SUSTAINABLE & SMART
MOBILITY STRATEGY

Putting European transport on track for the future

#MobilityStrategy

1
OUR VISION

1. **Mobility and transport matters to us all**. From daily commuting to work, visiting family and friends, tourism, to the proper functioning of global supply chains for the goods in our shops and for our industrial production, mobility is an enabler of our economic and social life. Free movement of people and goods across its internal borders is a fundamental freedom of the European Union (EU) and its single market. Travelling in the EU has led to greater cohesion and a strengthened European identity. As the second-largest area of expenditure for European households, the transport sector contributes 5% to European GDP and directly employs around 10 million workers.

2. Whilst **mobility brings many benefits for its users, it is not without costs for our society**. These include greenhouse gas emissions, air, noise and water pollution, but also accidents and road crashes, congestion, and biodiversity loss – all of which affect our health and wellbeing. Past efforts and policy measures have not yet sufficiently addressed these costs. The transport sector's greenhouse gas emissions have increased over time and represent now as much as a quarter of the EU's total.

3. By far, **the most serious challenge facing the transport sector is to significantly reduce its emissions and become more sustainable**. At the same time, this transformation offers great opportunities for better quality of life, and for European industry across the value chains to modernise, create high-quality jobs, develop new products and services, strengthen competitiveness and pursue global leadership as other markets are moving fast towards zero-emission mobility. Given its high proportion of total EU greenhouse gas emissions, the EU's goal of at least -55% greenhouse gas reduction target by 2030 and of climate neutrality by 2050 will be reached, only by introducing more ambitious policies to reduce transport's reliance on fossil fuels without delay and in synergy with zero pollution efforts. **The success of the European Green Deal**[1] **depends on our ability to make the transport system as a whole sustainable.**

4. The COVID-19 pandemic has clearly demonstrated that safeguarding the well-functioning single market is vital for the EU. The crisis has shown the essential role played by transport and the social, health and economic costs when free movement of people, goods and services is severely constrained or even curtailed altogether. The preservation of supply chains and **a coordinated European approach to connectivity and transport activity are essential to overcome any crisis** and strengthen the EU's strategic autonomy and resilience.

5. Therefore, **ensuring that our transport system is truly resilient against future crises must also be a key objective of the EU's transport policy** going forward. Completing the Single European Transport Area as envisioned by the 2011 White Paper[2] still remains a cornerstone of European transport policy. Fostering cohesion, reducing regional disparities as well as improving connectivity and access to the internal market for all regions, remains of strategic importance for the EU. The COVID-19 pandemic had a significant impact on mobility. In the context of the recovery from this severe crisis, public support should help mobility "build back better" and leap forward to a sustainable and smarter future.

6. **Greening mobility must be the new licence for the transport sector to grow.** Mobility in Europe should be based on an efficient and interconnected multimodal transport system, for both passengers and freight, enhanced by an affordable high-speed rail network, by abundant recharging and refuelling infrastructure for zero-emission vehicles[3] and supply of renewable and low-carbon fuels, by cleaner and more active mobility in greener cities that contribute to the good health and wellbeing of their citizens.

7. **Digitalisation will become an indispensable driver for the modernisation of the entire system**, making it seamless and more efficient. Europe also needs to use digitalisation and automation to further increase the levels of safety, security, reliability, and comfort, thereby maintaining the EU's leadership in transport equipment manufacturing and services and improving our global competitiveness through efficient and resilient logistics chains.

8. This evolution should leave nobody behind: **it is crucial that mobility is available and affordable for all,**

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1   COM (2019) 640 final, "The European Green Deal".

2   COM (2011) 144 final, "White Paper – Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system". The Commission has also evaluated this White Paper in SWD (2020) 410 and SWD (2020) 411.

3   In this Communication the term 'vehicle' refers, as relevant in the given context, to all types of vehicles, including, among others, cars, lorries, buses, coaches, light vehicles, trains, aircraft, ships, boats, ferries, etc.

that rural and remote regions are better connected[4]**, accessible for persons with reduced mobility and persons with disabilities, and that the sector offers good social conditions, reskilling opportunities, and provides attractive jobs**. The European Pillar of Social Rights is the European compass to make sure that the green and digital transitions are socially fair and just.

