillar-social-rights_en

⁸⁷ See also JRC study on transport poverty (still to be published)

⁸⁸ [The New Urban Agenda: Key Commitments](https://www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda) (<https://www.un.org/sustainabledevelopment/blog/2016/10/newurbanagenda>)

⁸⁹ [The 2030 Agenda for Sustainable Development](https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf) (<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>)

⁹⁰ [Sustainable Development Goal 11](https://sdgs.un.org/goals/goal11) (<https://sdgs.un.org/goals/goal11>)

environments as public organisations have an increasingly important role to play in creating the right conditions for achieving equality and inclusiveness. The urban population is not homogenous. Women and men, persons with disabilities or reduced mobility, the young and older generations, persons with different ethnic backgrounds etc. use cities and urban transport options differently.

Women often have more complex mobility patterns⁹¹ as they regularly combine household chores and caring responsibilities (childcare, care of elderly, relatives etc.) with income related activities leading to ‘trip-chaining’⁹². Women also walk more often and for longer, partly because of their care responsibilities, partly because they tend to have lower incomes⁹³.

Safety is a major issue for women in cities who fear violence, harassment and aggression on the streets, in public transport and when travelling during late hours. Women also use new active mobility options (e.g. e-scooters) less than men. Men have more often access to a car (the family car is used by the man)⁹⁴.

Several cities are already including a gender perspective in urban transport planning and design through gender mainstreaming from the outset⁹⁵.

When looking at the results of the open public consultation, more than half of the respondents (448 out of 847) stated that they are very dissatisfied or dissatisfied with the accessibility for persons with disabilities or reduced mobility of the transport infrastructure in their city or municipality.

In this respect, the new Regulation 2021/782 on rail passenger rights provides that even where a MS may decide to exclude an urban, suburban or regional rail service from its scope, the rules on assistance to be granted to passengers with disabilities or with reduced mobility shall always apply – as regards regional rail services, and some mandatory rules shall also cover the urban and suburban rail services. This will make rail services more accessible and more inclusive. In addition, the core rights in Regulation 181/2011 on bus and coach passenger rights also apply to urban regular bus services: these rights include the prohibition of discrimination based on nationality or disability, the compulsory disability awareness training for the staff of bus operators in direct contact with bus passengers and compensation for lost or damaged mobility equipment of persons with disabilities (e.g. wheelchair).

In October 2020, the European accessibility standard EN-17210 was adopted⁹⁶. The standard contains relevant accessibility provisions related to mobility for persons with disabilities and of cycle paths.

⁹¹ JRC study ‘Women in Transport Research and Innovation: A European Perspective’ (2021): <https://www.mdpi.com/2071-1050/13/12/6796>

⁹² ‘Understanding Urban Travel Behaviour by Gender for Efficient and Equitable Transport Policies’ ITF (2018): <https://www.itf-oecd.org/sites/default/files/docs/urban-travel-behaviour-gender.pdf>

⁹³ A 2015 survey on travel in London found that women ‘are significantly less likely than men to be satisfied with the streets and pavements after their last journey by foot’ (quoted in ‘Invisible Women’, Carolin Criado Perez (2019) Invisible Women | Caroline Criado Perez)

⁹⁴ Gender and (smart) Mobility Green Paper, Ramboll (2021): https://ramboll.com/-/media/files/rgr/documents/markets/transport/g/gender-and-mobility_report.pdf

⁹⁵ See e.g. <https://www.eltis.org/in-brief/news/cities-are-actively-addressing-gendered-mobility-patterns>

⁹⁶ https://www.cencenelec.eu/news/brief_news/Pages/TN-2021-015.aspx

3.8 Connectivity with peri-urban and rural areas

Whilst the majority of the EU population lives in urban areas, rural areas are home to almost one third of its citizens. It is an ageing population, as rural and remote areas have the lowest shares of population in age groups below 50 years old. Rural areas account for 83% of the European land mass. Given the limited services, job and shopping opportunities and leisure and recreational activities that often exist in rural areas there is a demand for rural residents to travel to urban areas (including when it is across the border). Longer distances, lower population density and larger catchment areas make both delivery and access to services in rural areas more difficult.

This was recently acknowledged in a Eurobarometer Survey, which concluded that only for 55% of rural area or village residents it is easy to get to their nearest large town or city⁹⁷. Among the respondents taking part in the open public consultation, insufficient public/collective transport options from/to a city was a problem for 402 of them, and insufficient active mobility options – for 390 (out of 1418 answers).

By consequence, people in rural areas are heavily dependent on private modes of transport for almost all their travel. As a result, anyone without a car or other form of personal transport is dependent on the limited available public transport, on lifts from others, or on expensive means such as taxi. The low level of organised local services often means that it is difficult and time-consuming to connect to/from longer-distance services. Longer travelling distances to e.g. hospitals, schools and shops, coupled with greater dependency on private cars due to scarce public transport service leads to higher travel costs.

In addition, railway transport has traditionally played an important role concerning connectivity with rural and peri-urban areas. In this regard, public procurement has an important role to play for the appropriate and efficient provision of rail services in urban areas and the timetabling techniques may influence the good interconnection between long and short distance services.

The EU aims to contribute to efficient and inclusive connectivity between rural, peri-urban and urban areas (including cross-border) via sustainable mobility options. In practice this would mean that these areas are connected to urban areas in terms of sustainable mobility planning, optimally through SUMP cover the whole functional urban area/catchment area, including the links to the rural/peri-urban hinterland. This also includes an integrated link between rural and urban areas in the planning of the TEN-T network, including urban nodes. These actions, as well as developing local rural mobility, are equally part of the Long-term Vision for the EU's rural areas, which is the European Commission initiative to develop a common European vision for stronger, connected, resilient and prosperous rural areas by 2040⁹⁸.

Moreover, Moving rural youth forward is one of the 11 European Youth Goals of the EU Youth Strategy 2019-2027⁹⁹. The objective is to ensure appropriate infrastructure in rural areas in order to provide equitable delivery of public services, data connectivity and housing opportunities for young people.

⁹⁷ <https://europa.eu/eurobarometer/surveys/detail/2278>

⁹⁸ Commission Communication 'A long-term Vision for the EU's Rural Areas - Towards stronger, connected, resilient and prosperous rural areas by 2040' (SWD(2021) 167 final) [ltvra-c2021-345_en.pdf](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021SC167&from=doctr) (europa.eu)

⁹⁹ https://europa.eu/youth/strategy_en

The Commission has over the last years built experience on rural mobility through the SMARTA 1 and SMARTA 2 project¹⁰⁰. These European pilot projects focussed on how to exploit existing mobility practices in European rural areas and ways to support sustainable shared mobility interconnected with public transport.

3.9 Biodiversity and natural landscape

The European Environment Agency reported in 2020 that the rapid urbanisation now being seen was the second largest pressure on terrestrial and marine ecosystems - stressing that it is vital to ensure that new development is undertaken in a way that protects and enhances urban ecosystems, rather than the opposite. Urban areas have a major role to play in reducing biodiversity loss and in conserving and restoring ecosystems.

The role of SUMP for protecting and restoring nature and biodiversity has been recognized by the EU Biodiversity Strategy for 2030¹⁰¹ calling upon all cities to develop ambitious urban greening plans developed alongside, and be part of, SUMP.

3.10 Skills and workers

Urban mobility is characterised by changing employment conditions such as new forms of work (linked, in particular, with the emergence of new mobility services supported by digital tools), increased use of teleworking, and intra- and cross-border mobility of workers.

The strong rise in demand for environmentally sustainable mobility will emphasise the importance of skills for the green transition. The need for pro-active re-skilling and upskilling to reap the benefits of the ecological transition has been noted in the European Green Deal.

In addition, the changes linked to automation and digitalisation that affect transport, besides offering new opportunities can bring many challenges for workers. Low- and middle-skilled jobs (including drivers) are, in particular, at high risk of automation¹⁰². This will affect transport operations in urban areas as well. On the other hand, the demand for existing occupations, such as bus and train drivers could increase as a consequence of European, national and local efforts to promote and encourage the greater use of public transport to lower emissions, reduce congestion etc.

Reskilling and upskilling will play a substantial role in the shift to zero-emission transport and sustainable urban mobility. The European Pact for Skills will help mobilise and incentivise stakeholders to take action in upskilling and reskilling.

The rise of digital labour platforms has brought about new opportunities – but also challenges – in the labour market. These are particularly prominent in the ride-hailing and delivery sector, predominantly in urban areas. In 2020 ride-hailing and delivery platforms combined represented almost 80% of all the value of platform work in the EU. The COVID-19 pandemic

¹⁰⁰ https://ruralsharedmobility.eu/wp-content/uploads/2021/03/Smarta-Policy-Recommendations_Final-Version_web.pdf

¹⁰¹ https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en

¹⁰² More in-depth analysis of challenges related to jobs and skills in transport is included in the Commission Staff Working Document accompanying the Sustainable and Smart Mobility Strategy (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020SC0331>)

had a significant impact on the sector and has led to a 35% decrease of passenger transport services but also to a 125% growth in food delivery services in 2020. The current estimated number of people in these sectors may be as high as 2.8 million in the EU-27¹⁰³. Furthermore, the numbers of people working through transportation platforms are expected to double by 2024, and quadruple by 2030¹⁰⁴.

From workers' perspective, digital labour platforms provide opportunities for employment and a source of income, including for many people for whom otherwise it could be difficult to participate in the job market. At the same time there are considerable concerns about the working conditions and sustainability of work that digital platforms provide¹⁰⁵. In a recent research, 47% of those interviewed said that the time pressure of work can make them travel over the speed limit.¹⁰⁶

In her Political Guidelines¹⁰⁷, President von der Leyen pledged to address the changes brought by the digital transformation to labour markets, by looking into ways to improve the working conditions of people working through platforms and supporting the implementation of the European Pillar of Social Rights.¹⁰⁸ With this in mind, the Commission launched a consultation of the European social partners to obtain their views on how to improve working conditions in platform work.¹⁰⁹ Following the consultation, the Commission is currently preparing an initiative on improving working conditions in platform work in view of adopting its proposal by the end of 2021.

3.11 Awareness on more sustainable mobility and transport patterns

Awareness on attractive alternatives to individual motorised transport and positive experiences with such alternatives can help making better mobility and transport choices. To that end, the European Mobility Week¹¹⁰ - the European Commission's awareness-raising campaign promoting behavioural change in favour of sustainable transport modes - takes place from 16 - 22 September every year, with its emblem Car-free Day. The European Mobility Week cycle ends with an award ceremony to reward local authorities judged to have implemented the best European Mobility Week in line with the annual theme, together with other awards. 355 respondents (out of 847) participating in the open public consultation indicating that the Car-free day 'Is a great idea and such days should be organised every month'.

For example, the Get Started (Ponte en marcha) contest for pre-schools, primary schools and secondary schools, as organised by the Regional Government of Andalusia (Junta de

¹⁰³ 'Digital Labour Platforms in the EU: Mapping and Business Models', (CEPS, 2021). Available [online](#); and Forthcoming study supporting the impact assessment of the Initiative on improving working conditions of platform workers (PPMI, 2021)

¹⁰⁴ Forthcoming study (PPMI, 2021)

¹⁰⁵ A majority of those platforms qualify their workers as independent contractors. Over 100 court cases across the EU in recent years concerned employment status and many proved false self-employment. False self-employed people working through platforms do not have access to the same rights and protections as should be associated with the worker status.

¹⁰⁶ UCL, *The emerging issues for management of occupational road risk in a changing economy: A survey of gig economy drivers, riders and their managers* (https://www.ucl.ac.uk/drupal/site_news/sites/news/files/a-survey-of-gig-economy-drivers-riders-and-their-managers_1.pdf)

¹⁰⁷ https://ec.europa.eu/info/sites/default/files/political-guidelines-next-commission_en_0.pdf

¹⁰⁸ Available [online](#).

¹⁰⁹ Available [online](#)

¹¹⁰ <https://mobilityweek.eu/home/>

Andalucía) Ministry of Mobility and Land Planning¹¹¹, celebrates its fourth year in September 2021.

The contest serves as a teaching resource on sustainable mobility for the very youngest members of the community and their families. In particular, it serves as an awareness-raising campaign for the local community, and promotes behavioural change in favour of non-polluting transport modes.

Participants must: design an awareness-raising campaign on sustainable mobility (video 3-5 min.); and develop school activities on sustainable mobility and submit a report.

Since its first edition, with the participation of 77 educational institutions, the contest has become an important annual fixture for schools and the local community. It covers key aspects of environmental awareness and the promotion of a healthy lifestyle; and the high quality entries demonstrate considerable impact on schoolchildren and pre-schoolers. Furthermore, the contest enjoys widespread media coverage.

Furthermore, it is important to enable consumers to make informed choices and play an active role in the green transition¹¹².

According to the International Post Corporation Cross-Border E-Commerce Shopper Survey 2019¹¹³, 28% of respondents prefer carbon-neutral deliveries, 28% will wait longer for delivery to reduce environmental impact, 41% had not yet paid extra for sustainable delivery but were likely to do so in the future, and 11% strongly agreed that they had “changed their online shopping behaviour in the past year due to sustainability concerns”.

Also as regards passenger travel, transparency on CO₂ footprint and energy use can create incentives for companies and customers to take up more environmentally friendly transport solutions. Actions 28, 33 and 34 of the Sustainable and Smart Mobility Strategy aim to provide a common framework for calculating and reporting GHG emissions of passenger and freight transport services.

When making urban mobility fit for the future, accessibility is an important consideration. Around 87 million persons have some form of disability in the EU and this number is expected to increase as the population gets older. Therefore, the European Commission raises awareness on the issue through the Access City Award¹¹⁴. Every year, the Award rewards cities with more

¹¹¹

<https://www.juntadeandalucia.es/organismos/fomentoinfraestructurasyordenaciondelterritorio/servicios/actualidad/noticias/detalle/250809.html>

¹¹² This is the aim of the recently-adopted Consumer Agenda 2020-2025 (Communication from the European Commission to the European Parliament and the Council New Consumer Agenda Strengthening consumer resilience for sustainable recovery (COM/2020/696 final)) through initiatives aimed at:

- fighting early obsolescence and promotion of durable goods,
- shifting consumer behaviour to reduce the environmental footprint, and
- providing better and more reliable information on sustainability aspects of goods and services and cost advantages if any, while avoiding information overload e.g. on the availability of spare parts and repair services, where applicable;
- addressing misleading green claims through coordinated enforcement actions by the Consumer Protection Cooperation (CPC) Network.

¹¹³ <https://www.ipc.be/sector-data/e-commerce/cross-border-e-commerce-shopper-survey>

¹¹⁴ <https://ec.europa.eu/social/main.jsp?catId=1141>

than 50,000 inhabitants that make outstanding efforts to become more accessible. This includes improvements to pavements, bicycle lanes and public transport systems among many more. To celebrate the European Year of Rail (2021), the 12th edition of the Access City Award included a special mention for making train stations more accessible.

3.12 Mobility management

Mobility management refers to the promotion of sustainable means of transportation by companies, organisations and institutions, usually using 'soft' awareness-raising measures like information, communication and marketing campaigns, and various incentives¹¹⁵.

At the consultation workshop on SUMP and mobility management¹¹⁶, according to most participants (87%), major employers should be encouraged to adopt a mobility management plan, followed by universities (73%), schools with over 500 students (65%), shopping centres (65%). The support for mobility management plans has also been voiced in the open public consultation, with a majority of the respondents in favour of adopting them by organisers of big events, companies with more than 200 employees, universities, shopping centres/retail areas, primary and secondary schools as well as hospitals.

For example, Île-de-France Region, where metro is reaching its capacity, has signed charters¹¹⁷ with employers to help employees change their commuting schedules to facilitate reductions in public transport use during peak hours. Even a 5-10% reduction in the number of arrivals at critical times would significantly reduce overcrowding on these busy lines. The new charter is a voluntary commitment by each signatory to reduce the number of its employees using public transport between 8:00 am - 9:00 am by 10%. To achieve this, signatories will: stagger working hours during the day for employees; implement one / two days of telework per week; improve remote communication tools; create internal coworking spaces; encourage carpooling and car sharing; promote cycling practices.

Participants of the consultation workshop¹¹⁸ also expressed their views that digital mobility management tools could help public transport authorities to better understand public space usage and mobility patterns, dynamically adapt available capacity in different transport networks and modes to ensure better flow of passengers and goods and prioritise investments in infrastructure.

However, according to the fact-finding study¹¹⁹ supporting the preparation of the EU Urban Mobility Framework initiative, cities face difficulties obtaining data needed for operational mobility management, e.g. regarding the exact number of vehicles available in their city through shared mobility services or measuring the impacts of their parking policies. None of the sampled cities measures the impacts of the Mobility-as-a-Service options on the modal split.

¹¹⁵ <https://www.eltis.org/topics/mobility-management>

¹¹⁶ https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

¹¹⁷ <https://www.polisnetwork.eu/news/ile-de-france-region-signs-charter-to-reduce-commuting-during-peak-hours/>

¹¹⁸ https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

¹¹⁹ *Fact-finding study on status and future needs regarding low- and zero-emission urban mobility*. Available at: <https://transport.ec.europa.eu/transport-themes/clean-transport-urban-transport/studies>

3.13 Sustainable urban mobility plans (SUMP)

For a number of years, the Commission has been encouraging the widespread uptake of SUMP as a cornerstone of its urban mobility policy. This reflects the potential of a SUMP to help towns, cities and regions address common challenges in their transition towards sustainable urban mobility and ensure a better quality of life. The 2013 Urban Mobility Package¹²⁰ called on local authorities to place SUMP at the centre of their approach in addressing urban mobility issues. Related EU guidelines were published to support local authorities throughout the SUMP process. These underwent extensive revision in 2019, and a range of complementary guides were published on specific aspects related to SUMP¹²¹.

The EU's SUMP approach has inspired many towns, cities and regions within and beyond Europe, with over 1,000 SUMP (or similar plans) currently in place¹²². However, many medium and large towns and cities do not yet have a SUMP; and there is a clear imbalance in the number and quality of SUMP between MS.

A SUMP offers a comprehensive, flexible and resilient approach by serving as a long-term mobility plan that also includes packages of measures addressing short-term objectives and targets that can be fast-tracked in response to changing needs. This is essential for dealing with unforeseen situations.

A SUMP serves as an effective multi-sectoral framework for tackling all common urban mobility challenges for the entire functional urban area and for maximising synergies (e.g. alignment with Sustainable Energy and Climate Action Plans, Sustainable Urban Logistics Plans, cycling plans). SUMP are designed to satisfy the mobility needs of people and businesses in cities and their surroundings, focussing on people and places rather than the movement of vehicles¹²³.

Evaluation of the 2013 Urban Mobility Package concluded that the development and adoption of a SUMP did not necessarily ensure that it has a high quality or its implementation was guaranteed. Developing and using monitoring and evaluation schemes and employing external quality control assistance were found to be important factors, which likely influenced the SUMP's effectiveness¹²⁴.

In a similar vein, in its report¹²⁵, the Court of Auditors recommended the mandatory adoption of SUMP by all EU urban nodes of the core and comprehensive TEN-T networks and their

¹²⁰ COM(2013) 913 final

¹²¹ <https://www.eltis.org/mobility-plans/sump-guidelines>

¹²² <https://www.eltis.org/mobility-plans/city-database>

¹²³ It is also recognised in the New Leipzig Charter, under the principle of integrated approach: "Cities need to establish integrated and sustainable urban development strategies and assure their implementation for the city as a whole, from its functional areas to its neighbourhoods."
(https://ec.europa.eu/regional_policy/sources/docgener/brochure/new_leipzig_charter/new_leipzig_charter_en.pdf)

¹²⁴ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021SC0047>

¹²⁵ Special report 06/2020 of the European Court of Auditors: Sustainable Urban Mobility in the EU: No substantial improvement is possible without Member States' commitment. Available at: <https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=53246>

surrounding areas. This would include all urban nodes on the TEN-T network with a population over 50 000 and capitals of NUTS regions¹²⁶.

The fact-finding study has furthermore highlighted the following:

- Many cities struggle with a planning scope beyond the city boundaries. The functional urban area as a concept is not a realistic approach for all European cities and therefore needs adaptation and flexibility for different context as well as a better integration with the TEN-T network;
- The variety of planning approaches across Europe and the differences of quality show a need for a standardised definition of SUMP, also with view to conditionality;
- The results of the study indicate that the integration of specific but highly relevant policy fields, such as climate or road safety, need further integration and consideration in SUMP planning processes;
- SUMP should be promoted and established as a consistent planning framework for long-term resilient planning, also as an answer to crises (especially view with to COVID-19 pandemic and climate crisis). Monitoring should be an integral part of this;
- While the SUMP concept has proven to be successful in many different city types, the differences among regions and city sizes shows a need of contextualisation of the concept, for example for smaller cities.

At the consultation workshop¹²⁷, 75 % of respondents strongly agreed that Member States should establish a National SUMP Support Framework (NSSF) as a comprehensive national framework for SUMP support to cities and regions. Almost all of respondents in the open public consultation replied that the EU should make SUMP's mandatory for cities, with the majority preferring this for all cities irrespective of size (463 replies out of 847); 45% declared they are aware of a sustainable urban mobility plan (SUMP) or similar comprehensive transport plans in their town, city or region.

The National Energy and Climate Plans show that Member States are also putting in place actions to address the increasing energy use in transport at national level.

EU-level coordination and support is ensured via the SUMP Platform Coordination Group¹²⁸. The Commission has hosted comprehensive information on SUMPs including the SUMP guidelines, city database and SUMP self-assessment tool via the Mobility Plans section of Eltis - the European Mobility Observatory¹²⁹, and promoted the concept and best practice through the annual SUMP Award. Moreover, it has provided SUMP training courses, with the involvement of Jaspers¹³⁰ and project-level support.

¹²⁶ Estimated at 465 in the EU

¹²⁷ Workshop of 24/06/2021 dedicated to Sustainable Urban Mobility Plans (SUMPs) and Mobility Management: https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

¹²⁸ The Coordinating Group brings together representatives from SUMP-related EU-supported actions to: exchange information and lessons learnt; identify and exploit synergies; agree on common views to inform the further development of the SUMP concept and tools; and assist in the co-ordination of outward presentation of the various initiatives. (<https://www.eltis.org/mobility-plans/european-platform>)

¹²⁹ <https://www.eltis.org/>

¹³⁰ <https://jaspers.eib.org/>

3.14 Monitoring/data-driven decision making – urban mobility indicators (SUMI) and related data collection

Eurostat has developed guidelines for passenger mobility surveys aiming to produce passenger mobility indicators by distance class, including on urban mobility. Surveys in a number of Member States were also co-financed by Eurostat and the resulting indicators were published¹³¹. Cities however compile information in a variety of ways making it difficult to compare or aggregate. This was also highlighted within the feedback received during the public consultation. This was also highlighted within the feedback received during the public consultation.

Therefore, the Commission tested a set of sustainable urban mobility indicators developed by the World Business Council for Sustainable Development¹³² in a number of EU cities in a dedicated pilot project on Sustainable urban mobility indicators¹³³. It concluded that, for a European context, these would require adjustment. In particular, definitions of indicators need further streamlining, data availability is limited for some indicators, or very cumbersome and expensive to gather for others. One of the challenges identified was the limited availability of information on GHG and air pollutant emissions as well as energy use in urban transport. Nevertheless, participating cities agreed that these indicators are very helpful and confirmed their willingness to further invest into collecting data for such urban mobility indicators.

Decision makers, such as cities and public transport authorities, need robust data to identify areas where additional action may be required, track progress towards set policy goals, and evaluate the effectiveness and overall impact of urban mobility policies.

However, as highlighted in the fact-finding study, three quarters of sampled cities do not have access to all mobility-related data they consider necessary. Furthermore, two-third of them do not have sufficient staff to collect, compile and analyse data, and half of the sampled cities mentioned that costs related to the collection or purchase of data are a problem.

Access to data held by private operators and the timely availability of data were also mentioned among the key challenges for local authorities. Cities did not have the required data readily available and did not have the necessary time and resources to gather the data required to calculate the respective indicators.

There are no evident data gaps for proxy indicators (e.g. affordability of public transport, congestion, GHG emissions and modal split). However, these data are not collected according to the same methodology thus their comparability is limited.

The experience to date points to the need to continue this work to further refine and simplify these indicators and to ensure that the methodology for developing indicators is stable and benefits from long-term support and commitment.

¹³¹ [Passenger mobility statistics - Statistics Explained \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&code=sdg_11_6_10&plugin=1)

¹³² <http://www.wbcsd.org/home>

¹³³ https://ec.europa.eu/transport/themes/urban/urban_mobility/sumi_en

3.15 Effective, attractive, zero-emission, high quality and safe public transport as the backbone of urban mobility

Public transport – rail, metros, trams, buses, water buses, ferries – is essential for the well-functioning of urban areas and the links to their outskirts and beyond. It can perform the task of moving large numbers of people efficiently, safely and with low environmental impact. Safe and secure public transport coverage and accessibility, affordability and reliability of the service is essential for cities that expect sprawl, increase in population and economic growth. Public transport not only helps achieve environmental goals, it plays a key role in the economy, job creation and creation of jobs as well as in promoting territories' accessibility and fostering social inclusion: urban and local public transport services in Europe contribute between EUR130-150 billion per year to the economy (nearly 1% of the EU's GDP).

It is also intrinsic to the EU pillar of social rights in what concerns “Access to essential services”. It serves commuters as well as low-income households, older and young people, women and men alike.

An attractive public transport system will provide its users with timeliness, feeling of safety and security, user-friendly payment systems, information provision and modern vehicles. For buses in urban areas, dedicated bus lanes that facilitate its passing through congested traffic and prioritisation at traffic lights are essential. The public transport system needs to be of quality as well: offer its customers a reliable service, convenient vehicles and infrastructure, real-time-traffic information, adapted service at peak hours, diversity in payment methods and assistance for less abled or disabled people.

The COVID-19 crisis has brought an additional set of needs such as increased disinfection protocols and an ability to adapt capacity restrictions quickly in order to protect users and drivers.

At the same time, evidence from the major stakeholder (UITP) attests that while car traffic is picking up again similarly to pre-pandemic flows, passengers still hesitate to return to public transport – it is however unclear to what extent this loss is due to the increase in working from home and therefore a change in mobility patterns, or lost in favour of cycling, walking or driving, either as a temporary change because of concerns about perceived infection risks, or as a permanent shift. Participants of the consultation workshop¹³⁴ suggested that politicians at all levels (local, national, EU) should speak more positively and more often about public transport.

Several authorities and operators are taking steps to support public transport.

For example, EMT Madrid¹³⁵, the city's transport operator has made travel free on any of the daytime lines, except the Airport Express from 7:00 a.m. to 9:00 a.m.; created the 'transbus', a new ticket that will allow transfers on buses for one hour for a price of 1.80 euro compared to the 1.50 euro that the single title costs; added 15km of (temporary) bus lanes; launched 3 new bus lines connecting outer districts among them and with Park & Ride facilities.

¹³⁴ Consultation workshop of 14/06/2021: https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

¹³⁵ <https://www.polisnetwork.eu/news/madrid-announces-bold-new-mobility-plans/>

It is also important to better understand the economic, social and environmental value generated by public transport.

For example, according to a study¹³⁶, Transports Metropolitans de Barcelona (TMB), the public group that manages the metro and bus networks across the region of Catalonia, generated in 2019 an economic value of 1 394 million in Barcelona’s metropolitan area. Its activity is estimated to have generated 22 899 jobs in the metropolitan area and 27 887 throughout Catalonia. On a social and environmental level, TMB’s services are estimated to have allowed an annual savings of 706.5 million euros. During that year TMB is estimated to have received 368.8 million euros in contributions from public administrations, the services it provided allowed it to generate 2 395.6 million euros across Catalonia. In other words, “each euro contributed from public funds, generated a 6.5 euros return to society”.

Companies, administrations and universities have also a role to play in increasing the attractiveness of public transport, as demonstrated by the example provided in the mobility management section above.

The CIVITAS Advisory Group on the Future of urban mobility policy¹³⁷ identified a package of measures to help decarbonise the public transport sector in line with the EU’s net neutrality targets by 2030 and 2050. This European public transport decarbonisation action is based on the “Avoid – Shift – Improve” approach and is targeted at the EU, national, local level as well as the private sector and citizens. The document explains why public transport matters: In 2018, buses, trams and metros in EU cities carried some 50 billion passengers. This saved some 36 billion annual, or 100 million daily car trips in EU cities. Every year, public transport can help avoid up to 20 tonnes of CO₂ in cities while only emitting one tonne; Public transport users help reduce not only GHG emissions, but other air pollutants as well, thereby helping to improve air quality and public health - this is increasingly reflected in sustainable transport policies at local, regional and national level in EU Member States. These benefits will further increase as a growing share of public transport is performed using low- and zero-emission vehicles and vessels. By setting minimum shares of clean vehicles in public procurement, the Clean Vehicles Directive¹³⁸ is a key instrument supporting this transition, in particular for zero-emission buses.

Public transport is the central element of a multimodal mix. Travelling from origin to destination by a single journey using public transport is not the case for the majority of the trips. For first/last mile connecting services one single means of payment or ticketing should be possible for the entire journey (including the use of new mobility services such as car sharing).

Travellers also need to have access to objective information on the best means of travel. Linked to increasing the attractiveness of public transport use is the development of multimodal ticketing to allow a traveller to go from origin to destination using modes of transport provided by several operators (including ride-hail services and new mobility services).

Moreover, while Europe remains hesitant, one observes the come-back of cableway systems as a public transport service, with the aim was to increase the accessibility of certain districts cut

¹³⁶ <https://www.polisnetwork.eu/news/public-transport-generates-2-4-bn-per-year-study-shows/>

¹³⁷ Policy note: public transport enabling the European Green Deal, https://civitas.eu/sites/default/files/civitas_satellite_ag_fump_policy_note_final_v1.1.pdf

¹³⁸ Directive 2009/33

off from the city centre by barriers (differences in elevation, waterways, building developments).

Research and innovation actions can support public transport in its role to address climate, environmental and at the same time, economic challenges. To this end, under the Climate Neutral and Smart Cities Mission Work-Programme, a call topic to support innovation in public transport has been proposed for the 2021-2022 Horizon Europe Work Programme.

In addition, as part of the Horizon Europe partnership “Towards Zero Emission Road Transport (2Zero) work programme, the European Commission has proposed a dedicated topic to support new generation of full electric urban and peri-urban Bus Rapid Transit (BRT) systems to strengthen climate-friendly mass transport with real life pilot actions¹³⁹.

Public transport is among the top 3 ways of moving around in a city/municipality for the respondents participating in the open public consultation, and would be the second preferred ‘provided that the right conditions are in place’. Poor public transport coverage, difficulty of multimodal connections and public transport being not reliable enough/not running frequently enough were identified as relatively important challenges (for 134, 124 and 119 respondents, respectively (out of 2123 answers)) that negatively affect their daily mobility. Looking forward, a lot of respondents (out of 3852 answers) would like to see more frequent public transport (305), better local and regional railway connections (219), cheaper (or free) public transport (202), as well as greener, cleaner and more hygienic public transport (189). When asked about which solutions below can help increase the use of public transport in urban areas, the top answers were more frequent service; enlarged network; more convenient hubs/stations, better link between public transport and ‘last mile’ solutions (e.g. bicycles, scooters etc.); more reliable service (e.g. departure and arrival times); and better information (real time, connections etc.).

3.16 A new focus on active modes

3.16.1 Introduction, potential and benefits

Active mobility modes such as walking and cycling are low-cost and zero emission forms of mobility. Together with public transport, new shared mobility and micromobility solutions they have a great potential to reduce local CO₂, air pollutants and noise emissions, improve human health, as well as congestion and pressure on valuable urban space and infrastructure¹⁴⁰. They have the potential to both supplement other mobility options (especially for the first/last mile), and to offer the complete (door-to-door) mobility solution on their own. Studies also suggest that they have direct economic gains with effects on commercial activity and shifts local expenditure towards more local business¹⁴¹.

¹³⁹ https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-8-climate-energy-and-mobility_horizon-2021-2022_en.pdf.

¹⁴⁰ International Transport Forum, 2020, Good to Go? Assessing the Environmental Performance of New Mobility <https://www.itf-oecd.org/good-to-go-environmental-performance-new-mobility>

¹⁴¹ Research has shown that improving conditions for active mobility can increase retail sales by 30%. Transport for London, 2019, <http://content.tfl.gov.uk/walking-cycling-economic-benefits-summary-pack.pdf>

According to experts, in areas where vulnerable road users and vehicles mix in a frequent and planned manner, the maximum speed of traffic should be reduced e.g. to 30 km/h¹⁴², except where strong evidence exists that higher speeds are safe.

In this context, a Horizon Europe topic for safer urban environment for vulnerable road users has been included in the 2022 work programme, aimed at a drastic reduction in serious injuries and fatalities in road crashes through the development of solutions that facilitate inclusion of all vulnerable users in the transport system, including people with disabilities, the elderly, and children by providing a safe environment for walking and cycling.

Congestion in urban areas is a major issue, causing huge negative social, environmental and economic impacts. Measures for improving walking and cycling conditions can reduce congestion in cities¹⁴³.

COVID-19 pandemic-related lockdowns have changed behaviour, temporarily increasing walking and cycling, and many local authorities introduced pop-up cycling lanes as emergency measures¹⁴⁴. The increase in active mobility and telework join the long-term efforts of local and regional authorities in encouraging a change in behaviour towards less car use, a key condition for the sustainable mobility transition¹⁴⁵.

Whilst 17 % of the EU population stated in a 2019 Eurobarometer survey¹⁴⁶ that they use cycles or scooters as their primary mode of transportation, there are huge differences in the level of cycle use across the EU.

These measures have reinforced existing cycling policies and have resulted in a substantial increase in bike use and higher sales of bicycles. According to a recent research¹⁴⁷ based on data from bicycle counters in 106 European cities, on average 11.5 km of provisional pop-up bike lanes have been built per city and, thanks to them, cycling levels rose between 11 and 48%.

At the Fifth High-Level Meeting on Transport, Health and Environment (THE PEP) of UNECE/WHO Europe in May 2021, European countries adopted the Vienna Declaration¹⁴⁸ to spur the transformation towards clean, safe, healthy and inclusive transport and mobility, with a strong focus on promoting active mobility across the pan-European region. In addition, at the

¹⁴² Recommendation of the Stockholm Declaration of the Third Global Ministerial Conference on Road Safety in February 2020
<https://www.roadsafetysweden.com/contentassets/b37f0951c837443eb9661668d5be439e/stockholm-declaration-english.pdf>

¹⁴³ The EU-funded CIVITAS FLOW project identified a broad set of benefits from more walking and cycling, e.g.: pedestrianisation improves mobility and accommodates more people during rush hours (Dublin); cycling improvements lead to 45% less car traffic and faster public transport in Copenhagen; cycle highway network reduces the need for 50 000 car trips daily (Ruhr area). FLOW, 15 Quick Facts for Cities, http://h2020-flow.eu/fileadmin/user_upload/Deliverables/15_quick_facts_eng_FINAL.pdf.

¹⁴⁴ https://www.eltis.org/sites/default/files/sump_topic-guide_planning_for_more_resilient_and_robust_urban_mobility_online_version.pdf

¹⁴⁵ EP Briefing *Sustainable and smart mobility strategy – Delivered at local level*
https://www.europarl.europa.eu/thinktank/fr/document.html?reference=EPRS_BRI%282021%29690562

¹⁴⁶ Special Eurobarometer 495

¹⁴⁷ Provisional COVID-19 infrastructure induces large, rapid increases in cycling:
<https://www.pnas.org/content/118/15/e2024399118>

¹⁴⁸ <https://unece.org/environment/press/european-countries-adopt-vienna-declaration-clean-safe-and-healthy-transport>

same time and the same meeting, the first Pan-European Master Plan for Cycling Promotion was adopted¹⁴⁹. It calls for, among others, to significantly increase cycling and walking in every country; reallocate space for cycling and walking; improve the active mobility infrastructure; and increase cyclist and pedestrian safety.

Cycling seems to be the preferred mode of transport of people participating in the open public consultation (286 out of 592), with only 51 indicating walking. Three of the four most important challenges negatively affecting respondents' daily mobility are around the use of a bicycle. In the future, with likely more work from home than in the past, respondents would also like to see the most the measures that make walking and cycling safer and more convenient, with better infrastructure for pedestrians and cyclist being the top answer. More dedicated infrastructure (e.g. more pavements, pedestrian zones, bicycle lanes, cycling streets), pedestrian and cycling infrastructure of better quality (e.g. wider, well-maintained pavements; coherent, safe, well-maintained bicycle lanes), and traffic rules/management system prioritising pedestrians and cyclists (e.g. priority when crossing a street) are the top three preferred solutions that would encourage the respondents to walk or cycle more often.

Employers increasingly promote active mobility among their employees. Promotion campaigns and workplace mobility management schemes, supported by the necessary infrastructure investment to facilitate walking and cycling to work, result in improved health and wellbeing of employees, reduced absenteeism¹⁵⁰ and increased productivity.

3.16.2 Walking

Walking is the least expensive and most sustainable mode of transport. Consequently, ensuring that there are safe and attractive conditions for walking is key. Almost every public transport trip starts or ends with at least a short walk, therefore walking is part of a multimodal transport chain by nature.

Research indicates that the reach of the existing public transport system can be extended significantly simply by making walking to and from hubs and stops easier, less prone to barriers and more pleasant by creating attractive urban spaces that are well connected to public transport infrastructure. Moreover, people who walk to shopping areas can spend up to 40% more and retail vacancies can be up to 17% lower after improvements to make these areas more walkable¹⁵¹.

According to a 2018 Eurobarometer survey, the declared levels of physical activity – including walking – do not reach the recommended levels, with as many as one in seven EU citizens (15%) saying they did not walk for ten minutes at a time on any day during the previous week.¹⁵²

According to the estimates of Walk21 Foundation, the economic benefits of walking amount to more than EUR 250 billion/year – 40% of it due to improved mental and physical health. Research at a city level points to regular walking leading to a 14% reduction in the risk of

¹⁴⁹ <https://unece.org/circular-economy/press/countries-adopt-first-pan-european-master-plan-cycling-promotion>

¹⁵⁰ The association between commuter cycling and sickness absence, 2010, <https://www.researchgate.net/publication/44802659> The association between commuter cycling and sickness absence

¹⁵¹ Transport for London, 2019, <http://content.tfl.gov.uk/walking-cycling-economic-benefits-summary-pack.pdf>

¹⁵² <https://europa.eu/eurobarometer/surveys/detail/2164>

mortality compared to those who do not regularly walk, with substantial economic benefits as well.

As an example of good practice, the City of Rotterdam has launched Rotterdam Loopt 2025 (Rotterdam Walks 2025), the city's first dedicated policy to improve walkability for people in Rotterdam. It sets out an 'Ambition and Call to Action' that puts 'The Pedestrian on a Pedestal', following an integrated approach to capitalize on the health benefits of walking. The strategy aims to make important destinations like public transport hubs, parks and schools, more attractive and accessible, ensuring that the citizens of Rotterdam can walk longer distances, more often, and under better conditions¹⁵³.

It should be noted that measures that support walking and cycling are regularly among the ones that receive the highest support from citizens and stakeholders. At the consultation workshop held during preparatory phase of this initiative¹⁵⁴, participants indicated that the following measures should be in particular implemented at the local level to improve take up of walking and cycling: dedicated infrastructure (such as segregated bike lanes); generalisation of 30 km/h speed limits in urban areas; space reallocation in favour of active and shared mobility; and implementation of urban vehicle access regulations. Moreover, they supported a stronger role of the EU to increase active mobility, indicating the need to move beyond non-binding guidance.

3.16.3 Cycling

Cycling presents a huge potential for climate change mitigation, offering a cheap and accessible to all alternative to motorised trips, in particular in cities.

According to the estimates of the European Cyclists' Federation the economic benefits of cycling in the EU are very substantial and amount to more than EUR 150 billion per year¹⁵⁵, including EUR 6.5 billion environmental benefits, with health benefits providing the lion's share of the rest. Benefits of cycling do not stop there. A recent study¹⁵⁶ showed economic benefits of investing in cycling and active mobility-friendly infrastructure. It proved, in the case of the key city arteries in Helsinki, that every €1 invested in cycling there brings a €3.6 euro gain, the biggest benefit being health, as cycling reduces the health risks and costs of immobility. Additional benefit being often the reduction in travel time.

Cycling is also increasingly delivering when it comes to a flexible, effective and zero-emission urban logistic solution in urban areas. Cycle logistics services can improve goods delivery and transport passengers in a more efficient way compared to motorised transport. Examples include last and first-mile delivery services, home deliveries, transporting children and other persons, goods shipments in cities as well as bicycle servicing at home by professionals and other providers using cargo bikes¹⁵⁷. The increased importance of cycling in the life of today's society is mirrored in the new Regulation 2021/782 on rail passenger rights. It provides that

¹⁵³ https://www.eltis.org/sites/default/files/sump_topic-guide_planning_for_more_resilient_and_robust_urban_mobility_online_version.pdf

¹⁵⁴ Consultation workshop on 14/06/2021: https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

¹⁵⁵ ECF, The benefits of cycling, <https://ecf.com/what-we-do/cycling-economy/economic-benefits>

¹⁵⁶ [Helsinki conducts first Bikenomics analysis | CIVITAS Handshake](https://handshakecycling.eu/news/helsinki-conducts-first-bikenomics-analysis) (<https://handshakecycling.eu/news/helsinki-conducts-first-bikenomics-analysis>)

¹⁵⁷ www.eurovelo.com

even where a Member State would decide to exempt a regional rail service from its scope, the rule related to the right to carry bicycles on board the train would remain mandatory.

The importance of cycling has been recognised at wider European level (UNECE developments, as provided in the introduction) and by EU Member States as well: in 2018, the EU's Transport and Environment Ministers met in Graz, Austria, to discuss pathways leading to clean mobility. They adopted the "Graz Declaration"¹⁵⁸, which includes acknowledging cycling as an equal mode of transport, developing a European strategic and supportive framework to promote active mobility, and integrating active mobility in the current and future European funding and financing schemes. A 2020 joint statement by the Benelux countries¹⁵⁹ stressed the importance of cycling and the urgent need for stimulating bicycle use as a necessary, safe and healthy alternative in (urban) mobility.

Many stakeholders see a need for a more strategic, EU-level approach to be taken to enable and promote cycling in the EU¹⁶⁰.

3.17 Spatial transformation

Spatial transformation in urban areas can take many forms, such as road space reallocation to sustainable modes, opening streets for people (and related activities), transforming parking, and concepts like **15-minute cities**¹⁶¹ or **superblocks**¹⁶²; this is also part of the Driving Urban Transitions to a Sustainable Future¹⁶³ work programme. Introduction of concepts like Low Traffic Neighbourhoods or the 15-minutes city was important for 247 respondents (out of 3852 answers) participating in the open public consultation.