9. **Overall, we must shift the existing paradigm of incremental change to fundamental transformation**. Thus, this strategy sets out a roadmap for putting European transport firmly on the right track for a sustainable and smart future. To make our vision a reality, it identifies 10 flagship areas with an action plan that will guide our work in the years to come. The scenarios underpinning the strategy, common to those supporting the 2030 climate target plan[5], demonstrate that, with the right level of ambition, the combination of policy measures set out in this strategy can deliver **a 90% reduction in the transport sector's emissions by 2050**. Taking also into account the analysis presented in the accompanying Staff Working Document[6], various **milestones** are set out to show the European transport system's path towards achieving our objectives of a sustainable, smart and resilient mobility, thereby indicating the necessary ambition for our future policies, such as:

By 2030:
- at least 30 million zero-emission vehicles will be in operation on European roads.
- 100 European cities will be climate neutral.
- high-speed rail traffic will double.
- scheduled collective travel of under 500 km should be carbon neutral within the EU.
- automated mobility will be deployed at large scale.
- zero-emission vessels will become ready for market

By 2035:
- zero-emission large aircraft will become ready for market.

By 2050:
- nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission.
- rail freight traffic will double.
- high-speed rail traffic will triple.
- the multimodal Trans-European Transport Network (TEN-T) equipped for sustainable and smart transport with high speed connectivity will be operational for the comprehensive network.

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4   This aspect will be further examined as part of the Commission Communication on the long-term vision for rural areas in 2021.

5   COM (2020) 562 final, "Stepping up Europe's 2030 climate ambition - Investing in a climate-neutral future for the benefit of our people"

6   SWD (2020) 331

2

SUSTAINABLE MOBILITY – AN IRREVERSIBLE SHIFT TO ZERO-EMISSION MOBILITY

10. The European Green Deal calls for a 90% reduction in greenhouse gas emissions from transport, in order for the EU to become a climate-neutral economy by 2050, while also working towards a zero-pollution ambition. To achieve this systemic change, **we need to (1) make all transport modes more sustainable, (2) make sustainable alternatives widely available** in a multimodal transport system **and (3) put in place the right incentives to drive the transition. These are the three pillars of our future actions**.

11. This implies that **all policy levers must be pulled**: (1) **measures to significantly reduce the current dependence on fossil fuels** (by replacing existing fleets with low- and zero-emission vehicles and boosting the use of renewable and low-carbon fuels); (2) **decisive action to shift more activity towards more sustainable transport modes** (notably increasing the number of passengers travelling by rail and commuting by public transport and active modes, as well as shifting a substantial amount of freight onto rail, inland waterways, and short sea shipping); and (3) **internalisation of external costs** (by implementing the 'polluter pays' and 'user pays' principles, in particular through carbon pricing and infrastructure charging mechanisms).

2.1

WE NEED TO MAKE ALL MODES OF TRANSPORT MORE SUSTAINABLE

12. **All transport modes are indispensable for our transport system and this is why they must all become more sustainable**. As the first pillar of our approach, we must boost the uptake of low- and zero-emission vehicles as well as renewable and low-carbon fuels for road, waterborne, air and rail transport, without further delay. We must support research and innovation (R&I) on competitive, sustainable and circular products[7] and services, ensure that the right vehicles and fuels are supplied by the industry, put in place the necessary infrastructure, and incentivise demand by end-users. This is essential to reach our 2030 and 2050 climate targets as well as zero pollution ambition and to enable European companies to remain industrial leaders globally. Maintaining technology-neutrality across all modes is key, but this should not lead to inaction on eliminating fossil fuel-based solutions.