Road space reallocation policies are increasingly widely implemented in dense urban areas even though, in common with congestion charging, schemes frequently face substantial opposition from local groups¹⁶⁴.

Temporarily closing roads to motorised traffic and opening them to people, with tactical urbanism¹⁶⁵ has been applied by some cities during the pandemic.

For example, Helsinki decided to close one of the streets in the city to cars. One km of the "beach route" of Ehrenströmintie street, was repurposed with traffic calming measures, with 300 meters of this designated for only walking and cycling and with 40 car parking

¹⁵⁸ <https://www.eu2018.at/latest-news/news/10-30-Graz-Declaration.html>

¹⁵⁹ <https://www.benelux.int/nl/webinar-benelux-bike-declaration/benelux-countries-take-lead-stimulating-european-cycling-policy/>

¹⁶⁰ The European Cyclists' Federation (ECF), supported by a number of other organisations, developed its own strategy and set of recommendations in 2017

¹⁶¹ Moreno, Carlos; Allam, Zaheer; Chabaud, Didier; Gall, Catherine; Pralong, Florent. 2021. "Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities" Smart Cities 4, no. 1: 93-111. <https://doi.org/10.3390/smartcities4010006>

¹⁶² Superblocks represent an innovative urban planning scheme to reduce the amount of public space taken by private cars in the streets and give it back to the people. Superblocks foster social life in neighbourhoods by allowing different uses of public space, not just mobility. (https://ec.europa.eu/transport/sites/default/files/cycling-guidance/innovation_brief_superblocks_2017.pdf)

¹⁶³ <https://jpi-urbaneurope.eu/driving-urban-transitions-to-a-sustainable-future-dut>

¹⁶⁴ ITF, Decongesting our Cities: <https://www.itf-oecd.org/sites/default/files/docs/decongesting-our-cities.pdf>

¹⁶⁵ Tactical urbanism includes low-cost, temporary changes to the built environment, usually in cities, intended to improve local neighborhoods and city gathering places (https://en.wikipedia.org/wiki/Tactical_urbanism).

spots repurposed to provide the residents with a liveable space with on street features, such as benches, paintings and flowers. The testing period for this solution ran from June 22nd until August 31st, 2020. The city of Helsinki surveyed the aforementioned part of the street prior to and after closure, and as expected, the number of walkers and cyclists recorded increased significantly. Furthermore, the feedback on the measure was collected from both residents and local business owners on that particular part of the road, and will be deployed in future planning of similar measures¹⁶⁶.

The EU-funded CIVITAS_Metamorphosis project¹⁶⁷ identified measures, or activity fields, that local authorities can implement in order to make city streets more focused on people instead of vehicles only¹⁶⁸:

- (Temporary) street openings for people (and closing them for cars). They differ in duration: short time, one day, several days and activities are held to show the potential of the space;
- Interventions in public space, aiming to discourage car use and encourage greater sustainable mobility by all citizens;
- Crystallisation points, aiming to create places where people are offered opportunities for communication, exchange and sharing, to foster greater community interaction.

In the consultation event for stakeholders¹⁶⁹, there has been an overall support for creating safer, accessible walking and cycling infrastructures, separated from car traffic, suitable for vulnerable users and backing a “short distance city” concept.

3.18 Urban Vehicle Access Regulations

Many European cities are using Urban Vehicle Access Regulations schemes (UVARs) as an effective policy tool for advancing sustainable urban mobility. Different types of UVARs can aim at improving air quality, reducing congestion, optimising and protecting urban road infrastructure and tackling road safety aspects, also covering logistics.¹⁷⁰ The introduction and operational implementation of UVARs is, based on the subsidiarity principle, dealt with at MS level, with often extensive competences situated at city level.

At the same time, the wide variety of different UVAR schemes combined with a lack of a harmonised EU framework, poses challenges to the free movement of passengers and goods.¹⁷¹

¹⁶⁶ https://www.eltis.org/sites/default/files/sump_topic-guide_planning_for_more_resilient_and_robust_urban_mobility_online_version.pdf

¹⁶⁷ <https://www.metamorphosis-project.eu/index.html>

¹⁶⁸ A global public space toolkit is of relevance here as well: <https://www.local2030.org/library/82/Global-Public-Space-Toolkit--From-Global-Principles-to-Local-Policies-and-Practice.pdf>

¹⁶⁹ Consultation workshop on the new EU urban mobility initiative for local and regional authorities, civil society and the general public, organised in cooperation with the European Committee of Regions on 14/06/2021 (https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en).

¹⁷⁰ The 2021 fact-finding study looked into the situation of 125 European cities and found that 88% of cities have an UVAR scheme in place. The most popular types are Low and Zero Emission Zones (31%) and pedestrian zones (31%), followed by traffic restrictions (18%), permit schemes (11%), 30 km/h zones (6%) and congestion charges (3%).

¹⁷¹ The variety of UVAR schemes is likely to increase, as the fact-finding study shows that 76% of the 125 involved cities involved in this study have plans for future UVAR developments.

The EC has, over the last years received complaints and questions from EU citizens. The majority concerned Low Emission Zones (LEZs), on the obligation for non-resident drivers to register beforehand and high fines for failure to do so.¹⁷²

To ensure compliance, public authorities are currently using a variety of measures for the identification of vehicle characteristics, ranging from payable stickers or manual checks (66%) to automatic number plate recognition (26%) with mandatory pre-registration in a city system (44%), causing practical and administrative burdens to citizens, transport companies and authorities.

While pre-registration is a major challenge for non-resident drivers, cities face major issues regarding cross-border compliance and cross-border enforcement of UVARs.

The 2020 Sustainable and Smart Mobility Strategy announced action on the topic of UVAR. The strategy both recognises the issue of LEZs and declares that “the Commission will also help cities modernise their policy toolbox [...]. Better information on low and zero emission zones and common labels as well as digital solutions for vehicles can help maintain a well-functioning single market and ease the exercise of fundamental freedoms”.

Initial guidance already exists with the SUMP topic guide on integration of UVAR in the SUMP process¹⁷³.

Furthermore, the EU addresses the information provision through following actions:

- The implementation of the Regulation (EU) 2018/1724 on the Single Digital Gateway¹⁷⁴: public authorities are required to provide information to road users through the Gateway;
- The Delegated Regulation on Real Time Traffic Information¹⁷⁵ requiring MS to give access to a broad range of static and dynamic data is currently revised to include new data sets, such as UVARs;
- The EP Preparation Action “UVARbox” aims to support cities with the development of a user-friendly information tool on urban and regional UVAR schemes using EU standardised data.

During the build-up of the new urban mobility initiative a dedicated consultation workshop was organized¹⁷⁶ (21/06/2021, 95 participants) to hear the views of relevant stakeholders (public authorities, organisations representing civil society, consumers and users, and private sector actors (and their associations)). The following main points came forward during this session:

¹⁷² The feedback provided during the consultation workshop on UVAR identified a clear need for similar rights and obligations of domestic and foreign vehicles and enhanced transparency and harmonisation of EU rules on UVARs to help prevent and reduce barriers to the internal market or free movement of citizens.

¹⁷³ https://www.eltis.org/sites/default/files/uvar_brochure_2019-09-26_digital_version_v2.pdf

¹⁷⁴ The 2018 Single Digital Gateway Regulation (SDG) functions as the single entry point for people and businesses to access information about the rules and requirements that they have to comply with due to EU, national, regional or local regulations. Among other requirements, public authorities are required to provide information to road users through the SDG. Regarding the procedure for obtaining emission stickers, the Regulation stipulates that such stickers issued by a public body or institution must be fully available online by 12 December 2023.

¹⁷⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0962>

¹⁷⁶ https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

- UVARs will play an important role in European cities in 2030. According to stakeholders the main priority for UVARs is to improve liveability in cities, especially on road safety, emissions and noise reduction, and redistribution of public space. Furthermore, clear rules are needed on the access and use of UVARs;
- Currently, the main barriers with UVARs were identified as lack of harmonised/interoperable standards, challenges with implementation, resistance to road pricing schemes and political reluctance to introduce UVAR schemes;
- The lack of UVAR information and related vehicle and owner data in particular with regard to cross-border traffic were identified as existing gaps;
- The participants suggested the EU to focus on technical, social and political guidance for cities and common standards for information sharing allowing better (cross-border) enforcement.

Urban tolls and low or zero emission zones were also identified as suitable actions to deal with congestion and emissions by respondents in the open public consultation (with 139 and 110 answers (out of 2411), respectively). 27% of respondents however have stated they encounter difficulties with urban vehicle access regulations, with differing rules among cities being the biggest.

3.19 Sustainable urban logistics

Urban freight transport is essential to the functioning of urban economies. Essential tasks are for example, to replenish stocks of food and other retail goods in shops, dispatch parcels, deliver building materials and remove household waste from urban areas.

The lack of parking areas or multimodal terminals for loading and unloading, lack of space for logistics facilities leading to relocation and concentration in suburban areas (logistics sprawl), high costs and low profit margins for logistics providers, poor enforcement of regulations, high turnover of staff and high energy costs are some of the problems faced.

To green freight transport¹⁷⁷, sustainable urban mobility planning is already encouraged to include the freight dimension through dedicated **sustainable urban logistics plans** (SULPs)¹⁷⁸.

The 2021 fact-finding study found that, although 68% of the sampled EU cities¹⁷⁹ are aware of the Sulp guidelines, only 13% have a dedicated Sulp, while 58% have logistics elements in their Sump. The current identified challenge is the lack of resources and expertise in cities, especially the small- and medium-sized.

According to the stakeholders¹⁸⁰, city authorities need to understand the flows per type of logistics activity and cooperate with private stakeholders (both companies and citizens) in order to adopt policy measures based on factual arguments and mutual benefits, as well as to set short-, medium- and long-term objectives and specific targets. Such medium- and long-term plans would help companies to adapt their strategies and meet the cities' requirements. The definition of clear urban freight planning and frameworks at city, national and European level would allow

¹⁷⁷ Sustainable and Smart Mobility Strategy, Flagship 4 – Greening freight transport

¹⁷⁸ A dedicated topic guide in the context of Sump was published in October 2019 https://www.eltis.org/sites/default/files/sustainable_urban_logistics_planning_0.pdf

¹⁷⁹ Sample of 125 EU cities including a balanced mix of cities with different characteristics and covering all Member States.

¹⁸⁰ ALICE & POLIS Urban Logistics Thematic Group

logistics stakeholders to exploit the necessary economies of scale to de-risk investments and thus accelerate the transition towards a sustainable urban logistics.

The efficient interconnection of long distance and last mile freight transport is fundamental and has to be taken into consideration in the city planning. Considering the cities strong connection with their hinterlands, urban freight issues need to be tackled in the perspective of functional urban areas, to maximise the use of infrastructures and harmonise the rules at regional level¹⁸¹. In practice this could be done through the revision of the TEN-T Regulation in relation to the urban nodes aspects.

An integrated perspective is required towards poly-centric areas, multi-scale nodes and integration of scales. There is a need to increase the attention regarding spatial planning both in- and outside urban areas, the functional area and the relation with long distance networks given their role of stakeholder in a multi-scale area, where urban nodes are particularly relevant. The fact-finding study showed that only 16% of the interviewed cities consider the wider functional area to a full extent, while 42% does it partially.

Urban logistics is a highly dynamic sector, which generates uncertainties for city planners, for instance technological innovations, new EU regulations, decisions by global logistics players, unintended effects of interventions on the local stakeholders' behaviour and implications of e-commerce are identified as some of the most important ones. To deal with uncertainties, sustainable urban logistics planning could become more flexible and resilient. Guidance on SULPs could become more adaptive by providing a range of potential actions and new adaptive planning methods to city planners, while supporting the development of adaptive planning capacities¹⁸².

Data on urban freight transport is essential for a fact-based planning and decision-making guided by a long-term vision for sustainable mobility, and for a reliable monitoring and evaluation of the regulatory, financial, technical and infrastructural measures implemented at city level. However, according to the fact-finding study only 29% of the sampled EU cities collect data on urban logistics and only 32% has an evaluation framework. This lack of data is due to several factors: 1) urban logistics is a complex system, 2) shippers and transport operators are reluctant to share information on their operations, 3) local authorities lack resources and expertise to understand which kind of data is needed, and often are unable to reach agreements with private stakeholders, 4) collecting and updating urban freight data can be too expensive for local authorities.

To support data collection and sharing, defining a clear framework for sharing data (who should provide which data and how, data security and confidentiality, governance, interoperability, etc.) and a core set of data to be provided by private stakeholders is considered as one of the most important actions by the stakeholders consulted in the workshop on urban logistics¹⁸³. While providing expert assistance and advice on data collection and sharing is considered important, the consultation¹⁸⁴ identified peer-to-peer learning, training and networking with

¹⁸¹ Interreg-funded SULPiTER project, <https://www.interreg-central.eu/Content.Node/SULPiTER.html>

¹⁸² Horizon 2020-funded project ULaaDS - Urban Logistics as an on-Demand Service (<https://ulaads.eu>)

¹⁸³ Consultation workshop on the new EU Urban Mobility Initiative: Urban freight transport and logistics, 21/06/2021

¹⁸⁴ Consultation workshop on the new EU Urban Mobility Initiative: Urban freight transport and logistics, 21/06/2021

other cities to exchange best practice and knowledge as the most relevant measures to improve expertise of city authorities.

Ensuring the engagement of public and private stakeholders is fundamental to optimise urban logistics in economic, social and environmental terms, change both customers and operators' behaviours, and thus ensure a successful transition to sustainable urban logistics. Collaboration among local authorities and private stakeholders (including not only logistics providers and transport operators, but also e.g. sectoral associations, neighbourhood and local commerce associations) in platforms and communities of practice, regular dialogues among all parties, networking with other cities and exchanges among cities planners are key actions mentioned by both local authorities and private stakeholders¹⁸⁵ to build knowledge on sustainable urban logistics management and planning. According to stakeholders¹⁸⁶, a neutral organisation acting as a moderator could facilitate building trust and co-creation among stakeholders, since the city authorities themselves are an interested party and not always are capable of establishing a stable dialogue.

Sustainable and effective urban logistics planning aims to support and encourage the most appropriate freight solutions, which benefit at the same time both the society and the private stakeholders and balance economic efficiency and environmental sustainability. Therefore, the SULPs contribute to accelerating the deployment, uptake and upscaling of innovative and sustainable transport solutions already available, including both innovative vehicles (e.g. light electric freight vans, cargo bikes, drones) and innovative solutions (e.g. new distribution models, cargo hitching, dynamic routing, better use of inland waterways into cities), and providing training for their deployment. Progress can be achieved with the existing innovative solutions, by focusing on creating appropriate framework conditions, as well as behavioural and organisational change.

According to stakeholders¹⁸⁷, city authorities could support and speed up the adoption of innovative sustainable solutions by creating specific frameworks to test such solutions, e.g. through Living Labs to accelerate the transition to scale¹⁸⁸. Public procurement could also be used to build the necessary market conditions and trust on such solutions. For instance, public authorities could include sustainability requirements (e.g. use of low or zero-emission vehicles, consolidation of deliveries) in public tenders e.g. for office and hospitals supplies etc.¹⁸⁹In some cases (e.g. buses or waste collection), the use of clean vehicles is already promoted through the Clean Vehicles Directive.

Additional innovation will be supported by the Horizon Europe Research and Innovation Framework Programme¹⁹⁰. While areas and tools for potential interventions are known, the impacts that their application can have on the urban mobility system is still unclear. Therefore, research, demonstrations and pilot actions on sustainable last-mile solutions and urban logistics space management will be carried out through living labs in cities. Demonstration of connected and automated solutions for logistics as well as development of zero-emission vehicles deployment strategies and logistics use-cases will be covered in respectively the Connected,

¹⁸⁵ idem

¹⁸⁶ ALICE & POLIS Urban Logistics Thematic Group

¹⁸⁷ ALICE & POLIS Urban Logistics Thematic Group

¹⁸⁸ EIT Urban Mobility living labs report, <https://eit.europa.eu/news-events/news/eit-urban-mobility-living-labs-report-published>

¹⁸⁹ Horizon 2020 funded project BuyZET, <http://www.buyzet.eu/>

¹⁹⁰ https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/cluster-5-climate-energy-and-mobility_en

Cooperative and Automated (CCAM) partnership and the Towards Zero Emission Road Transport (2Zero) partnership. In addition, R&I actions aiming to increase the overall efficiency of supply chains, which should have an impact also on the last mile, will be funded.

Financing future sustainable urban logistics requires healthy and sustainable business cases, which create value for both businesses and society.

Although urban freight transport deals with several categories of goods (e.g. manufactured goods, construction materials, non-fresh food, waste) and processes (e.g. handling and storage of goods, inventory management, waste and returns), e-commerce and parcel delivery represent a specific issue due to its air pollution and congestion impacts on cities. In line with a growing trend since several years, consumer e-commerce deliveries have grown by 25% in 2020 due to the pandemic and the increase in last-mile deliveries is likely to persist¹⁹¹.

Trends indicate that B2C e-commerce for goods is increasing the total number of urban freight movements, and leading to a greater fragmentation of consignments at the city logistics level. It is increasing both the number and frequency of deliveries and decreasing the size of a single delivery. The actual impacts of e-commerce driven transport and parcel delivery on air pollution and CO₂ emissions will be assessed and analysed in a dedicated study launched by DG GROW¹⁹². A recent study carried out for the Joint Research Centre on “Identification and assessment of opportunities and threats for the Circular Economy arising from e-commerce”¹⁹³ assesses also the opportunities which may raise from efficient home deliveries replacing private shopping trips and providing to customers more sustainable transport choices (e.g. longer delivery times with lower emission levels).

In a dedicated consultation workshop¹⁹⁴, the majority of participants supported the following views:

- a Sulp should be a mandatory component of a Sustainable Urban Mobility Plan (SUMP);
- one of the most important needs is to define a clear framework for sharing data in urban freight;
- a SUMP guidance document is needed for the integration of spatial planning as a component of mobility policy, to link Urban Vehicle Access Regulations (UVARs) with designated freight zones (i.e. consolidation/distribution hubs, loading/unloading areas, off-peak deliveries, etc.);
- regulations and incentives (including financial) are needed for quicker adoption of clean vehicles and innovative urban logistics solutions e.g. electric vans, cargo bikes, drones.

According to the participants of the open public consultation, cargo bikes followed by zero-emission vans are the most suitable for e-commerce or home deliveries of the future. For an overwhelming majority of them (719 out of 847 replies), the information on the impacts of home delivery, such as carbon footprint (CO₂ emitted), would make them try to choose a more environmentally friendly delivery option.

¹⁹¹ <https://www.weforum.org/press/2021/04/covid-19-has-reshaped-last-mile-logistics-with-e-commerce-deliveries-rising-25-in-2020/>

¹⁹² <https://etendering.ted.europa.eu/cft/cft-display.html?cftId=6949>

¹⁹³ <https://publications.jrc.ec.europa.eu/repository/handle/JRC122233>

¹⁹⁴ Consultation workshop on urban freight transport and logistics, 21/06/2021: https://ec.europa.eu/transport/themes/urban/events/2021-06-urban-mobility-workshops_en

3.20 Shared and collective mobility services

Since the 2013 Urban Mobility Package, urban mobility has transformed at rapid speed, becoming more user-centric, responding to changes in people's needs and expectations from the mobility offer.

New mobility services (NMS) are the result of unprecedented opportunities of digitalisation, 4G and smartphone use. These are new mobility operators facilitating convenient car rentals, taxi services, bike or e-scooter rentals for short trips at competitive prices through mobile apps. Ride hailing services doubling as food delivery, free-floating car sharing, dockless bikes and e-scooters are now viable choices in cities besides public transport and the private car.

Shared mobility refers to shared use of transport modes, such as sharing of vehicles for rental (e.g. bikes, scooters, cars), ride-sharing/car-pooling (i.e. shared space within a vehicle) as well as transport-on-demand services (e.g. ride hailing services like taxis or platform based services).

The increased interest in young generations towards sharing mobility schemes, instead of ownership of vehicles, is a practical example of the change in mobility and environmental culture.

The following new mobility services are typically discerned:

- Car based services such as station based or free-floating car-sharing or ride hailing (taxi services);
- Shared, demand responsive transport (DRT) mini vans;
- Carpooling platforms;
- Micromobility: dockless (electric) two-wheelers (bikes and e-scooters), electric mopeds and other personal mobility devices;
- Private shuttles, especially to business parks and large employers (like in Stuttgart);
- Commercial drone services.

According to the fact-finding study looking at the urban mobility situation in a representative sample of 125 EU cities, 80% of cities offer some type of shared mobility. Bike sharing is by far the most predominant across the cities in the sample, in proportion of 63%, while e-scooter sharing (stand-up) is present in 50% of the cities and station-based car sharing in 40% of cases. Free-floating car sharing is also available in 39% of the cities while e-bike/pedelec sharing in 30% while and e-scooter sharing (seated) in 17% of the cities sampled. In 10% of the cities, there are also other services available such as (e-)cargo bike sharing - dedicated schemes for entrepreneurs, NGOs and citizens - and sharing schemes for private cars.

According to the participants of the open public consultation, bicycle and e-bicycle sharing is the new mobility service that can the most help reduce congestion and brings environmental benefits in urban areas.

From a commercial perspective, there is a need to integrate the variety of new mobility services by linking better with public transport connectivity and bridge the last mile where access or frequency of public transport is low. An integrated offer, such as MaaS applications, would also help make the services more attractive and enhance the mobility offer for people living in remote areas and commuters.