Flagship 1 **Boosting the uptake of zero-emission vehicles, renewable & low-carbon fuels and related infrastructure**

13. Although it is growing rapidly, the proportion of low- and **zero-emission vehicles in the vehicle fleet is far too low** today. Standards on CO_2, air pollutant emissions, and public procurement rules, such as those in the Clean Vehicle Directive[8], will continue to be key policy-drivers in our transition towards zero-emission mobility in road transport and through the increased supply of zero-emission vehicles, will make sustainable mobility more affordable for all. Therefore, in order to meet the targets put forward in the 2030 climate target plan and ensure a clear pathway from 2025 onwards towards zero-emission mobility, the Commission will propose a revision of the **CO_2 standards** for cars and vans by June 2021. The Commission will also review the CO_2 standards for heavy duty vehicles in this direction.

14. Significant efforts have been made over the last 5 years to reduce emissions of air pollutants from motor vehicles. Cars sold today emit significantly less pollutants than those in 2015. But more can be done: the upcoming proposal for **more stringent air pollutant emissions standards** for combustion engine vehicles (Euro 7) will ensure that only future-proof low-emission vehicles come to the market.

15. The partnerships envisaged for Horizon Europe, such as 'Batteries', '2Zero' and 'Clean Hydrogen', could contribute to the supply of innovative vehicle technologies. At the same time, a comprehensive policy is needed to **stimulate**

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7   Circular products and services will contribute to the overall sustainability of transport. The Circular Economy Action Plan (COM (2020) 98 final) identifies seven key product value chains, notably batteries & vehicles and construction,

8   Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles (Text with EEA relevance.) OJ L 188, 12.7.2019, p. 116–130

demand for zero emission vehicles, without barriers across our single market, while fully respecting the Union's international obligations. The above environmental standards should be accompanied by measures that increase demand for these vehicles, such as carbon pricing, taxation, road charging, and the revision of rules on the weights and dimensions of heavy-duty vehicles. The Commission will propose actions to boost the uptake of zero-emission vehicles in corporate and urban fleets. In addition, the new regulation on batteries will ensure that batteries placed on the EU market are sustainable and safe all along their entire life cycle. Sustainability and end-of-life cycle re-quirements, including on carbon footprint and ethical and sustainable sourcing of raw materials, are essential to reduce environmental footprint of electric vehicles.

16. Our **roadworthiness** legislative framework should be adjusted to ensure the lifetime compliance of vehicles with emission and safety standards. A single faulty vehicle can pollute our air more than several thousand clean ones[9].

17. The evolution of road vehicle engines towards zero emission does not as such solve issues raised by the use of tyres, which still cause noise and microplastics. The latter pollute our waters and seas, and can ultimately enter the food chain. **High-performing tyres** should be further promoted as they reduce energy consumption and emissions (including of rolling noise) while maintaining vehicle safety. The upcoming revision of the Directive on end-of life vehicles will also aim at reducing the overall environmental footprint of the production and dismantling of cars.

18. Fuel suppliers and operators should now have a clear signal that transport fuels must become carbon-neutral, and that **sustainable renewable and low-carbon fuels must be deployed on a large scale without delay**. The Commission will consider additional measures to support these fuels, possibly through minimum share or quo-tas through the revision of the recast Renewable Energy Directive.

19. For **road transport**, zero-emission solutions are already in deployment. Manufacturers are now heavily investing into battery-electric vehicles. Market take-up is already growing, particularly for cars, vans and buses used in cities, while lorries and coaches are emerging. Manufacturers are also investing into hydrogen fuel-cell vehicles, particu-larly for use in commercial fleets, buses and heavy duty transport. These promising options are supported under the EU energy system integration[10] and hydrogen[11] strategies as well as the strategic action plan on batteries[12]. Energy efficiency shall be a criterion for prioritising future choice of suitable technologies looking at the whole life-cycle. Transitional technological solutions should fully respect the CO2 and pollution standards. **Rail transport** will also need to be further electrified; wherever this is not viable, the use of hydrogen should be increased.