However, the technical – fragmentation in standards, lack of fare integration - and business model complexities bring challenges for both private operators and the public sector for swift roll-out and deployment. Also, the overall environmental implications of shared mobility schemes need to be evaluated, especially if they replace trips previously done using public transport or walking¹⁹⁵.

Local authorities are main actors in this area as well. Through innovative governance mechanisms, they can broker cooperation, leveraging their strategic planning, purchasing and procurement powers to incentivise new services and operations.

A Horizon Europe topic for accelerating deployment of new mobility services has been included in the 2022 work programme, aimed at increasing penetration and attractiveness of services through new business models, as well as potential integration with public transport. In addition, as part of the Horizon Europe co-programmed partnership “Connected, Cooperative and Automated Mobility (CCAM)” work programme 2022, the EC has proposed a dedicated topic to support European demonstrators for integrated shared automated mobility solutions for people and goods¹⁹⁶.

3.20.1 Car-sharing, car-pooling and other shared powered vehicles

The CIVITAS Advisory Group on Game Changers identified eight key innovations, amongst which shared mobility, for which potential impacts were mapped and matched with possible actions. Apart from integration with the public transport offer (physical - at stations - and digitally), for the sustainable and environmental goals of cities, the group recommends to incentivise the use of shared services for users through:

- prioritisation of active shared (micro) mobility versus motorised shared mobility;
- ensuring that space for shared mobility is not taken from infrastructure for active modes, e.g. ensure that dockless bikes are rather parked on the road and not on walkways;
- regulatory framework to impose restrictions on standards to run and operate;
- collection of (gender disaggregated) data about the use of the services and digitalisation of public space for licensing the operators.

In an analysis of the car-sharing’s impact in Bremen, the city found that station-based car-sharing reduces traffic and demonstrates that large numbers of car-sharing users see no need to own a car. The Share-North project confirmed to the city that the greatest achievements of car-sharing are reducing traffic and freeing up urgently needed on street parking spaces.

3.20.2 Micro-mobility services

As efficient and zero-emission form of transport, micromobility has the potential to reduce urban transport emissions.

A recently published Life Cycle Assessment (LCA) of an e-scooter in use in a major European city, concluded that e-scooters with swappable batteries generate 34.7 g CO₂ equivalent

¹⁹⁵ https://trimis.ec.europa.eu/sites/default/files/documents/jrc124704_jrc124704_trimis_hs_alert_final.pdf

¹⁹⁶ https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-8-climate-energy-and-mobility_horizon-2021-2022_en.pdf

emissions per person per kilometre across the full lifecycle. In contrast, a new petrol car would generate between 200-350g CO₂e/km per person per kilometre¹⁹⁷. Similarly, e-bikes can have a positive impact on the environment through a reduction in motorised transport modes, consuming about 10% of the energy of a small electric car.

Local authorities struggle with issues concerning the safe use of e-scooters, risk posed by them in cities to their users and other, notably vulnerable, road users such as older persons or persons with disabilities, as well as the environmental challenges related to the life-time of the battery and sustainability of operations.

At the same time, flexible licencing schemes are needed to organise and monitor the various micromobility service providers in the city to ensure they are running in a positive way and are contributing to the city's mobility strategy.

A 2019 SUMP topic guide¹⁹⁸ helps local authorities with possible ways to address governance and integration of new mobility services.

3.20.3 Addressing local transport-on-demand markets

Taxis and private hire vehicles with drivers (PHV) have existed side-by-side for years in many MS. Traditionally, taxis are allowed to be hailed on the street and at ranks as well as being pre-bookable; therefore, they are strictly regulated by authorities (such as being subject to fixed fares). PHV, on the other hand, are limited to the pre-booking market, but allowed to set their prices freely.

Ride-hailing companies have entered the market and have proved to be a game-changer. Their algorithm and geolocalisation based apps allow “instantaneous pre-booking”, meaning that rides can take place right after being pre-booked, hence blurring the traditional boundaries between the two sectors. Furthermore, ride-hailing apps working with PHV usually determine the prices themselves.

In many MS, there is discontent among taxi drivers who perceive the competition by ride-hailing companies as unfair since they do not need to observe the same rules as taxis (mandatory shifts, duty to contract, fixed fares). At the same time, ride-hailing companies and PHV operators object rules for PHV which they perceive as out-dated.

Urban authorities now face the challenge of addressing these diverging concerns, whilst at the same time striving to ensure safe, reliable and affordable mobility for citizens as well as mitigating congestion and emissions from the taxi and ride-hailing sector.

For these reasons, the Sustainable and Smart Mobility Strategy set out that the Commission would “look into ways to ensure that passenger transport-on-demand (taxis and private hire vehicles) can become more sustainable and deliver efficient services to citizens while maintaining a smoothly functioning single market and addressing social and safety concerns.” In the urban context, the granting of licences for these services represents a key tool that cities can use to accelerate their decarbonisation.

¹⁹⁷ <https://www.eltis.org/resources/case-studies/rise-micromobility>

¹⁹⁸ Integration of Shared Mobility Approaches in Sustainable Urban Mobility Planning, https://www.eltis.org/sites/default/files/integration_of_shared_mobility_approaches_in_sumps.pdf

3.21 Making the most of digitalisation

3.21.1 How digitalisation can support mobility in urban areas

The European Green Deal Communication had already confirmed that digital technologies are a critical enabler for attaining Europe's sustainability goals in many different sectors.

On the individual mobility side, thanks to new applications and platforms, smartphones can enable access to a wide range of mobility offers and services and access to comprehensive information for planning journeys, including information on traffic flows in real time. Similarly, new applications, such as Mobility as a Service can help with the booking and payment of tickets for all mobility offers and the more seamless we can make multimodal journeys, the more welcome they will be by the user.

On the logistics side, thanks to improved and faster information, enterprises are already permanently optimising their loading capacity, route planning, costs and emissions.

Many ITS multimodal mobility management projects are developed, such as “TMaaS” (traffic management as a service) helping to monitor and manage traffic for all transport modes, including parking management. Digital mobility management tools could be designed in a way that help public transport authorities gain accurate understanding of public space usage, make data-informed investments in multimodal infrastructure and vehicles, and effectively design, and monitor compliance with, traffic/mobility and environment restriction rules to increase the safety of drivers, riders, and pedestrians as well as the sustainability of urban areas.

Digital twins of cities are another example of powerful tools for planners and authorities. They are a virtual representation of a city's physical landscape or processes, using data, data analytics and machine learning to build simulation models that can be updated and changed (real-time) as their physical equivalents change. Today, cities invest in digital twins for specific elements, such as traffic management. How can we reduce congestion at rush hours? How can public transport be improved? A digital replica of a city or a region enables authorities to test every possible scenario and find solutions. This helps them to keep the overview, lowers failing in the real world.

Linked to this, artificial intelligence (AI) is expected to bring benefits to society and economy through e.g. safer transport. Various AI applications are increasingly utilised in a diverse range of domains. AI in urban mobility management could help public transport authorities to gain an accurate understanding of public space usage and mobility patterns, to make informed investments in infrastructure; to create effective traffic/mobility rules that address safety, congestion and pollution, to ensure efficient use of available capacity in different transport networks and modes, to monitor compliance with traffic/mobility rules, to dynamically regulate traffic/adapt the flow of people and goods, based on reliable prediction that addresses system vulnerability, safety, congestion and pollution, or adapt it according to weather conditions. AI could help improve the quality and accuracy of trip information to passengers/drivers in a multimodal context. AI could help combine accurate information from many sources to help increase trust in public transport (e.g. information from sensors on indoor air/occupancy rate) AI could help improve the efficiency of deliveries (cf increased e-commerce). AI could help predictive maintenance of urban infrastructure, of public transport vehicles, and therefore optimise maintenance cost. AI could help design integrated urban policies (mobility/housing/energy/etc.).

In its AI report¹⁹⁹, the EIT on urban mobility²⁰⁰ recommends the following: *Urban Mobility should focus on what is already potentially available now but that faces several barriers. Making use of the vast amount of data in the hand of the public administration requires AI experts capable of preparing the data to be used and, most importantly, a collaboration framework with private companies that hold personal data on citizens' travels and needs. A new business model and ways to cooperate should be found, so that both the public, the private and the innovators achieve their objectives. First, better public services that reduce traffic, make cities more sustainable and that meet citizens' needs. Second, profitable business models so that a cooperation with the private actors is possible to openly share data. Lastly, the Urban Mobility KIC stressed that for SMEs and start-ups the administrative burden is often too high to develop an interesting idea.*

It is crucial that the use of data and AI is carried out in a non-biased way. In the past, algorithmic building has in some cases unwittingly led to discrimination against women and ethnic minority groups.

According to the majority of respondents taking part in the open public consultation, the increased digitalisation of mobility will increase the likelihood they will use mobility services.

3.21.2 Tapping into the data potential for the development of urban mobility services

As underlined in the European Data Strategy²⁰¹, data is the lifeblood of economic development and the basis for efficiency gains across all sectors. It enables new services, making urban mobility more efficient, sustainable, and safe. It is also key for local authorities to develop mobility and parking management tools, which help reduce negative externalities such as congestion and pollution. Developing innovative solutions, notably based on artificial intelligence, often requires large amount of data that can only be obtained by pooling data from different actors and sources.

Nonetheless, be it for private actors developing innovative urban mobility services, or for local authorities setting up mobility platforms, accessibility of data remains a common challenge that needs to be addressed²⁰². Data availability and data-reuse are limited by the cost of collecting and digitalising data, challenges relating to data standards, interoperability issues and a lack of trust. In the context of the ITS Directive, Member States have established National Access Points²⁰³ (NAPs) to facilitate access to data. Ensuring that the data listed in the Delegated Regulations of the ITS Directive (and specifically as regards urban mobility data, i.e. Delegated Regulation (EU) 2017/1926 and Delegated Regulation (EU) 2015/962) are made accessible is key. Local and regional transport actors have an important role to play and should actively participate in this effort. In particular, local authorities should aim at increasing the availability and accessibility of data for which they are the primary source, such as data on traffic regulations, traffic management measures and traffic circulation plans.

¹⁹⁹ <https://www.eiturbanmobility.eu/wp-content/uploads/2020/10/230920-AI-Report-Online-1.pdf>

²⁰⁰ EIT Urban Mobility is an initiative of the European Institute of Innovation and Technology (EIT) (<https://www.eiturbanmobility.eu>)

²⁰¹ https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en

²⁰² Fact-finding study on status and future needs regarding low-and zero-emission urban mobility

²⁰³ https://ec.europa.eu/transport/themes/its/road/action_plan/nap_en

To support proper implementation, the European Commission is funding, through the Connecting Europe Facility Programme and, until 2024, a coordination mechanism to federate the NAPs, the NAPCORE (National Access Point Coordination Organisation for Europe) project. NAPCORE will help boost data accessibility and availability by monitoring and assessing the availability of ITS-related data and identifying data gaps as well as providing guidelines to mitigate these gaps. Another major activity of the NAPCORE project will be to ensure alignment of data exchange standards. In particular, as regards standards for urban mobility data, the coordination mechanism should look at enhancing coherence of data standards for parking, and addressing standard for cycling infrastructure data. Linking urban mobility data to travel and ticketing data for longer distance rail services is considered an important delivery under the SSMS and scheduled for 2030.

The European ITS Platform (EU EIP), a project to support monitoring and dissemination of results of ITS services on European corridors, has developed a reference handbook containing ITS deployment guidelines²⁰⁴ which help public authorities in the design and implementation of harmonised ITS solutions on their roads, including in urban areas.

The establishment of common European Data Spaces in key sectors, funded by the Digital Europe Programme, will improve data availability, accessibility and sharing. The European Mobility Data Space will provide technical infrastructure and governance mechanisms to facilitate easy, cross-border access to key mobility data resources, including urban mobility data, in line with existing and upcoming mobility and transport data-sharing initiatives. The Smart Communities Data Space, by bringing together existing local cross-sector data sharing ecosystems, will also help the development of innovative urban mobility services.

In parallel, in liaison with the NAPCORE project, and in line with the standardisation mandate for ITS in urban areas²⁰⁵, other EU supported activities are developing further to respond to urban mobility standardisation needs, both in terms of development of standards and facilitation of their operational use:

- The TN-ITS initiative²⁰⁶, supporting Member States implementing the TN-ITS specification and maintaining the TN-ITS specification, overall facilitating and fostering the exchange of ITS-related spatial road data between road authorities and data users;
- The UVAR data box project²⁰⁷, will provide tools to enable the creation of road users' information on access regulations to cities and regions in Europe, digitally, both ahead of and during their trip;
- The DATA4PT project²⁰⁸, facilitating the development and deployment of the European public transport data standards Transmodel, NeTEx and SIRI. For new mobility

²⁰⁴ <https://dg.its-platform.eu/DGs2012>

²⁰⁵ <https://ec.europa.eu/growth/tools-databases/mandates/index.cfm?fuseaction=search.detail&id=568#>

²⁰⁶ <https://tn-its.eu/>

²⁰⁷ <https://uvarbox.eu/> The project started in September 2020 will provide a data structure for data on Urban Vehicle Access Regulations (UVARs), machine-readable formats of UVAR data to enable its incorporation into navigation systems or mobile application, and a user-friendly software tool, documentation and training to help authorities put their UVARs into this format.

²⁰⁸ <https://data4pt-project.eu/>

services, an extension of Transmodel will be finalised by the end of 2021, for data for pooling, sharing, and rental mobility;

- The ITS EU ICIP project²⁰⁹ (European ITS communications and information protocols) will develop, within the next two years, insights to potential users on how and in which combinations to use existing standards. Work will cover various topics including Cooperative, Connected and Automated Mobility (CCAM), parking, public transport, traffic and travellers' information and traffic control;

Implementing the EU data legislation²¹⁰ will facilitate wider data sharing both between companies active in the mobility sector, between consumers and companies and between companies and authorities, notably at local level.

3.22 New modes that are on the horizon

3.22.1 Urban air mobility

Urban air mobility (UAM) is an ever-growing topic of discussions that goes beyond the boundaries of technological developments in the aviation industry as it has attracted the attention of mobility actors and local authorities as a means of contributing to sustainable and integrated mobility across cities and regions. UAM is defined as: Very-low altitude air traffic over populated areas at scale. Most projects today focus on drones respectively electrically powered aircraft capable of vertical take-off and landing.

For their potential contribution to efficient and clean urban mobility, it could be appropriate to seek to integrate them into urban mobility planning in a realistic and gradual way right from the start.

Among other important perspectives, the social acceptance is key. As part of the preparation of an adequate regulatory framework, the European Union Aviation Safety Agency (EASA) has conducted a comprehensive study on the societal acceptance of UAM operations across the European Union²¹¹.

The Commission fully supports the development of urban air mobility to make it fit for enhancing safe and sustainable mobility. The Commission announced its plans to adopt a 'Drone Strategy 2.0' in 2022 setting out possible ways to guide the further development of this technology and its regulatory and commercial environment.

3.22.2 Cooperative, Connected and Automated Mobility (CCAM)

Already today, road vehicles provide advanced assistance functionalities and support the driving task in dangerous situations. In the future, we expect systems with significantly reduced reaction times and vehicle control for extended periods. Combining Connectivity, Cooperative systems and Automation for Mobility (CCAM) will bring us closer to road safety Vision Zero.

²⁰⁹ ftp://ftp.cencenelec.eu/CEN/News/Calls/2020/ITS_EU_ICIP/SA2019-03ProjectPlan.pdf

²¹⁰ For example, the Data Governance Act, Digital Market Act, Digital Services Act, Implementation Act for High-Value Data-Sets.

²¹¹ <https://www.easa.europa.eu/sites/default/files/dfu/uam-full-report.pdf>

Through digitalisation, CCAM will bring mobility to a new level, improving traffic management, reducing congestion, and contributing to protecting the environment.

For this vision, Europe takes a leading role to guide the transformation, creating more sustainable solutions while strengthening European competitiveness. With this ambition, the co-programmed CCAM Partnership has been launched in June 2021 as part of Horizon Europe R&I Framework Programme. It aligns all relevant stakeholders, planning large-scale demonstrations, research and innovation actions for vehicle technologies, infrastructure support, and facilitating end-user adoption. The partners develop and implement a shared, coherent and long-term R&I agenda with the joint vision: “European leadership in safe and sustainable road transport through automation”.

While its development should not be limited to urban areas and should facilitate shared mobility solutions to enhance connectivity, several pilot projects will be developed in the context of the CCAM partnership under Horizon Europe, starting with €162 million EU funding allocated to projects under the 2021-2022 Work Programme²¹².

Two topics related to urban mobility have been included under the 2022 work programme: one on European demonstrators for integrated shared automated mobility solutions for people and goods and another one to integrate CCAM services in fleet and traffic management systems.

Important other issues to be addressed are the societal acceptance, the regulatory aspects for the implementation of the automated systems and the ethical aspects.

To tackle ethical issues, the Commission formed in 2019 an independent Expert Group to advise on specific ethical issues raised by driverless mobility. The Expert Group focused on three themes: road safety, risk and dilemmas; data and algorithm ethics; responsibility. It delivered twenty recommendations²¹³.

As part of the Horizon Europe CCAM partnership, a topic has been launched on the analysis of socio-economic and environmental impacts and assessment of societal, citizen and user aspects for needs based CCAM solutions.

Furthermore, the Commission is carrying out a study on connected cars assessing whether consumers are, in line with EU consumer law, accurately informed during the marketing and pre-contractual phases on how connected cars process their personal data. The study will formulate concrete recommendations to support the EDPB guidelines 1/2020 on processing personal data in the context of connected vehicles and mobility related applications from a consumer law angle and to help traders to better comply with their obligations under EU law.

3.23 Research and innovation for a change

3.23.1 Technological solutions and citizens' needs

The creation and deployment of alternative mobility solutions cannot be carried out in a static context. The interaction between new technological solutions and citizens needs to be in place

²¹² <https://www.ccam.eu/>

²¹³ https://ec.europa.eu/info/news/new-recommendations-for-a-safe-and-ethical-transition-towards-driverless-mobility-2020-sep-18_en

for sufficient time to generate a real impact on acceptance, commuting and travelling habits, as well as the willingness to pay or share transport means. Recent evidence²¹⁴ has showed that without proper engagement, citizens tend to be cautious with new technologies, also those, such as for example connected and automated vehicles, whose added value to their daily life may seem more apparent²¹⁵.

Since 2002, the European Union has funded a large number of RD&I projects within previous Framework Programmes (FPs) contributing to the development of urban mobility. The research projects covered various aspects: improving the mobility of people and transport of goods in urban and peri-urban areas with the development of new transport and mobility concepts; accessibility for all; developing clean, energy efficient and safe vehicles for passengers and goods; intelligent and automated urban transport systems; new and accessible public transport systems.

Under the 7th Framework Programme for Research (FP7) and the Horizon 2020 Framework Programme for Research and Innovation (H2020) about €1 bn has been invested in Smart mobility (SMO) research projects²¹⁶.

Since 2002, CIVITAS has been bringing innovative actions at the local and regional level, enhancing the capacity of public authorities to manage innovation, adopt new tools, solutions or processes that deliver on their sustainable urban transport goals. Projects are the best way for cities to experiment with costly solutions, risk-laden innovation and testimonies from cities involved in CIVITAS project attest to the fact that being part of a project helps build consensus across departments and creates a cluster effect and know-how amongst other municipalities in the country. Most importantly, cities involved in the CIVITAS innovation projects have claimed that it helps reinforce their human resources and build a case for reinforcing under-staffed teams – especially in the case of digitalisation projects.

In this context, encouraging public discussion and allowing for co-creation of new mobility concepts can provide a way of letting citizens experience the new opportunities that new technologies may bring. Urban Living Labs and pilot actions can represent a suitable way to achieve this goal, sharing knowledge and good practices, and building on each other's experiences for a better coordination of activities. In that sense and complementing CIVITAS activities, more technology driven R&I was funded in particular through dedicated public-private partnerships e.g. the Horizon 2020 European Green Vehicles Initiative, EGVI²¹⁷ in order to support innovations and real life pilot actions in cities (e.g. on electric buses).

Horizon Europe, the ninth Research and Innovation Framework Programme (2021-2027), will be a key tool to deliver Commission's ambitions to the green and digital transitions. The focus for transport and mobility will be on accelerating the transition towards a smart and sustainable

²¹⁴ https://data.europa.eu/data/datasets/s2231_92_1_496_eng?locale=en

²¹⁵ https://trimis.ec.europa.eu/sites/default/files/documents/jrc_policy_brief_cavs-media-citizens-policy_v08_25112020_final.pdf

²¹⁶ This includes €870 m of EU funds and about €130 m of own contributions by beneficiary organisations. A total of 1,621 unique organisations participated in FP7 and/or H2020 projects on SMO. The vast majority of the organisations involved focus on more than one transport mode, and all of them include multimodality in 4 their activities. Multimodal applications are the most popular followed by road transport

(<https://publications.jrc.ec.europa.eu/repository/handle/JRC120305>).

²¹⁷ <https://www.egvi.eu>

mobility. We need innovative mobility solutions that can be tested and deployed to real-life environments across Europe – where they can generate impact and serve citizens.

Within Horizon Europe, there is a more holistic approach where transport research is included within the Cluster 5 “Climate, Energy and Mobility” as part of the Pillar 2 “Global Challenges and European Industrial Competitiveness”. It aims at creating maximum synergies to fight climate change, improve the competitiveness of the energy and transport industry as well as the quality of the services for the society. A significant change from the past in Horizon Europe is the clustering of some of our thematic programmes, a renewed push on Partnerships, and the introduction of a mission-oriented approach which includes the launch of a Mission of Climate-neutral and smart Cities. A central innovation of the Cities Mission will be to help enable the European Green Deal to become “real” for citizens. Citizen engagement will be central to the Mission and it will connect the key policies of the Commission – the twin green and digital transitions – directly with citizens.