20. **Air and waterborne transport** have greater decarbonisation challenges in the next decades, due to current lack of market ready zero-emission technologies, long development and life cycles of aircraft and vessels, the required significant investments in refuelling equipment and infrastructure, and international competition in these sectors. EU international emissions from navigation and aviation have grown by more than 50% since 1990. Action in these sectors is urgently needed, including as they recover from the current crisis. These modes must have priority access to additional renewable and low-carbon liquid and gaseous fuels[13], since there is a lack of suitable alternative powertrains in the short term. The ReFuelEU Aviation and FuelEU Maritime initiatives will boost the production and uptake of sustainable aviation and maritime fuels and address this issue. Furthermore, the Commission will con-sider to establish a Renewable and Low-Carbon Fuels Value Chain Alliance, within which public authorities, industry and civil society, will cooperate to boost the supply and deployment of the most promising fuels, complementing action under the European Clean Hydrogen Alliance and building on the success of the European Battery Alliance[14].

21. In order to **improve the energy efficiency and reduce emissions of aircraft and vessels**, ambitious standards for their design and operation must be promoted. The EU must continue working closely with all inter-national organisations, such as the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO), on concrete measures aimed at reaching science-based global emission reduction goals con-sistent with the Paris Agreement.[15] Significant efforts are also needed to develop disruptive technologies to bring zero-emission vessels and aircraft to the market. The Union should create the enabling environment to achieve this, including through adequate carbon pricing policies and research and innovation (R&I) in particular through the part-nerships that could be put in place under Horizon Europe (such 'Zero Emission Waterborne Transport', 'Clean Aviation' and 'Clean Hydrogen'). In addition, more efficient traffic management, such as through the Single European Sky, can

9   See for example: SWD(2012) 206 final, and more recently, testing carried out in Belgium. https://magazine.vab.be/wp-content/uploads/2020/02/Roetfilter-Persdossier.pdf

10   COM (2020) 299 final, "Powering a climate-neutral economy: An EU Strategy for Energy System Integration"

11   COM (2020) 301 final, "A hydrogen strategy for a climate-neutral Europe"

12   COM (2018) 293 final, "ANNEX 2 – Strategic Action Plan on Batteries"

13   These could be for instance hydrogen, hydrogen-based synthetic fuels and advanced biofuels. Safety standards for waterborne transport on hydrogen, for example, need to be developed early on to incentivise early movers and certification procedures should be as straightforward as possible, without compromising overall safety levels.

14   https://ec.europa.eu/growth/industry/policy/european-battery-alliance_en

15   The EU and its Member States should pursue this ambition at the next ICAO General Assembly in 2022.

bring about substantial environmental gains[16]. These activities are essential items in the '**basket of measures**' **needed to decarbonise aviation and maritime transport**, where global actions remain critical.

22. The increased deployment and use of renewable and low-carbon fuels must go hand-in-hand with the creation of a comprehensive network of **recharging and refuelling infrastructure** to fully enable the widespread uptake of low- and zero-emission vehicles in all transport modes. "Recharge and refuel" is a European flagship under the Recovery and Resilience Facility[17]: by 2025, the aim is to build half of the 1 000 hydrogen stations and one million out of 3 million public recharging points[18] needed by 2030. The ultimate goal is to ensure a dense, widely-spread network to ensure easy access for all customers, including operators of heavy-duty vehicles. The Commission will publish a strategic roll-out plan to outline a set of supplementary actions to support the rapid deployment of alternative fuels infrastructure, including in areas where persistent gaps exist. These would include recommendations on planning and permitting processes as well as on financing, developed in collaboration with the Sustainable Transport Forum of the Commission that brings together key public and private representatives of the entire value chain.[19]

23. Europe also needs to end the persistent fragmentation and pervasive lack of interoperable recharging/refuelling services across Europe for all modes. In the context of the **upcoming revision of the Directive on Alternative Fuels Infrastructure** (AFID), the Commission will consider options for more binding targets on the roll-out of infrastructure, and further measures to ensure full interoperability of infrastructure and infrastructure use services for all alternatively fuelled vehicles. Adequate information for consumers to end the current lack of transparency on pricing, and facilitating seamless cross-border payments are among the key issues to tackle. Furthermore, the expected major uptake of battery-electric vehicles and other forms of e-mobility requires the smooth integration into the electricity grid. The deployment of smart recharging infrastructure will help to provide storage capacity and flexibility to the electricity system. Next to the revision of AFID, a revision of the Trans-European Transport Network (TEN-T) Regulation and other policy instruments such as the recast Renewable Energy Directive and its accounting mechanism for electricity, as well as the Energy Performance of Buildings Directive with a view to increasing the goals for charging points in our buildings. The Commission will ensure alignment with the necessary grid investments under its initiatives under the EU energy system integration and hydrogen strategies.

Flagship 2 Creating zero-emission airports and ports

24. **Ports and airports** are key for our international connectivity, for the European economy, and for their regions. In their transition to zero-emission nodes, the best practices followed by the most sustainable airports and ports[20] must become the new normal and enable more sustainable forms of connectivity. Ports and airports should become multimodal mobility and transport hubs, linking all the relevant modes. This will improve air quality locally thereby contributing to improved health of nearby residents. Inland and sea ports have a great potential to become new clean energy hubs for integrated electricity systems, hydrogen and other low-carbon fuels, and testbeds for waste reuse and the circular economy.

25. The Commission will propose **measures to make our airports and ports clean**, by incentivising the deployment of renewable and low-carbon fuels and feeding stationed vessels and aircraft with renewable power instead of fossil energy, incentivising the development and use of new, cleaner and quieter aircraft and vessels, revising airport charges, greening ground movements at airports as well as port services and operations, optimisation of port calls, and through a wider use of smart traffic management. The Commission will also follow-up on the measures suggested in the European Union Aviation Safety Agency (EASA) report in relation to the updated analysis of the non-CO2 climate impacts of aviation. [21]

26. **Public and private investment** in local renewable energy production, in more sustainable multimodal access and in fleet renewals[22] in aviation and waterborne transport must increase. Some of these investments would benefit from the establishment of relevant sustainable taxonomy criteria that covers the specificities of each mode,

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16   This can reduce up to 10% of air transport emissions and also ATM could help to address the non-CO2 climate impacts of aviation.

17   COM(2020) 575 final, "Annual Sustainable Growth Survey 2021"

18   The number of public recharging points needed will be assessed in detail as part of the Impact Assessment accompanying the revision of the Directive on Alternative Fuels Infrastructure.

19   Where necessary, other market and finance actors will be invited to this process. Fostering recharging infrastructure in the private and public building stock is of particular relevance in this context: the large majority of all recharging takes place at home or work. Full alignment with the ongoing Renovation Wave initiative and mutual reinforcement will be ensured. The Commission will set up a high-level "Recharge and Refuel" panel to validate the findings of this process.

20   Such as the EcoPorts or Airport Carbon Accreditation initiatives, developed by the European Sea Ports Organisation (ESPO) and ACI EUROPE, respectively.

21   See COM(2020) 747 final, "Updated analysis of the non-CO2 climate impacts of aviation and potential policy measures pursuant to EU Emissions Trading System Directive Article 30(4)"

22   For instance, the newest generation of aircraft, already available, reduces CO2 emissions by 20-25% as well as the noise footprint.

including during transition to zero emissions. The revised lending policy to be decided by the European Investment Bank (EIB) can equally be expected to be helpful.

27. In synergy with the deployment of alternative marine fuels, efforts under the zero pollution ambition should be made to drastically reduce the broader environmental footprint from the sector. Delivering on the establishment of wide ranging '**Emission Control Areas**' in all EU waters ultimately aiming at zero pollution to air and water from shipping for the benefits of sea basins, coastal areas and ports should be a priority. In particular, the Commission has spearheaded efforts for covering the Mediterranean Sea and it aims to start similar work for the Black Sea. Furthermore, the EU legislation on ship recycling[23] will be reviewed, in order to determine possible measures to strengthen that legislation, i.e. to further promote safe and sustainable ship recycling practices.