It is a Destination based work programme. Urban Mobility R&I is included in particular under Destination 2 “Cross-cutting solutions” where there is a dedicated part on Communities and Cities. It is also supported through: R&I actions within the Mission on Climate-neutral and Smart Cities, but also under the CIVITAS activities and the co-funded partnership “Driving Urban Transitions to Sustainable Futures” (DUT).

The R&I Partnerships will be a key implementation tool, strengthening the resilience and competitiveness of European industry. The co-programmed partnerships “Towards zero-emission road transport, 2ZERO” (included under Destination 5 “Clean and competitive solutions for all transport modes”) and “Connected and Automated Driving, CCAM²¹⁸” (included under Destination 6 “Transport and Smart Mobility services”) have a direct urban mobility component and shall help us to shape research and deliver Europe’s vision for citizens: a climate-neutral and environmentally friendly urban mobility. These partnerships have set up ambitious research programmes so to accelerate a systematic approach for innovative mobility, hence ensuring future European leadership in innovation, production and services.

The Horizon Europe Cluster 5 supports the EU’s strategic objectives through activities included in its work programme and also through the support of Institutional European Partnerships (in particular the ones with an urban component, “Clean Hydrogen” and “Transforming Europe’s rail system”) which are implemented through dedicated structures. Although the latter activities are not included in this work programme, it is of great importance to maximise synergy and coherence between activities regardless of their implementation mode.

Three European Technology Platforms (ERTRAC for road, ERRAC for rail and ALICE for logistics) have join forces to prepare Strategic Research Agendas and research roadmaps on urban mobility that are regularly updated. The Working Group on Urban Mobility gathers experts and representatives of all stakeholders to identify challenges and define priorities for future research activities on urban mobility²¹⁹.

²¹⁸ <https://www.ccam.eu>

²¹⁹ <https://www.ertrac.org/index.php?page=urban-mobility>

3.23.2 Urban mobility innovation beyond technology

CIVITAS research and innovation actions create the opportunity for new ways of cooperation, enhancing local governance in order to deploy state of the art technology. CIVITAS is about ensuring the right solutions reach deployment and replication across urban areas in Europe – and beyond.

The CIVITAS living labs operate with the understanding that the measures they implement must be complementary: success comes from integrating measures into cohesive packages. Furthermore, across demonstration projects, CIVITAS cities learn to tailor solutions to specific city-, neighbourhood- or area-level contexts, and how to adapt measures that have been effective elsewhere to these local realities.

Concrete and replicable sustainable urban mobility measures form the backbone of all three projects and are the main driving forces behind their lasting impact.

Since 2016, 16 cities from across Europe have implemented and evaluated 175 sustainable mobility measures. Each of the 175 measures tested in CIVITAS DESTINATIONS, CIVITAS ECCENTRIC, and CIVITAS PORTIS have been monitored and evaluated to determine their impact, the drivers of and barriers to their success, and recommendations for taking sustainable urban mobility to the next level in Europe.

Under Horizon Europe, five Missions have been set up to deliver solutions to some of the greatest societal challenges, like fighting cancer, adapting to climate change, protecting our oceans and waters, living in greener and smarter cities and ensuring soil health.

Building on other R&I initiatives such as CIVITAS or the Smart Cities Lighthouse projects, the Mission on Climate-neutral and Smart Cities aims to deliver at least 100 climate neutral European cities in the EU by 2030 in a holistic cross-sectoral way, including transport. These cities would then act as experimentation and innovation hubs for others to follow, to enable all European cities to become climate-neutral and smart by 2050.

Cities are well placed to be first movers towards climate neutrality and can be used as large-scale demonstrator pilots for the deployment of R&I and other off the shelf solutions. In such a way they can be used as hubs for innovation that can be replicated in other cities participating in the mission and enable all cities to benefit and support their transition towards climate neutrality by 2050.

The Cities Mission will build upon pre-existing urban transport innovation activities from Horizon 2020 including CIVITAS, deployment of SUMP or smart city solutions from the Smart Cities and Communities. The Cities Mission will create the much-needed synergies between city initiatives such as CIVITAS, Smart Cities Marketplace, Intelligence Cities Challenge, Living.in EU, the Climate Pact or the Green City Accord.

The Cities Mission will help participating cities develop and implement “Climate City Contracts”, based on each city’s individual needs. It will deploy R&I as well as help cities make best use of existing EU programmes, and it will facilitate access to funding and financing.

It will allow cities to get access to EU wide skills and expertise from learning/teaming/twinning with peers and through networking with national, regional and local authorities, for example through joint public procurements for deployment of innovative solutions.

Cooperation with MS also needs to be enhanced. As part Horizon Europe a new mechanism for public-public partnerships (between the European Commission and the Member States) Driving Urban Transitions to a Sustainable Future²²⁰ (DUT) has been set-up. This partnership builds upon the achievements of JPI Urban Europe and aims to empower local authorities, municipalities, business, civil society and citizens to actively design and roll out urban sustainability and climate-neutrality transition pathways. The main activities will be: challenge driven R&I joint calls; new technologies, tools and skills; dissemination, replication and mainstreaming; communities of practice and co-creation through Urban Living Labs. It includes three main thematic priorities: positive energy districts and neighbourhoods; regenerative green neighbourhoods and the “15 minutes cities” (rethinking the urban mobility system and space).

At the same time, there is a need to enhance cooperation with other research entities such as the EIT Urban Mobility (EIT UM). Founded as one of the Knowledge and Innovation Communities (KIC) the EIT UM was set up in 2019 and supported by the European Institute of Innovation and Technology (EIT), a body of the EU and an integral part of Horizon Europe. Its aim is to accelerate innovation towards more liveable cities and urban spaces, through integration of the knowledge triangle (business – research – education) and cities.

The partnership EIT Urban Mobility pools together typical key players in the field of urban mobility to encourage them to work together to develop innovative solutions to the mobility challenges cities are facing. Since the partnership was launched in January 2019, a total of 85 partners, including city councils, private companies, universities and research centres from 16 European countries, have signed up. By pooling their knowledge and putting their very different skillsets to work, they aim to create an innovation community that will become Europe’s leading force for positive change in urban mobility by 2026.

They argue that today’s model of urban mobility is not sustainable and requires immediate change. Their main goal is to transform urban mobility by reducing over reliance on cars and we can only agree with this. They document acknowledges that in many cities roads take up more than 50 % of public urban space. To them, the lack of integration in mobility sectors has been slowing down the change that is needed.

According to the respondents of the open public consultation, public space re-design and street-space reallocation is the most important innovation currently missing from their municipality that will improve urban mobility (590 answers out of 2076).

Greater political and societal willingness to change has now opened the window to a new model of mobility — one that is clean, shared, autonomous and connected. A system that balances private and public interests by recognising the need for individual mobility while at the same time working to improve the quality of life in urban spaces. To find solutions to our cities’ challenges and make change happen, a systemic approach is needed with city councils, industry, academics and researchers working together from ideation to implementation of new mobility solutions.

²²⁰ <https://jpi-urbaneurope.eu/driving-urban-transitions-to-a-sustainable-future-dut>

3.24 Everybody on board – capacity building and governance

3.24.1 Capacity building

There is still a need for an emphasis on capacity building of local and regional authorities on sustainable and smart urban mobility, enabling them to have the capacity (information, technology, skills and support) to exercise their duty effectively. Training and guidance documents are components of it. According to the findings of the fact-finding study, local authorities should be provided with continued and enhanced financial and technical support (e.g. capacity building, guidance, information sharing, collaboration and cooperation) to allow the development of effective urban mobility measures.

When it comes to SUMP, the EU SUMP guidelines have been translated into EU and some non-EU languages to help cities all around the world..

An example of capacity building project is the H2020 SUTS project. Its aim to increase the capacity of local authorities to develop and implement sustainable, inclusive, integrated and accessible transport strategies, policies, technologies, practices, procedures, tools, measures and intelligent transport systems that recognise the end-to-end travel experiences of all users and freight was achieved through the development of a suite of learning materials (Capacity Building Program) for decision makers and planners in small and medium sized cities. The Capacity Building Program addresses knowledge gaps and misconceptions related to urban planning measures and supports the deployment of innovative mobility solutions and technologies.

The EIT KIC on urban mobility has also an academy which is a collaborative arena for lifelong learning, helping to build critical capabilities for innovation and transformation, training the next generation of urban mobility practitioners, needed by the urban mobility ecosystem of the future.

Cohesion policy offers important support for technical assistance and capacity building, while INTERREG cooperation programmes can also offer specific opportunities for cooperation on sustainable urban mobility at cross-border, transnational and interregional level.

Mobility touches upon many aspects of society, ranging from rural transport to trouble free cross-border travel. By consequence, all policy levels (EU, national, local, regional and local authorities) hold competences to aspects of mobility. With the expert group on urban mobility (EGUM), a multi-level governance approach to manage urban mobility as well as more integrated approach, in particular among different sectors within and outside mobility has been set up following the 2013 urban mobility package. The intention had been to in particular to achieve better MS engagement at EU level for urban mobility matters.

The evaluation study of the 2013 UMP did not establish conclusive evidence with regard to the awareness about, and the usefulness of, EGUM. While a number of stakeholders were aware of it (mostly representatives of national authorities and EU organisations closely familiar with the UMP), the overall level of awareness among local stakeholders was low. A small number of interviewed stakeholders noted that the EGUM had been useful for having a dialogue. However, stakeholders found it generally challenging to provide information on the contributions of the Expert Group. Suggestions to change its structure and format - such as opening participation to

local authorities, city networks or social partners, and to set measurable goals were made in order to improve its effectiveness²²¹.

During the dedicated stakeholder consultation with the EGUM members²²² following points came forward:

- Members find the EGUM platform highly useful to exchange ideas and good practices with other countries. The large variety of addressed topics however limits the capacity to develop specific recommendations. EGUM could also benefit from adding local level stakeholders or speakers of the industry;
- Relevant topics to address at EGUM level were identified as: SUMP for smaller cities (together with capacity building and coordination at national level), UVARs, SUMP indicators/data, modal shift (to sustainable modes) and the integration of mobility policy in other policy areas.

Macro-regional strategies can offer a cooperation platform for local, regional and national authorities with a multi-level governance approach with the possibility to reach out to a wide range of stakeholders to respond to urban mobility needs through cooperation. Macro-regional strategies like the EUSAIR²²³ and the EUSDR²²⁴ have the potential to extend the EU urban mobility approach to candidate and potential candidate countries as well to neighbouring countries.

3.25 The international dimension

Urban population is expected to double by 2050 which suggests that some 95% of urban expansion in the next decades will take place in the developing world. This puts pressure on urban service provisions, including mobility in developing countries where rapid urbanisation is already happening within a framework of inadequate mobility infrastructure and sustainable mobility solutions.

Taking into account the role of the EU as global leader, the translation of sustainable EU urban mobility policy in the development context has been and will further be essential to trigger the transformative changes needed for decarbonisation, resilience and inclusiveness and at the same time will pave the way for the export of European expertise and technologies in the field.

By responding to above challenges, the EU has been active to boost and implement sustainable urban mobility solutions within its development cooperation and partnerships across the different geographical regions.

This entails both the investment dimensions as well as the notion of strategic mobility governance to create enabling environments at municipal levels for sustainable urban mobility planning:

In this context, the EU SUMP concept has become a point of reference worldwide with a view of translating it into the development geographical context and its specifics. The SUMP

²²¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021SC0047&from=en>

²²² Held on 15/06/2021, with 17 Members States present

²²³ EU Strategy for the Adriatic and Ionian Region

²²⁴ EU Strategy for the Danube Region

guidelines can help cities worldwide to better integrate urban mobility planning. They have been translated into some non-EU languages.

This indicates the need to reinforce the cooperation on urban mobility policy at international level. There are communities and organisations (e.g. the Covenant of Mayors for Climate and Energy, International Transport Forum) that work to engage local decision makers and produce analysis on transport, climate and energy. There is a potential to work together towards common objectives, global outreach and linking similar activities.

The EU-funded **MobiliseYourCity**²²⁵ has become the leading global partnership for sustainable urban mobility planning, with more than 60 member cities in 32 countries with a combined population of over 75 million people. It accelerates the transition to sustainable urban mobility in countries of the Global South by disseminating knowledge, tools and guidelines based on the Commission's SUMP concept. Actions are implemented across different geographical regions such as Africa, Asia and Latin America, for instance through sustainable urban mobility planning strands of actions in countries like Morocco, Cameroun, Senegal, India, Indonesia or Dominican Republic.

Shaping African transport policies on urban mobility is further supported under the **Africa Transport Policy Program** (SSATP) to which the EU is the key contributor. Drawing on its extensive experience in policy formulation, SSATP developed the "EASI" (Enable / Avoid / Shift / Improve) framework to support African countries with developing strategies and policies that can help unlock the economic benefits of a well-functioning urban transport sector. To ensure the sustainable development of Africa's urban areas, SSATP promotes the adoption of an integrated approach to Urban Transport and Mobility (UTM) management that brings the urban transport and urban development agendas together to effectively address rapid and uncontrolled urbanization. SSATP supports its 43 member countries by (i) fostering knowledge of, and the demand for, effective policies for sustainable urban transport and mobility and (ii) building the capacity of cities and metropolitan areas to design, adopt and implement effective policies for sustainable UTM management in Africa.

Under the **EU Blending Framework** and its respective Investment Facilities for the different geographical regions of cooperation, support through innovative blending modalities and guarantee schemes has been provided in order to leverage funding for urban transport infrastructure, preparatory studies etc. Examples of which are for instance the Nairobi BRT scheme under the European Fund for Sustainable Development and its Africa Investment Platform, the Climate-Resilient Infrastructure Project in North-Central Vietnam (CRUIV), the preparatory studies for the extension of Ho Chi Minh City's Mass Rapid Transit Line 2, and the Myanmar Transport, Waterfront and Heritage Urban Project (TWHUP) under the Asia Investment Facility.

Under the EU flagship cooperation programme **EUROCLIMA+** on environmental sustainability and climate change with the Latin American region, actions in relation to sustainable urban mobility forms part of the programme's objective to reduce the impact of climate change and its effects in Latin America by fostering climate mitigation, adaptation, resilience and investment. Developing national policies/programmes for urban mobility and integrated multi-modal planning at the city level to accelerate the transition of Latin American

²²⁵ <https://www.mobiliseyourcity.net/>

cities toward sustainable urban mobility low in carbon emissions are the main entry points for engagement.

International cooperation with Asia, Latin America and Africa in the field of urban mobility is also supported through Horizon 2020 support actions. The aim is to reinforce international EU activities in line with the UN Sustainable Development Goals in particular to reduce air pollution and CO₂ emissions. It helps cities to develop implementation concepts for integrated sustainable transport measures on knowledge sharing and the development of implementation concepts, capacity building and policy papers. SOLUTIONS project supported the launch of the Action Platform: Urban Electric Mobility Initiative (UEMI)²²⁶ with UN-Habitat at the UN Climate Summit in September 2014 in New York. Another support action is included in the first Calls of Horizon Europe.

An International Cooperation (InCo) flagship demonstration project was launched to reinforce sustainable electrification in large urban areas in developing and emerging economies within the 2019 Green Vehicle Call of Horizon 2020. The project SOLUTIONSplus²²⁷ aims to set up a global platform for shared, public and commercial e-mobility solutions and to kick start the transition towards low-carbon urban mobility. The project work-plan encompasses city level demonstrations to test different types of innovative and integrated e-mobility solutions, complemented by a comprehensive toolbox, capacity development and replication activities in several cities in Europe and around the World (10 demonstration cities).

Transport is a key component of policies and instruments supporting the enlargement process to the Western Balkans and Turkey and the **EU neighbourhood policy**, including the Eastern Partnership and Southern Neighbourhood. Sustainable urban mobility continues to be an important aspect of connectivity, including in the context of the green transition, as highlighted in the policy documents framing the cooperation of the EU with the Western Balkans²²⁸, Turkey, the Eastern Partnership²²⁹, and the Southern Neighbourhood²³⁰.

Making transport in the **Western Balkans** cleaner, safer, smarter, and greener has become one of the key drivers of transport policy for European Commission. The European Commission, through the Economic and Investment Plan for the Western Balkans, sets out strategic objectives towards a clean transport that is a fit for a green and digital future, with sustainable mobility and a green and resilient infrastructure as essential elements. Smart and sustainable mobility is one of the main actions of the Green Agenda for the Western Balkans. Support will be provided to develop and implement sustainable urban mobility plans for the major urban areas of the region, as well as for developing climate resilience plans for national transport networks, and sustainable mobility solutions, including alternative fuels infrastructure and

²²⁶ <http://www.uemi.net>

²²⁷ <http://www.solutionsplus.eu>. Direct co-funding contributions are provided by partner cities and SOLUTIONSplus works closely with UN Environment and the International Energy Agency (IEA) on a joint global urban e-mobility programme that will significantly boost replication and impact of this Innovation Action. UN-Habitat and UN Environment are part of the project and are financing an important 'sister' project GEF 7 on electro mobility and air quality in 17 countries.

²²⁸ Communication 'An Economic and Investment Plan for the Western Balkans' COM(2020) 641 final.

²²⁹ Joint Communication 'Reinforcing Resilience: an Eastern Partnership that delivers for all', JOIN(2020) 7 final and Joint Staff Working Document 'Recovery, resilience and reform: post 2020 Eastern Partnership priorities,' SWD(2021) 186 final.

²³⁰ Joint Communication 'Renewed partnership with the Southern Neighbourhood: A new Agenda for the Mediterranean', JOIN(2021) 2 final, and Joint Staff Working Document 'Renewed Partnership with the Southern Neighbourhood Economic and Investment Plan for the Southern Neighbours' SWD(2021) 23 final.

charging stations. Priority will be given on the deployment of ITS aimed at making transport operations more efficient, and reducing CO₂ emissions. Added emphasis will be given to increasing rail capacity and develop more environmentally friendly transport modes in the region. Some of the projects supported so far on this direction are the “Belgrade public transport and traffic infrastructure”, “Belgrade road and tram network upgrade” (Serbia), and the “Sustainable urban mobility plan for Skopje” (North Macedonia).

In **Turkey, sustainable** urban mobility is becoming more and more important in the context of rapidly increasing population, urbanisation and economic activities. Turkey witnessed a very high increase in the number of car ownership while the pandemic severely hit the public transport in the cities. Congestion and air quality have become serious issues within the city centres. According to the Eleventh Development Plan of Turkey (2019-2023) the main emphasis is put on making inter-urban and urban mobility more sustainable and greener. Turkey adopted its road safety vision zero strategy for 2021-2030 and established a 50% reduction target of fatalities/road deaths by 2030 in line with the EU. Railways remains Turkey’s top priority for investments in transport infrastructure. To ensure sustainable development of cities, Turkey prioritises the establishment of an accessible high-link urban transport system. The EU puts high attention to inter-modality, connectivity and sustainable urban mobility by supporting key milestone projects in Turkish cities. The EU is financing a new intermodal strategy, which will work on identification and development of priority railways corridors. The EU is strongly promoting SUMP development for Turkish cities and financing SUMPs in 10 metropolitan Turkish cities. The EU is also supporting establishment of an ITS architecture in Turkey. Moreover, the EU supports the Halkali – Kapikule railways project that connects Turkey to the TEN-T through Bulgaria.

In the **Southern Neighbourhood** urban mobility continues to face important challenges when it comes to the infrastructure. Urban mobility is strongly influenced by a spectrum of economic, social and political factors. The EC is supporting sustainable urban mobility in partner countries through several projects, such as the restoration of the oldest tramway in Africa, the Alexandria's Raml Tram, Egypt. The project will support Alexandria’s sustainable urban development, improve citizens’ everyday lives and economic performance. Another important project was Euro-Mediterranean Transport Support Project. This project aims to contribute to the creation of an integrated transport system in the Mediterranean. One of the main Actions of this project was the urban transport, the project supported the national governments of the partner countries Algeria, Egypt, Israel, Jordan, Libya, Lebanon, Morocco, Palestine, Syria, and Tunisia, to implement innovative fleet management solutions, in line with the guidelines of the EU Sustainable Urban Mobility Plan.

Sustainable urban mobility is one of the EU priorities of the cooperation with the **Eastern Partnership** countries, with an important place in the European Commission’s future agenda for the region. In the light of the Staff Working Document for Recovery, resilience and reform: post 2020 Eastern Partnership priorities, sustainable urban mobility planning will be substantially strengthened and expanded. This will involve working with IFIs to introduce new finance mechanisms for cities to accelerate the shift to sustainable mobility. Low-emission public and private transport will be prioritised, and older high-emission vehicles replaced. Development and subsequent implementation of sustainable urban mobility plans will be launched in at least 5 key cities in each partner country in conjunction and cooperation with existing local authority initiatives (e.g. CiViTAS, the network of Mayors for Economic Growth or the Covenant of Mayors for Climate and Energy). Strategic Environmental Assessment of urban development plans will be conducted in at least 30 cities and an EaP ‘green city’ award

will be launched. The EC has sustained important projects on urban mobility in the partner countries of this region, by supporting the modernization of urban public transport in 11 cities in Ukraine (Ukraine Urban Public Transport), and urban road safety improvement (Armenia, Ukraine).

3.26 Recovery, investments, funding, financing, public procurement

3.26.1 EU funding

Targeted financial support has been a key factor for development and implementation of many urban mobility measures across the EU. In addition, the 2021 Evaluation report²³¹ has shown that many MS have perceived EU funding to be the most significant driver behind most of the developments in the area of urban mobility. In the period 2014-2020, a particular emphasis was placed on the European Structural and Investment Funds (ESIF) and the financial support provided under the Connecting Europe Facility (CEF) to urban node projects on TEN-T network.

The importance of EU funding to sustainable urban mobility was highlighted in the consultation on the Roadmap by 19 respondents out of 105. The opinion was shared by non-governmental organizations (8), companies (5), business associations (3), national authority (1), local authority (1), trade union (1) and a citizen (1).

EU funding available for urban mobility (including ITS and cycling/walking) through the European structural and investment (ESI) funds has increased from €11.2 billion in the 2007-2013 programme period to €16.3 billion for 2014- 2020. In addition, CEF has provided €214 million for urban nodes since 2014. Funding of research projects from Horizon 2020 under the Societal Challenge “Smart, green and integrated transport” increased from €55.8 billion in period 2007-2013 to €77 billion in 2014- 2020. In addition a total EU contribution of €3.1 billion was also invested on urban related R&I through several large demonstration projects involving more than 400 cities in Europe and beyond.

The specific priority to sustainable urban development also provided incentives for cities to apply a more integrated approach to urban mobility. EUR 16 billion of the cohesion policy funds is implemented locally through more than 900 integrated and sustainable urban development (SUD) strategies managed by urban and local authorities, and the majority of them addressed mobility issues as well²³².

It is important to recall that EU funds include requirements on accessibility in order to ensure that persons with disabilities benefit from investments of EU funds on equal basis with others.

In addition to the direct funding of urban transport projects, national, regional and local authorities have also received support to develop and implement SUMP's besides sustainable urban development strategies.²³³

²³¹ https://ec.europa.eu/transport/themes/urban/news/2021-03-02-urban-mobility-package_en

²³² <https://urban.jrc.ec.europa.eu/strat-board/#/where>

²³³ This often took place under the framework of sustainable urban development strategies, to which at least 5% of the national ERDF should have been earmarked.

In the MFF **financing period 2021-2027** MS have the opportunity to continue to support the urban mobility projects through a wide range of funds complementing each other while focussing on different scopes.

The **European Court of Auditors** (ECA), in its 2020 special report²³⁴, welcomed the EU efforts in this area made so far (EU range of policy documents and guidance, increased funding) and recognised that the significant improvements in sustainable urban mobility may require more time to materialise, while stressing the lack of fundamental change of cities' approaches. Findings showed that some MS and cities struggled to complement EU funds with appropriate resources to ensure the adequate operation and maintenance of their public transport network and the rise of costs due to various reasons. It also noted that EU funded projects were sometimes not as effective as intended due to weakness in project design and implementation as well as lack of sound urban mobility strategies.

In line with ECA recommendations, in the process of preparation of the programming documentation or project applications with the Member States for the 2021-27 programming period, the Commission considers it important that the support is linked to the existence of an integrated urban mobility strategy (e.g. SUMP or equivalent plan).

In the next period, structural funds, in particular **ERDF and Cohesion Fund**, will remain the main backer of urban mobility projects. The support is channelled through regional and national programmes, identifying measures addressing the needs and specificities of the territories concerned. These programmes foster integrated approaches and involve different levels of government in a shared management and partnership approach, even across borders, as well as sectoral and civil society stakeholders to work together. In particular, given the clear focus of regional development investment on the policy objective 2 “Greener Europe” (with at least 30% of ERDF resources), those regions receiving ERDF support could benefit from the prioritisation of urban mobility under this objective, including the support to infrastructure and public transport fleets. The Cohesion Fund may also largely support sustainable urban mobility investments if these are justified by the positive impact on the environment.

In general, cohesion policy can support all urban transport related investments as long as they are aligned with the programme's specific objective. These can target major urban areas and economic centres but also small and medium sized cities. Support should take into account the needs of the functional urban area (including the commuting zones, hinterland connections - e.g. for rural-urban links - and cross-border interactions).

In 2021-2027, at least 8% of the national ERDF resources, other than for technical assistance, must be allocated to sustainable urban development in priorities and projects that are selected by cities themselves and based on their own sustainable urban development strategies (the “compulsory urban earmarking” in accordance with Article 11(2) of the ERDF/CF Regulation (EU) 2021/1058). Special attention should be given to tackling environmental and climate challenges, notably the transition towards a climate-neutral economy by 2050, to harnessing the potential of digital technologies for innovation purposes, and to support the development of functional urban areas. As for the instrument and tools that need to be applied to the implementation of the integrated sustainable urban development, Member States shall use any of the following forms: integrated territorial investments, community-led local development, or another territorial tool supporting initiatives designed by the MS will.

²³⁴ Source: European Court of Auditors Special Report 06/2020: Sustainable Urban Mobility in the EU

In the national plans of the **Recovery and Resilience Facility**, urban mobility is an important investment priority for many Member States, together with reforms leading to the increase in the sustainability of the transport system. Such projects bring clear climate and environmental benefits swiftly and can be implemented in the given timeframe (by 2026). SUMP's play a key role in the selection of the most suitable investment plans and prioritisation of projects during the discussions with the Member States.

The aim of the **Connecting Europe Facility (CEF)** is to accelerate investment in the field of trans-European networks by means of funding from both, the public and the private sector and thereby contributing to the timely and efficient development of the TEN-T Network whilst supporting the realisation of a robust and resource-efficient European transport system. In terms of support for urban mobility, CEF 2021-27 will continue to remove barriers to interoperability in urban nodes of the TEN-T core-network, with a focus on alternative fuels infrastructure for public transport and the development of passenger multimodal hubs in urban nodes. The multiannual work programme²³⁵ paves the way for giving priority to urban mobility projects that are backed by SUMP's or equivalent plans.

The **Digital Europe Programme** will fund the development of common European data spaces in key sectors, notably for mobility and smart communities, making it easier to make available, share and access urban mobility data.

Horizon Europe, the new R&I Framework Programme (2021-2027), support research on urban mobility topics under cluster 5 "Climate, energy and mobility" as part of Pillar 2 "Global Challenges and European Industrial Competitiveness". The budget for the whole Cluster 5 is €15 billion. In particular, the budget (EC contribution) of the 2Zero, CCAM and DUT partnerships will be respectively €615 million, €500 million and €130 million.

In addition, new EU Missions will be developed to orchestrate innovative approaches to solve important societal challenges, including climate change, supported by R&I and other funding instruments. The proposed Mission on Climate Neutral and Smart Cities aims at making 100 cities climate neutral by 2030. Stimulating urban transport and mobility will be key elements of the mission which will offer opportunities for cities who want to invest in clean public transport.

However, public spending –even if blended with private investment- will not be sufficient to address the financial needs. **InvestEU**, through its Sustainable Infrastructure window can bolster future-oriented investment across the EU, help the mobilization of private investments for use by projects and operators in the area of sustainable infrastructure and mobile assets, as well as supporting innovative companies and SMEs in the areas of smart and sustainable mobility.

In addition, the **InvestEU Advisory Hub** is envisioned as the central entry point for project promoters and intermediaries seeking advisory support and technical assistance related to centrally managed EU investment funds. The Hub can cover the full project lifecycle: from policy and programme advice, project pipeline identification, preparation of the project in terms of technical advice, financial structuring, terms of references for selection and supervision of consultants delivering on technical and financial studies, to project implementation and monitoring. The main dedicated advisory facilities involved under the InvestEU Advisory Hub

²³⁵ CEF Multiannual work programme 2021-2027: https://ec.europa.eu/transport/themes/infrastructure-ten-t-connecting-europe/reference-documents-work-programmes-selection_en

and supporting urban mobility are ELENA and SIA/JASPERS and the advice can be delivered either by experts from the EIB or from other InvestEU Advisory partners, such as the EBRD or national promotional banks. The expertise of the InvestEU Advisory Hub will also help to maximize the absorption and impact of EU funds, addressing a recommendation of the European Court of Auditors.

Assistance on SUMP and rollout of alternative fuel infrastructure can also be provided by Reform Technical Support Instrument (TSI)²³⁶ with the budget of €864 million EUR for the period 2021-2027. MS can request technical support, including to implement their national recovery and resilience plans in the area of green transition, in particular through the TSI flagships “Support to Recharge & Refuel”. Finally, in recent years, the **EIB** Group has been ramping up its support to urban mobility and to accelerate newer technologies such as e-mobility and digitalisation under the flag of the Cleaner Transport Facility. The EIB Group will continue to deploy a range of financing structures that contribute to accelerating the deployment of cleaner mobile assets. Major steps have been taken by the Commission to make the financial system more sustainable, notably with the adoption in 2020 of the Taxonomy Regulation creating a classification system for green economic activities. This will facilitate the scaling up of green financial products, such as the green bonds and green securitisation, suitable to promote investment in the area of urban mobility and alternative fuel deployments.

3.26.2 Urban mobility in the Recovery and Resilience Plans²³⁷

All national recovery and resilience plans (RRPs) submitted so far to the European Commission for financing by the EU Resilience and Recovery Facility include both reforms and investments in favour of sustainable transport – in line with the European Semester country specific recommendations. So far, based on the 22 adopted plans, more than €62 billion is climate tagged as sustainable mobility, which means about 14% of the overall national RRP allocation of these plans

In this context, a large number of the measures developed by Member States are focussed on urban mobility. These projects are of great diversity both in terms of nature and volume.

Member States plan to invest in alternative fuel infrastructure (€3.3 billion) and in zero and low-emission vehicles (€6.7 billion), with clear benefits for urban mobility. Regarding clean vehicles, car tax reforms and road charging such as company car tax reform, lower registration taxes for clean vehicles, and extension of the tax exemption for electric cars, will help to uptake of alternative vehicles.

A large majority of Member States foresee investments in the railway sector (for a total above €34 billion), including for the upgrade of suburban rail infrastructure (or to improve railway stations).

²³⁶ https://ec.europa.eu/info/overview-funding-programmes/technical-support-instrument-tsi_en

²³⁷ The expenditures reported for the RRF are estimates processed by the Commission based on the information on climate tracking published as part of the Commission’s analyses of the recovery and resilience plans. The data reported cover the 22 national recovery and resilience plans assessed and approved by the Commission by 5 October and will evolve as more plans are assessed. –see [link](#).

. RRF funding will also be allocated to the development of urban transport infrastructure (€9.4 billion), – such as metro and tram lines) and multimodal terminals) as well as to promote active mobility, in particular with new cycling infrastructures.

Such investments are sometimes accompanied with reforms able to maximise their impact, such as the creation of low emission zones (LEZs) and the use of urban mobility planning. To support multimodal transport, several Member States plan to introduce multimodal ticketing and multimodal passenger information systems as well as support to Mobility as a Service (MaaS).

APPENDIX - Synopsis consultation report

1. Introduction

This annex provides a summary of the outcomes of the consultation activities that have been carried out to support the preparation of the EU Urban Mobility Framework initiative. It notes the range of stakeholders consulted, describes the main consultation activities and provides a succinct analysis of their views and the main issues they raised.

The objective of the consultation was to seek information and feedback from the most relevant stakeholders and from the wider public in relation to possible main directions of the planned EU Urban Mobility framework. More specifically, the consultation provided feedback as to how the EU urban areas can:

- contribute to reducing transport greenhouse emissions and to other objectives of the Sustainable and Smart Mobility Strategy including its milestone to have 100 European cities carbon neutral by 2030;
- improve the quality of life of the EU urban population by addressing urban mobility challenges such as air pollution, congestion, noise, accessibility, road safety while promoting physical activity;
- increase the support to, and use of, the most sustainable transport modes (in particular public transport and active mobility) as well as zero-emission urban logistics.

The main stakeholders identified were cities and their networks, stakeholders active in urban mobility, logistics and road safety areas, national and local administrations, as well as citizens living in cities or commuting to cities.

The main consultation activities included:

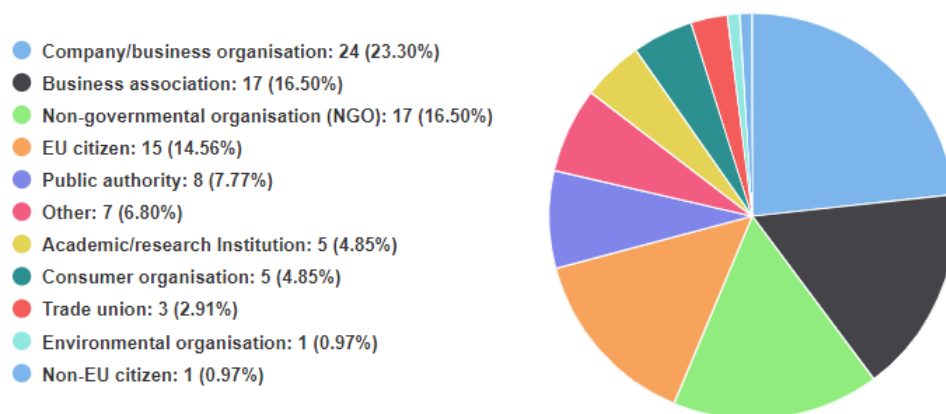
- Online feedback to the Roadmap, between 27 April and 25 May 2021;
- Five consultation workshops for stakeholders and relevant national authorities, organised in June 2021;
- An Open Public Consultation (OPC), between 1 July and 23 September 2021.

Besides, a number of position papers was provided, in the framework of the above activities and following dedicated meetings with some stakeholders.

2. Feedback to the Roadmap

In the consultation, overall 105 feedback reactions were received. When it comes to the categories of the respondents, the most reactions (24, or 23.3%) came from company/business organisations, followed by business associations (17, or 16.5%), non-governmental organisations (17, or 16.5%) and EU citizens (15, or 14.56%). All categories are shown in Figure 1.

Figure 1. Number of respondents by category



The feedback was, overall, positive towards the ideas included in the Roadmap. In particular, the support to the following themes appeared in many contributions of the stakeholders: public transport as the backbone for sustainable urban mobility, with multimodality in the core; greening fleets, e-mobility and recharging infrastructure; more cycling infrastructure and active mobility; measures to improve urban road safety; promoting the use of innovative technologies and digitalisation; harmonizing rules across the EU for urban vehicle access regulations and micro-mobility; developing EU sustainable urban mobility indicators; 15-minute city concept, adjusting to new ways of work (telework, online services, etc.); making SUMP obligatory and linking EU funding to them.

3. Targeted consultations

Five workshops for stakeholders and national authorities were organised in June 2021; an overview is presented in the table below.

Table 1. Overview of stakeholder workshops

Meeting	Main target group(s) and total number of participants	Timing
Workshop for local and regional authorities, civil society, and the general public	Local and regional authorities, consumer and environmental organisations, other NGOs, research and academia, citizens (177 participants)	14 June 2021 14:00 PM – 16:00PM
Workshop with Member States representatives	Members of the Member States Expert Group on Urban Mobility (EGUM) (32 participants in total, 17 participants representing Member States)	15 June 2021 02:00 PM – 4:00PM
Stakeholder workshop on urban freight and logistics	Associations representing businesses and industry (in particular active in urban freight and logistics), NGOs, research and academia (120 participants)	21 June 2021 14:30 AM – 16:30 PM
Stakeholder workshop on Sustainable Urban Mobility Plans and mobility management	Local and regional authorities, associations representing businesses and industry, consumer and environmental organisations, research and academia (132 participants)	24 June 2021 10:00 AM – 12:00PM
Stakeholder workshop on Urban Vehicle Access Regulations	Associations representing businesses and industry, NGOs, consumer and environmental organisations, and research and academia (155 participants)	28 June 2021 10:00 AM – 12:00PM

Feedback received from workshops with stakeholders

Participants of the workshops believed that commitment and courage are needed from political leaders to take decisions, especially regarding car ownership, parking, and reallocation of public space. Participants also stated that the EU should provide an enabling framework for cities to effectively manage different streams of policies that could be better aligned towards climate neutrality (e.g., urban development, mobility, energy).

In one of the workshops, participants raised the necessity of the EU to increase active mobility, moving beyond non-binding guidance (e.g., proposing EU standards for bike lanes); funding not only infrastructure but also research and innovation on the behavioural aspects of mobility; supporting local authorities with positive communication and narratives about sustainable urban mobility (e.g. European Mobility Week); monitoring and auditing major infrastructure projects (ring roads, metros, stations) according to their impact on cycling accessibility.

Stakeholders indicated that one of the most important needs is to define a clear framework for sharing data (who provides which data and how; data security and confidentiality; governance; interoperability, etc.) and for a core data set to be shared by private stakeholders. Such a framework should be agreed upon in cooperation with the local authority and the private stakeholders that collect and own the data, to ensure mutual benefit.

The majority opinion was that a SUMP guidance document is needed for the integration of spatial planning as a component of mobility policy, to link Urban Vehicle Access Regulations (UVARs) with designated freight zones (i.e. consolidation/distribution hubs, loading/unloading areas, off-peak deliveries, etc.).

Numerous innovative vehicles (e.g. electric vans, cargo bikes and even drones) and innovative solutions (new distribution models using cargo trams or inland waterways) are available on the market, but cities and private stakeholders alike struggle to adopt and scale up these innovative solutions.

Stakeholders stressed that UVARs can add balance to the urban mobility system (in terms of the modal split, air quality, inclusiveness, use of public space, energy, etc.) and help cities improve flows, facilitate multimodality and prioritise public transport. There should not be too many technological tools (to avoid “techno congestion”), and there should be clear and available access rules. Comments focused on urban freight logistics as well as passenger journeys. Reference was also made to implementing the polluter pays principle at the urban level. There is a general understanding that vehicle access to cities will be increasingly regulated. At the same time, service providers raised the issue of the related impact of rapid decarbonisation of fleets, which is difficult to achieve. Several participants stressed that – when it comes to granting access – the trip purpose is not an effective criterion; vehicle type, on the other hand, is easier to check/assess. Public acceptance and perceived political risk were also mentioned as important issues. Participants stressed that information for local politicians on the actual impact and public acceptance of UVAR schemes would ensure a broader take-up.

Feedback received from the workshop with Member States

Participants find the Expert Group on Urban Mobility (EGUM) platform highly useful to exchange ideas and good practices with other Member States. Some representatives raised the limitation of the EGUM group to provide recommendations due to the large number of themes

covered by different people within the organization/country. Another limitation raised is linked to the rather local nature of urban mobility and the fact that national governments do not always have the tools or competencies to provide detailed recommendations.

SUMPs for smaller cities (together with capacity building), UVARs, indicators/data, modal shift and the integration of mobility policy in other policy areas were identified as relevant topics to address at the EGUM level. EGUM members believe that the establishment of national SUMP programmes, together with (conditional) funding could be implemented at the national level to support the SUMP framework; the role of a national SUMP coordinator was not clear at this moment. The participants see a role to play for EGUM to develop a common approach to UVARS. This in particular on the exchange of trends, technologies and approaches, but also the development of a technical /regulatory framework and minimum common / harmonization rules.

4. Open public consultation (OPC)

The Commission launched the 12-week OPC on 1 July and it closed on 23 September 2021. The OPC invited all citizens and organisations to provide input. Using EU Survey, the consultation was available in all official languages.

A total of 849 responses were received from 27 EU Member States and 10 non-EU countries (from Albania, UK, Switzerland, Norway, Israel, Canada, United States, India and Nigeria). Data were screened and cleaned in line with the Better Regulation Toolbox; two duplicates were identified. Therefore, the final number of responses for the analysis amounted to the valid 847 responses submitted.

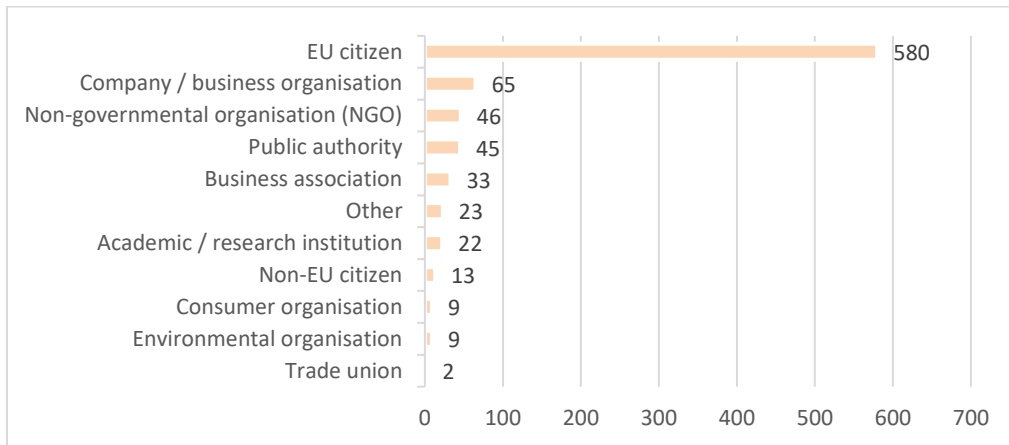
Concerning the country of origin of the respondents, 153 participants indicated Germany, followed by Spain (145), Italy (131), Belgium (108) and France (84). Table 2 below provides information about all respondents by their country of origin and categorised in 5 country groups.

Table 2. Nationalities of respondents

Country Group 1: Western Europe (CG1)		Country Group 2: Northern Europe (CG2)		Country Group 3: Southern Europe (CG3)		Country Group 4: Central and Eastern Europe (CG4)		Country Group 5: outside of Europe (CG5)	
Austria	61	Denmark	1	Greece	15	Albania	1	Canada	1
Belgium	108	Estonia	4	Italy	131	Bulgaria	3	India	1
France	86	Finland	6	Malta	4	Croatia	4	Israel	1
Germany	153	Latvia	2	Portugal	21	Czech Republic	11	Nigeria	1
Ireland	11	Lithuania	1	Spain	145	Hungary	4	United States	6
Netherlands	11	Norway	1			Poland	10		
Switzerland	4	Sweden	7			Romania	24		
United Kingdom	5					Slovakia	2		
						Slovenia	3		

As of user types, EU citizens provided the most contribution to this consultation, accounting for 68,5% of all respondents (580 replies), followed by companies/business associations with 7,7% (65 replies), Non-Governmental Organisations (NGO) with 5,4% (46 replies) and Public Authorities with 5,3% (45 replies). Figure 2 provides a full picture.

Figure 2. Number of respondents by stakeholder type

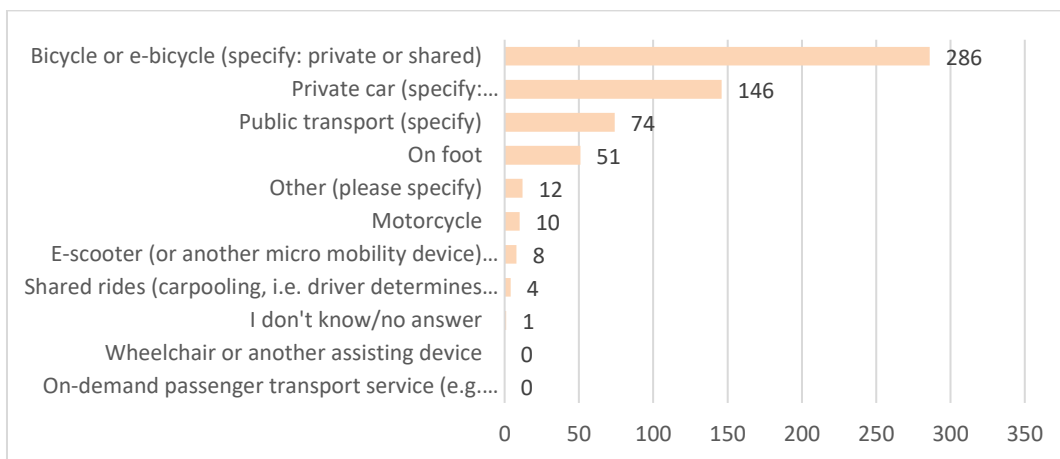


$N=847$

The first few questions of the survey refer to the mobility behaviour of individuals, therefore, the answers to these questions were only considered if the user type of the respective entry is either EU-citizen or Non-EU-citizen.

The clear majority of 286 of the 592 respondents appear to use bicycles or e-bicycles as their **main way to move around**, followed by the use of a private car (146), Public transport (74) and moving around on foot (51), as shown in Figure 3.

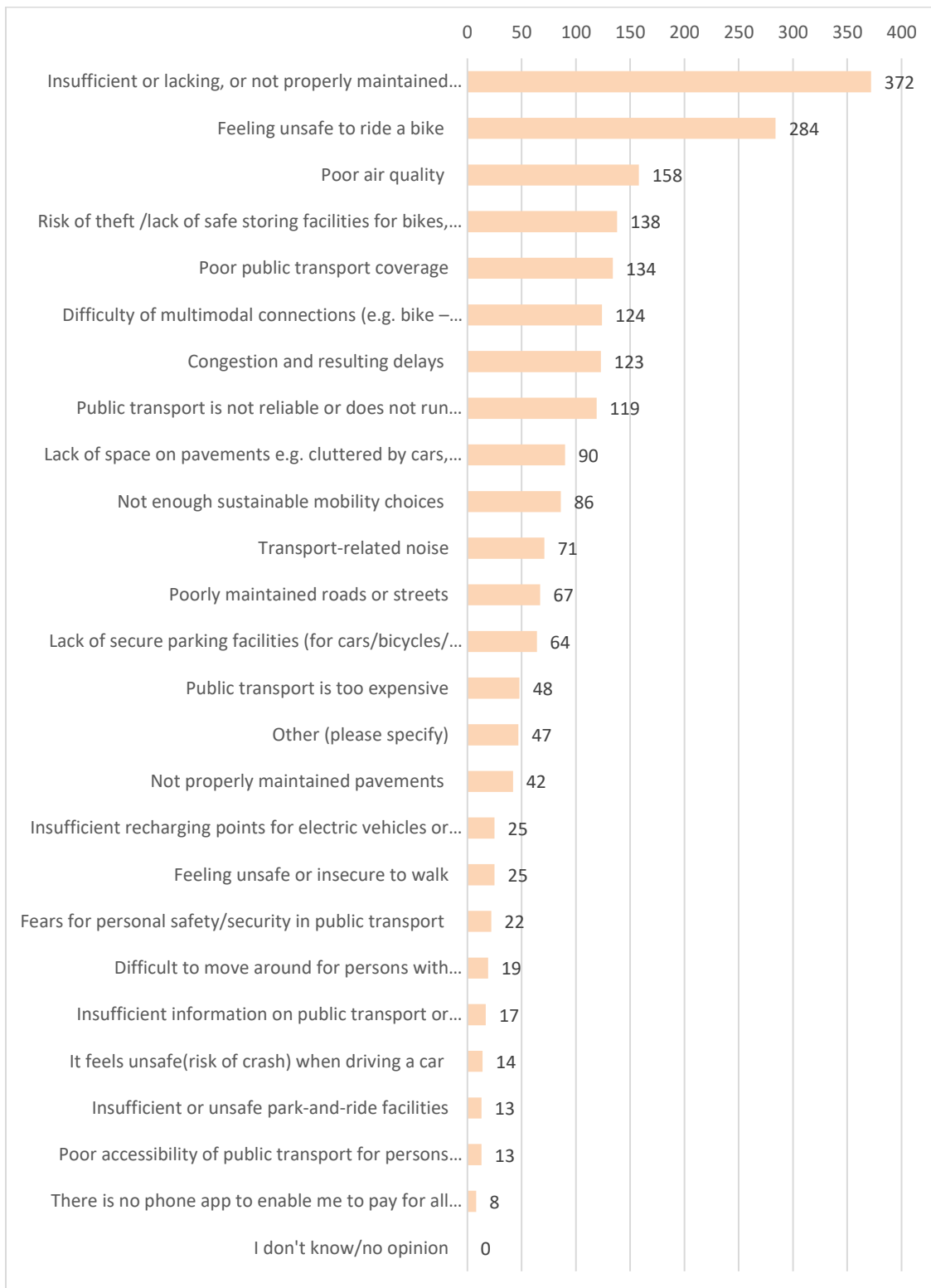
Figure 3. What is the main way you move around (e.g. go to work, go to school, go shopping)?



$N=592$

Probably not surprisingly, three of the four **most important challenges negatively affecting respondents' daily mobility** are around the use of a bicycle, followed by air quality and poor public transport coverage, as shown in Figure 4.

Figure 4. What are the most important challenges negatively affecting your daily mobility?

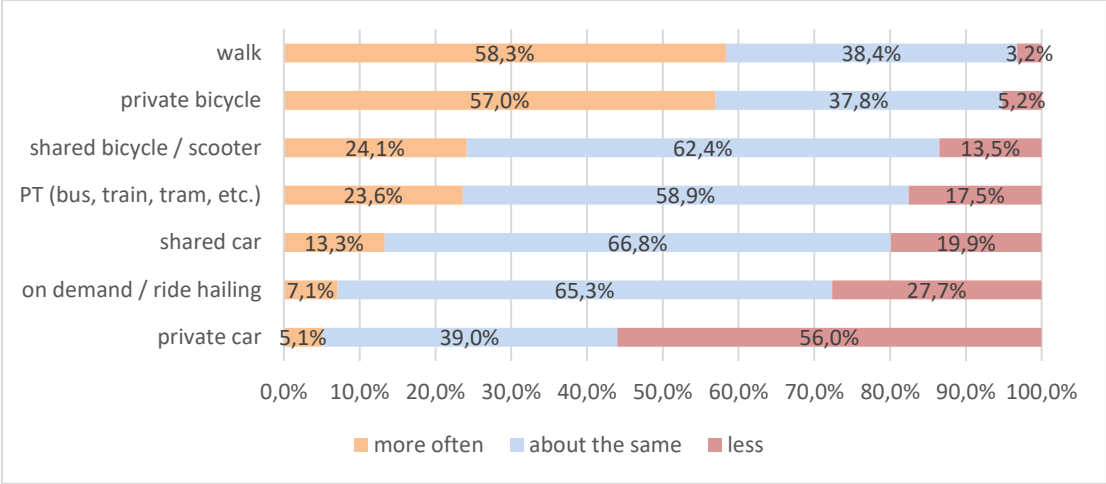


N=2123 answers by 592 respondents

When asked if they were **planning on changing their mobility habits as a result of getting used to more working from home**, most respondents said that they will walk (346 responses)

and use their bicycle often (338 responses) or about the same (respectively 228 and 224) but also use their private car less (332 respondents), as shown in Figure 5.

Figure 5. Are you planning to change your mobility habits e.g. having gotten used to more working from home?



N=593

When asked about **what mobility-related measures they would want to see most in the future with likely more home-office**, most respondents (530; 62.6%) want better infrastructure and facilities for pedestrians and cyclists, then more green/recreational areas incentivizing walking and cycling (323; 38.1%) and more frequent public transport services (305; 36%), followed by a parking policy that discourages or restricts the use of private cars in the city (298; 35.2%), more focus on road safety (250; 29.5%) and introduction of new concepts like Low Traffic Neighbourhoods or the 15-minutes cities (247; 29.1%).

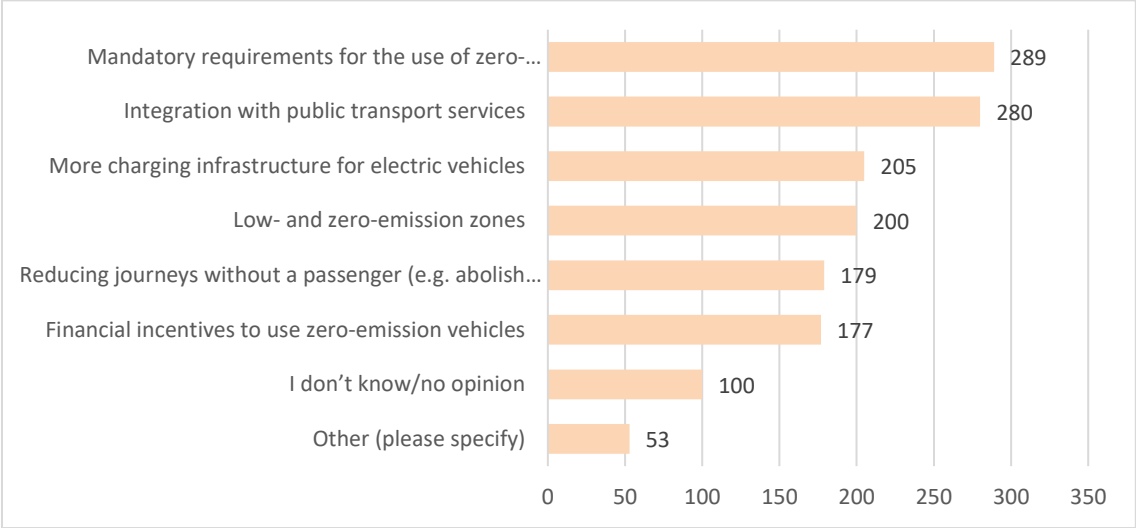
When asked about the **connectivity between a city and the surrounding rural/peri-urban areas**, around 84% of the responses expressed that they are experiencing problems (while 9.7% stated they are not). The main problems indicated are linked to the insufficient public/collective transport options to/from the city (402 answers; 28.3%) the insufficient active mobility options to and from the city (390 answers; 27.5%), and the congestion and pollution because of people coming from those areas to the city (236 answers; 16.6%).

Public transport can play an essential role in reducing congestion and meeting climate and environmental targets. When asked about **which solutions can help increase their use of public transport in urban areas**, most respondents (482; 20.9%) indicated the more frequent service of public transport, through the enlargement of the network or with more convenient hubs/stations, followed by a better link between public transport and ‘last mile’ solutions such as bicycles, scooters, etc. (306; 13.3%), the need for more reliable services and better information (278; 12.1%), the need for priority lanes for public transport by bus, priority for trams/buses in traffic (246; 10.7%), and the need for cheaper tickets (177; 7.7%).

When asked about **what would encourage them to walk or cycle more often**, most of the participants indicated more dedicated infrastructure and pedestrian and cycling infrastructure of better quality (516 and 492; 22.3% and 21.2% respectively), followed by using traffic rules/management systems to prioritise pedestrians and cyclists (219; 9.5%), reduce motorised traffic (217; 9.4%) and create more green spaces (190; 8.2%).

When asked about **what can help make car-sharing and transport on demand more sustainable**, most respondents believe that mandatory requirements for the use of zero-emissions vehicles in taxi and private hire vehicle fleets (289; 19.5%) and the integration with public transport services (280; 18.9%) are most relevant. Figure 6 shows all the answers.

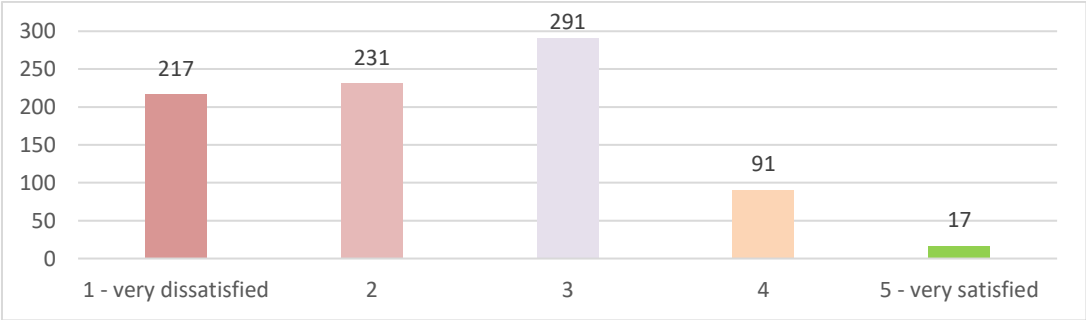
Figure 6. Car sharing and transport on demand (e.g. taxis and private hire vehicles with drivers) services can help tackling some urban mobility problems. What can make them more sustainable, i.e. reduce their air pollutant and CO2 emissions?



N=1483 answers of 847 respondents

On average, respondents are not very satisfied with the **accessibility for persons with disabilities or reduced mobility of the transport infrastructure**. The average rating is 2.36 on a scale from 1 (very dissatisfied) to 5 (very satisfied), as shown in Figure 7.

Figure 7. How satisfied are you with the accessibility for persons with disabilities or reduced mobility of the transport infrastructure?



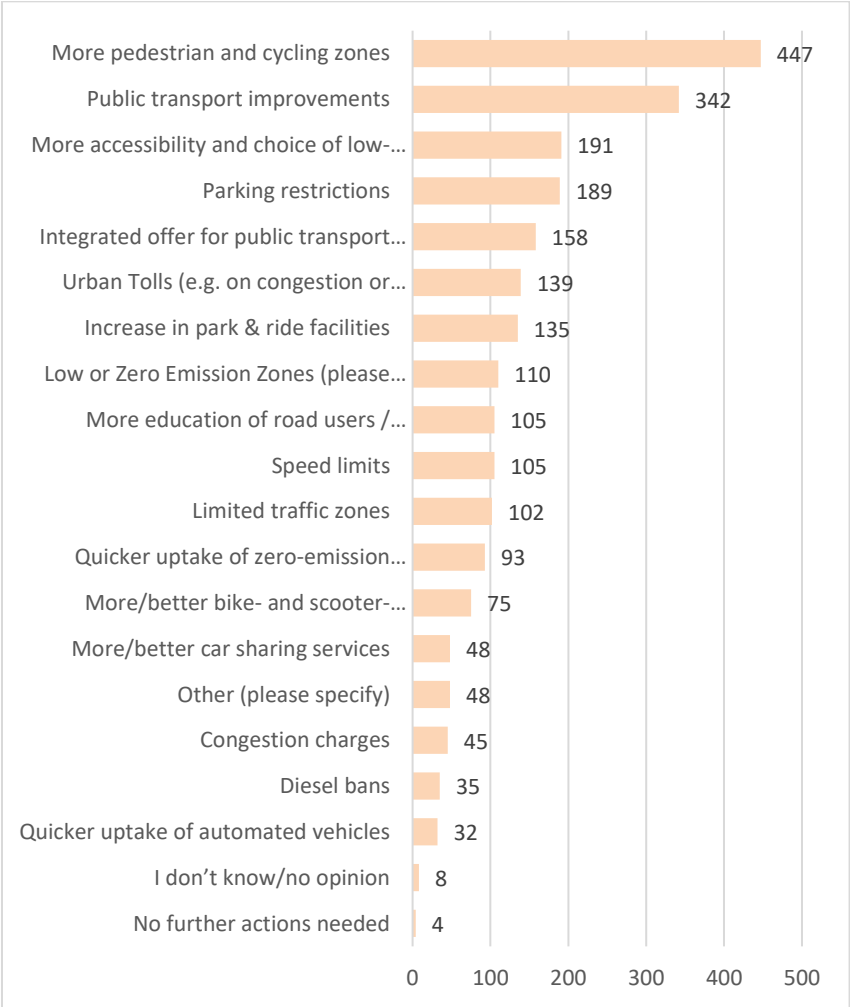
N=847

When asked about **which current or future transport modes are the most suitable for e-commerce or home deliveries of the future**, most respondents indicated cargo bicycles (or e-bicycles) (653; 34.1%) and zero-emission vans using electric or hydrogen energy (526; 27.5%), followed by zero-emission heavy-duty vehicles (180; 9.4%), and urban public transport (128; 6.7%) as potential future transport modes suitable for e-commerce or home deliveries. Linked with the topic, 84.8% of respondents strongly or somewhat agree with the fact that **information**

on the impact of their home delivery, such as carbon footprint, would make them try to choose a more environmentally friendly delivery option.

When asked about **what would help to deal with congestion and emissions in cities**, most respondents agree that creating more pedestrian and cycling zones and improving public transport (447 and 342; 18.5% and 14.2% respectively), followed by improving the accessibility and choice of low- and zero-emission mobility solutions (191; 7.9%) and restricting parking (189; 7.8%). Figure 8 depicts it.

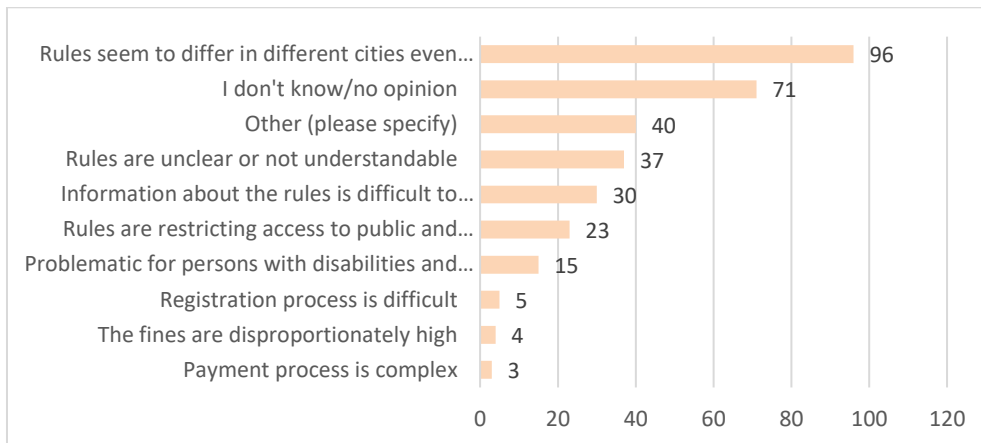
Figure 8. What actions (existing or potential) to deal with congestion and emissions in cities do you particularly agree with?



N=2411 answers by 847 respondents

Regarding **urban vehicles access regulations (UVARs) like low or zero-emission zones**, most respondents (622 or 73%) answered that they were not encountering difficulties with them (while 225, so 27%, indicated that they did). When asked for the biggest difficulty, 324 people answered and out of these, 96 of the respondents (30%) faced difficulties with the rules that seem to differ in different cities and even in the same country, 71 (22%) do not know or do not have an opinion and 40 (12.3%) mostly indicated the need to harmonise UVAR rules, as shown in Figure 9.

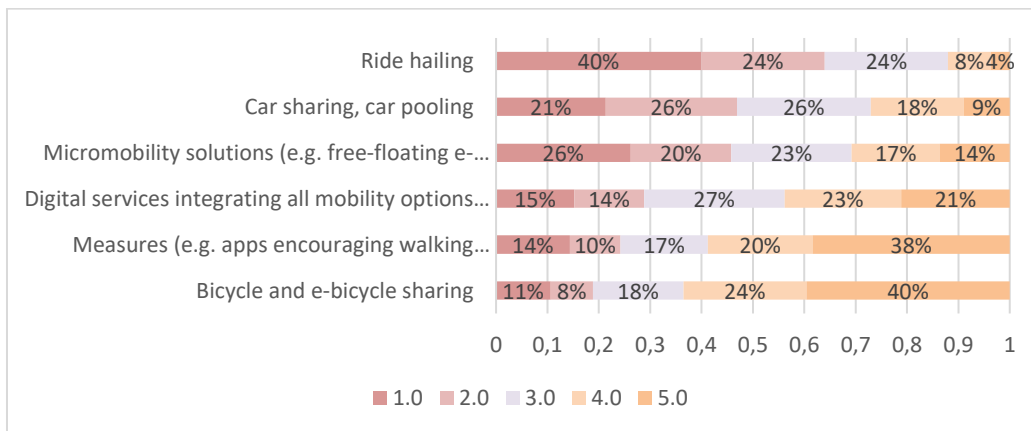
Figure 9. What is your biggest difficulty related to urban vehicles access regulations (UVARs)?



N=324

When asked about **which new mobility service can help reduce congestion and brings environmental benefits in urban areas**, most respondents have chosen (e-)bicycle sharing (538 responses) and implementing measures encouraging walking and/or cycling (498 responses). Figure 10 depicts it.

Figure 10. On a scale of 1 to 5 (1 being the least and 5 being the most), which new mobility service can help reduce congestion and brings environmental benefits in urban areas?

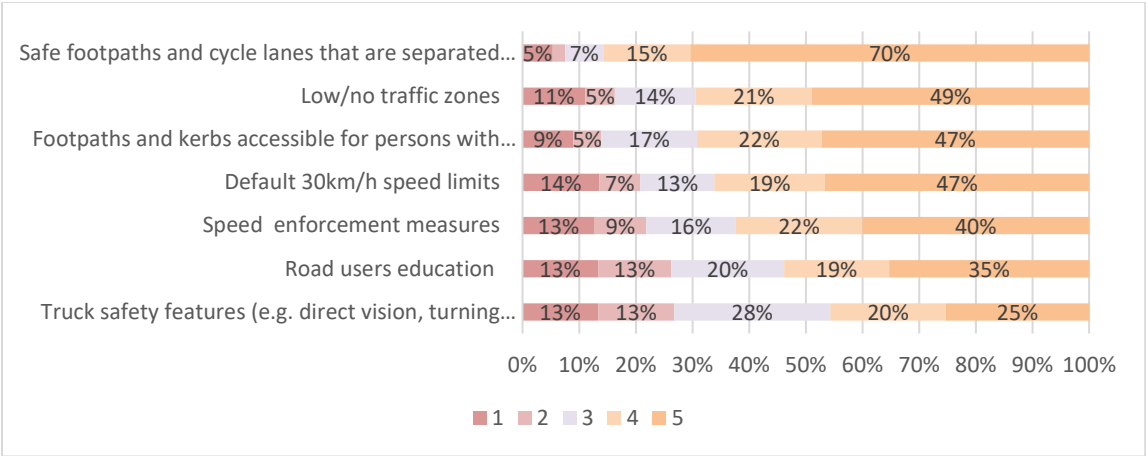


N=847

Public space re-design and street-space reallocation has clearly been identified by respondents (590; 28.4% of responses) as one of the **three most important innovations currently missing from their municipality that will improve urban mobility**, followed by the innovation in governance (257; 12.4%), and smart traffic lights that management congestion and traffic flow (237; 11.4%). When asked **how will increased digitalisation of mobility (e.g. bike/car sharing apps, real time traffic information etc.) affect your mobility choices**, majority of respondents (506 out of 847, so 59.7%) believe that increased digitalisation of mobility will increase or increase a lot the likelihood that they will use these services while 220 respondents (so 26%) believe that it will have no impact on their mobility choices. Only 39 respondents so 4.6% believe that it will have a negative impact.

When asked about **which actions would be of greatest benefit to increase the safety of vulnerable road users**, a majority of respondents (726; 85%) indicated safe footpaths and cycle lanes that are separated from motorised traffic, followed by low/no traffic zones (588; 70%), footpaths and kerbs accessible for persons with disabilities or reduced mobility (586; 69%) and implementing 30 km/h as a default speed limit (560; 66%), as shown in Figure 11.

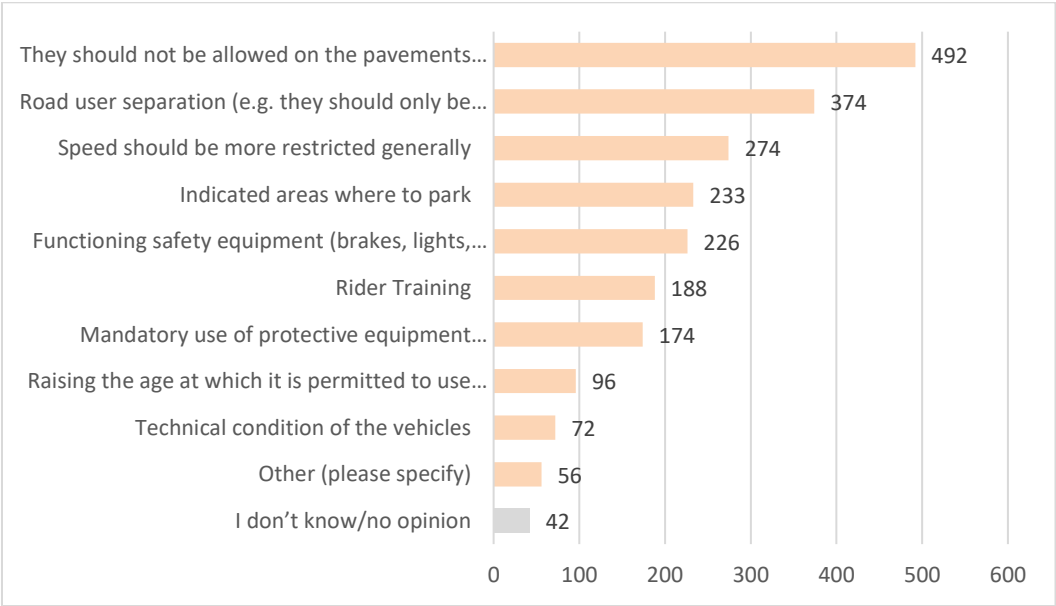
Figure 11. Road safety in urban areas is a particular concern regarding vulnerable road users (pedestrians, cyclists, motorcyclists). Which actions do you think would be of greatest benefit to increase the safety of vulnerable road users (with 1 being of the smallest benefit and 5 being of the greatest benefit)?



N=847

When it comes to **the safe use of micromobility devices such as e-scooters**, most respondents answered they should not be allowed on the pavements or reduce their speed in pedestrian areas (492; 22.1%) and be separated from other road users (374; 16,8%), and their speed should be more restricted generally (274; 12.3%). Figure 12 provides a full picture.

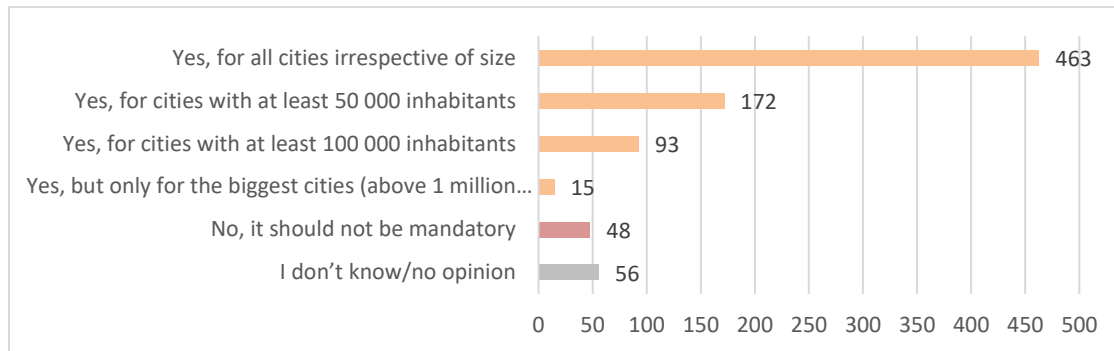
Figure 12. Micromobility devices such as e-scooters are becoming more common on Europe’s urban streets. Which elements do you think are most important for their safe use?



N=2227 answers from 847 respondents

Regarding a **sustainable urban mobility plan (SUMP) or a similar comprehensive transport plan**, almost half of the 847 respondents (45%) are aware that their town has one. An overwhelming majority (743 out of 847 respondents, so 87.7%) believe that the **European Union should make SUMP's mandatory for cities**. In addition, 463 respondents (so 54.7%) think that they should be mandatory for all cities irrespective of their size, as shown in Figure 13.

Figure 13. Do you think the EU should make SUMP's mandatory for cities?

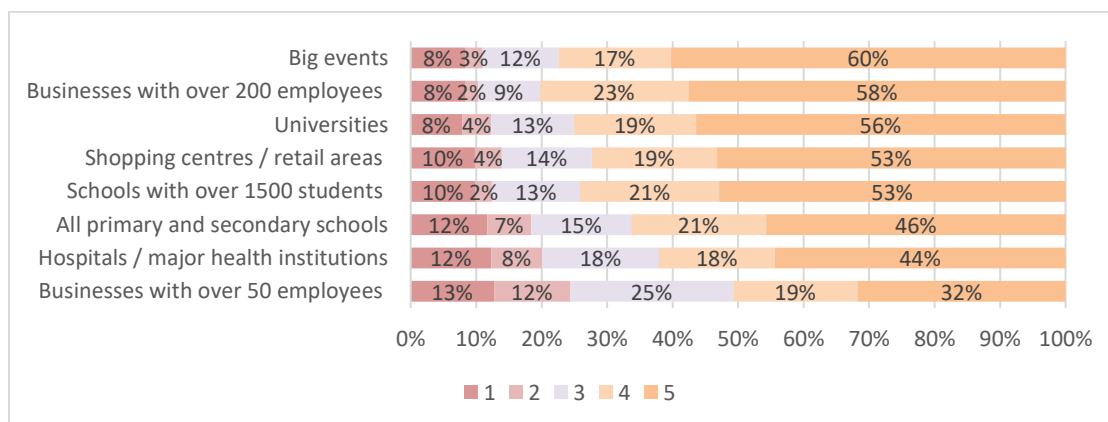


N=847

When asked about the **opinion about car-free days (a highlight of European Mobility Week)**, most respondents (675; 79.7%) believe they are a great idea, and 355 of the respondents (41.9%) believe that such days should be organised every month.

Regarding **mobility management plans of companies and organisations**, a great majority of respondents believe that they are very important or important for all the suggested organisations or events, as depicted in Figure 14.

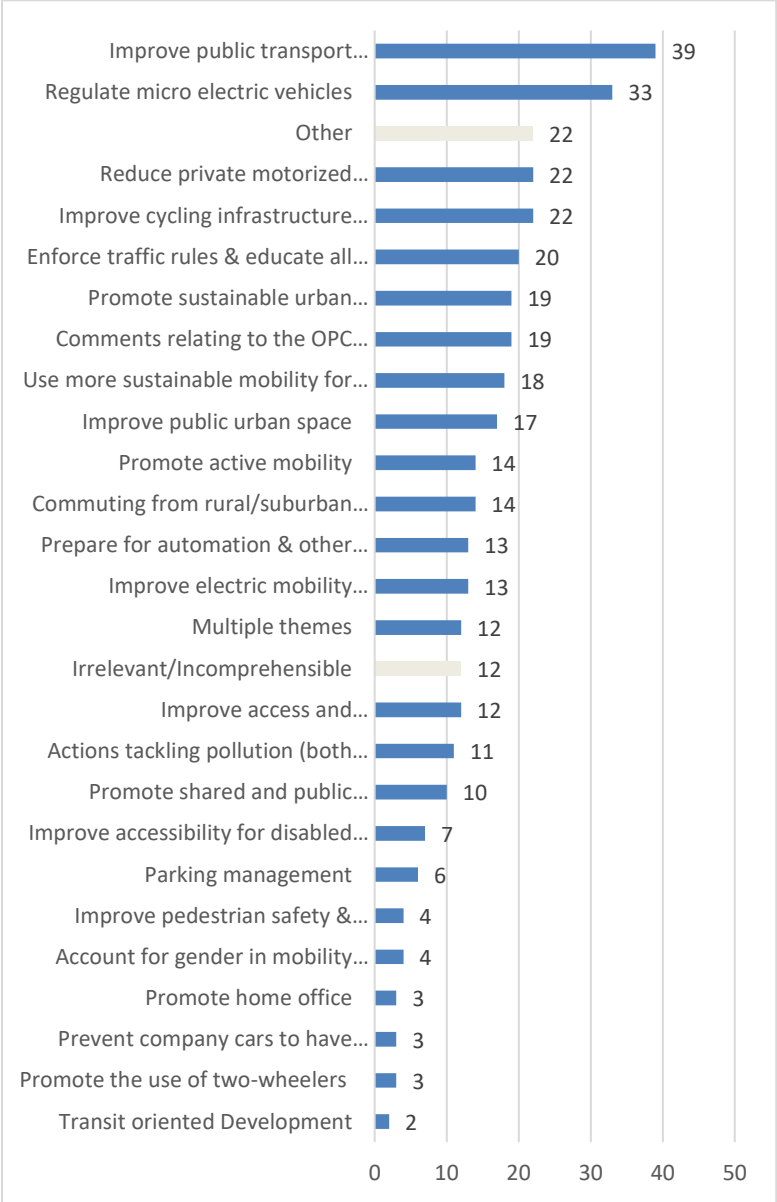
Figure 14. A mobility management plan is a plan to promote sustainable transport and therefore reduce emissions by encouraging the change of mobility habits. On a scale of 1 to 5, how important it is that the following organisations adopt their own mobility management plan.



N=847

Finally, 374 respondents have specified **further input relating to urban mobility that was not covered by the OPC questionnaire and that the European Union could look into**. A significant number of respondents have specified the need to further improve public transport accessibility, infrastructure and financing. Another significant number of respondents have mentioned the need to regulate micro-electric vehicles such as e-skateboards and one-wheelers. Figure 15 provides the full picture.

Figure 15. Comments relating to urban mobility that was not covered by the questionnaire



N= 374

5. Position papers

In total, stakeholders submitted 50 position papers, 38 of them in reply to the Roadmap (some of them were confirmed as valid also in the context of the OPC) and 12 in reply to the Open Public Consultation or by email to the European Commission in the context of the different consultation activities, including meetings. An overview of the stakeholders submitting position papers is provided in Table 3 below.

Table 3. Overview of all position papers received coded by stakeholder type

Stakeholder type	Number of submissions
Academic/research institution	2
Business association	14
Company/business organisation	12
Consumer organisation	3
EU citizen	0
Environmental organisation	0
Non-EU citizen	0
Non-governmental organisation (NGO)	14
Public authority	3
Trade union	1
Other	1
Total	50

Table below provides an overview of the themes included in the contributions of stakeholders.

Table 4. Overview of the themes mentioned by frequency

Theme	Source	References
Public transport	6	32
SUMP	8	24
Urban Freight and Logistics	5	23
Low (zero) carbon vehicles fleets	6	17
Funding	5	13
UVAR	5	12
Data management	5	11
Digitalisation	5	11
Innovation	5	11
Inclusivity (gender, disability, age, etc)	2	11
Reduction of private vehicles (cars, motorized transport, etc)	3	9
TEN-T Network	3	9
Intermodality	4	7
Suburban urban transport	3	7
Shared mobility	1	7
Active mobility	4	6
COVID 19 Impact & changes	2	6
Accessibility	2	5
Land development	2	5
Congestion	2	4
Electrification	2	4

Resilience	2	4
Urban Air Mobility	2	4
Climate planning	2	3
Reallocation of road space	2	3
Small and medium cities	2	3
Road safety	1	3
Modal shift	2	2
Governance	1	2
Automation	1	1
MaaS	1	1
Two-wheelers	1	1

Public transport, SUMP and urban freight and logistics were the most popular themes. Table 5 gives an overview of the sub-categories included in the three main categories, with further details provided below.

Table 5. Overview of the main themes' sub-categories

Theme	Sub-category
Public Transport	Public transport as backbone of urban mobility
	Public transport funding
	Public transport digitalisation
	Public transport as backbone of intermodality
SUMP	Making SUMPs mandatory
	Quality of SUMPs
	SUMP monitoring and reporting
	Promotion of public transport and active mobility in SUMP
	SUMP funding
	SUMP & Climate planning
Urban Freight and Logistics	Changing nature of freight and logistics
	Last mile delivery
	Urban logistic hubs and pick-up station
	Innovation and data management
	Integrate planning of urban logistics
	Governance and regulation

In their contribution, stakeholders put forward the importance of further developing **public transport** and making it the backbone of the new urban mobility initiative.

- Public transport is seen by stakeholders as key to decarbonise the transport sector overall and improve air quality, especially in urban environments; this was also linked by contributions to the lessons learned during COVID-19 when public transport was affected by the pandemic with the suspension of operation and the fact that authorities and operators faced significant cost pressures.
- According to stakeholders, European funding is currently very fragmented. Some suggest that the European Commission should monitor what money is spent and to what extent its fragmented budget is delivered. Other stakeholders seem to agree that investment in public transport is critical but insufficient and suggest that one solution would be to further cooperate with the private sector to make the sector more sustainable, by participating in capacity growth and the enable cities to reallocate road space to promote public transport.

- Making public transport the backbone of urban mobility was often mentioned along with the need to create synergies between public transport and other mobility modes to further promote intermodality. In doing so, stakeholders particularly mentioned the need to create more park and ride facilities and to increase the space allocated for bikes in (sub)urban trains. According to a few stakeholders, redesigning transport networks and reallocating road space, moving away from car-centric urban environments, should help to strengthen intermodality between public transport and active mobility.
- The contributions also discuss specific innovations and improvements that should take place in public transport systems. The digitalisation of the sector is put forward most often in the contributions as a means to provide more connected and smart mobility through modern ticketing technology and display of modal journey times. Another form of innovation mentioned by a few stakeholders is the need to improve security in public transport through the implementation of (digital) mechanisms for reporting and monitoring discrimination (e.g., for lack of accessibility) and security problems (e.g., sexual harassment in public transport). Overall, a majority of stakeholders view public transport as a key mobility sector to test innovative services.

In their contributions, stakeholders develop a wide range of suggestions and ideas relating to the implementation of **Sustainable Urban Mobility Plans (SUMP)**. While the suggestions are diverse, many of the proposed approaches follow similar lines of thinking.

- One important theme is to ensure that SUMP becomes the basis of the mobility transition and become mandatory (to a certain extent) for cities. Several stakeholders suggest that the European Commission should ensure that all cities that are urban nodes of the TEN-T network and as many other cities as possible produce a high-quality SUMP (or similar strategy document) in place by 2025 or 2030. Additional comments on the compulsory creation of SUMP include the need to further consult public stakeholders (e.g. trade unions and civil society).
- In their contributions, stakeholders also stress that sufficient funding is necessary for SUMP to be successful. Certain stakeholders express the need to make funding for cities only accessible based on the existence and/or quality of their SUMP.
- Several stakeholders stress the need to require/incentivise cities and towns to monitor and report on the effectiveness of their SUMP based on key indicators. Suggestions were made that cities implementing SUMP should be required to follow through with implementation and report on progress as well as challenges.
- One key issue flagged by several stakeholders is the need to further include climate policy and planning within the SUMP framework. A few contributions suggest that new and updated SUMP should be aligned with EU climate objectives (the Green Deal, air quality, etc.) and international commitments (such as the Sustainable Development Goals) while having as a primary goal the decarbonisation of transport.
- Another key issue flagged by a few stakeholders is the requirements of SUMP to focus on creating an accessible and attractive public transport offer and incentivising active mobility. Public transport networks are seen by stakeholders as having a key role to play in decarbonising transport systems while ensuring accessibility and inclusivity. Contributions propose that SUMP should prioritise public transport when it comes to building new infrastructure or attributing road space to transport modes. A few contributions also emphasise the importance to address accessibility and affordability of transport, as well as links into the wider region.

Many contributions touch upon the need to further improve and develop **urban freight and logistics** strategies.

- More than a third of these contributions acknowledge the changing nature of urban freight and logistics and the growing challenges this sector faces. Stakeholders associate these challenges with the rapid growth of e-commerce (accelerated during the COVID-19 lockdowns) and having to increase delivery efficiency (delivery speed, cost efficiency, safety, etc.) which can be incompatible with sustainability goals. Stakeholders also identify other important changes in the labour sector (e.g. towards gig-work which can present both labour and safety issues) and in local economies (e.g. local shops having to compete with bigger platforms) that can have an impact on urban freight. Therefore, one of the common suggestions mentioned by stakeholders is to promote local shops as part of an urban freight strategy but also increase awareness among consumers on the environmental costs of deliveries.
- Among the improvement to be operated in the urban freight and logistics sector to face changes in e-commerce, multiple stakeholders advocate for cities to take a more integrated approach to urban freight through further regulation and planning. Several stakeholders believe that the European Commission should pro-actively involve different actors and processes to plan for urban logistics at the urban and TEN-T network level and integrate logistics holistically with a wider strategic regional development.
- Half of the contributions point out solutions to ensure the sustainable development of urban freight and logistics strategies. One of these solutions pointed out is the use of cargo bikes for deliveries as they are seen by stakeholders to make a very positive contribution to zero-emissions freight and more flexible for last-mile deliveries. The use of cargo bikes is seen by a few stakeholders as easier to be implemented with the increasing number of cycling lanes and the existing practices of using bikes for fast and last-mile deliveries. Another solution suggested by a few stakeholders is the use of shared and sustainable commercial vehicle services.
- Among other solutions mentioned by stakeholders, the creation of urban logistics hubs and the creation of pick-up stations are pointed out by a couple of stakeholders, as complementary solutions to the ones previously mentioned. A few stakeholders believe that the European Commission should encourage the diversification and prioritisation of solutions that increase efficiency, such as pick-up collection points or delivery lockers while reinforcing the use of urban logistics hubs at the local and regional levels.
- In their contributions, many stakeholders also share their thoughts on the role of innovation and data management in urban freights and logistics. Deliveries using drones is identified by two stakeholders as a key innovation to the sector that should be further researched and developed (one stakeholder, however, expresses concerns about it).