Milestones[24] on reducing the current dependence on fossil fuels:

1. *By 2030, there will be at least 30 million zero-emission cars and 80 000 zero-emission lorries in operation.*

2. *By 2050, nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission.*

3. *Zero-emission ocean-going vessels and large zero-emission aircraft will become market ready by 2030 and 2035, respectively.*

2.2

WE NEED TO MAKE SUSTAINABLE ALTERNATIVES WIDELY AVAILABLE TO ENABLE BETTER MODAL CHOICES

28. As a second pillar of our approach, **sustainable alternatives must be made widely available now** in a fully integrated and seamless multimodal mobility system. The EU cannot rely exclusively on technological solutions: immediate action to adapt our mobility system is necessary to tackle climate change and reduce pollution. Multimodality takes advantage of the strengths of the different modes, such as convenience, speed, cost, reliability, predictability, and in combination, can offer more efficient transport solutions for people and goods. The COVID-19 pandemic has demonstrated how increased multimodality is also crucial to improving the resilience of our transport system and how ready the public is to embrace sustainable alternative modes of travel.

29. **People are willing to switch to more sustainable modes of transport**, in particular in their daily mobility, with the main condition for switching being the cost[25], availability and speed. The EU must help create appropriate conditions for the higher uptake of sustainable alternatives that are safe, competitive and affordable. Where suitable alternatives are in place at competitive prices, frequencies and comfort levels, people choose the more sustainable mode[26].

30. At the same time, **mobility patterns and consumer behaviour are changing**. These changes are being reinforced by the COVID-19 pandemic and are being largely facilitated by digital solutions. Teleworking, video-conferencing, electronic commerce, the uptake of shared and collaborative mobility services, all contribute to the ongoing transformation of mobility.

Flagship 3 Making interurban and urban mobility more sustainable and healthy

31. Decisive action is needed to transform the transport sector into a truly multimodal system of sustainable and smart mobility services. To achieve this, Europe should build a high quality transport network with high-speed rail services

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23 Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC, OJ L 330, 10.12.2013, p. 1.

24 Taking also into account the analysis presented in the accompanying Staff Working Document, these milestones are set out to show the European transport system's path towards achieving our objectives of a sustainable, smart and resilient mobility, thereby indicating the necessary ambition for our future policies.

25 Special Eurobarometer 495 showed that the majority of car users are ready to switch to more environmentally friendly forms of transport for their daily mobility. An alternative that is just as fast or a similar price would influence respondents towards a more environmentally friendly solution for long-distance travel. https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/survey/getsurveydetail/instruments/special/surveyky/2226

26 For instance, since the high-speed rail line between Barcelona and Madrid opened, the modal split between air and rail has changed from 85% plane/15% train in 2008 to 38% air/62% rail in 2016.

on short-haul distances and with clean aviation services improving coverage of long-haul routes. The Commission will work towards creating enabling conditions for transport operators to offer travellers by 2030 carbon-neutral choices for scheduled collective travel below 500 km within the EU. In 2021-2022, the Commission will pursue this ambition, when revising the relevant EU legislation. Subject to compliance with competition law, airlines should sell an increasing number of multimodal tickets. Investment should be geared towards upgrading the necessary TEN-T infrastructure to enable the shift towards more sustainable links. Action will be taken to build an overall transport system where EU investments, State aid, rules for capacity allocation and public service obligations (PSOs) are geared towards fulfilling mobility needs and incentivising different multimodal options.

32. The **European Year of Rail of 2021 is an excellent opportunity for** Member States, the Commission and the **rail sector to boost cross-European connections**. With the implementation of the Fourth Railway Package and through the opening of rail markets to competition, railway operators will become more responsive to customer needs, and improve the quality of their services and their cost-effectiveness. Harmonised EU-wide vehicle approval will also reduce costs for cross-border trains. Completing the TEN-T, including the high-speed lines, will provide better connections along the main corridors. Improving passengers' awareness about their rights and ensuring non-discriminatory provision of travel information, including through-ticket offers, will further boost the rail attractiveness for customers.

33. In 2021, the Commission will propose **an action plan to boost long-distance and cross-border passenger rail services**. This plan will build on efforts by Member States to make key connections between cities faster by better-managed capacity, coordinated timetabling, pools for rolling stock and targeted infrastructure improvements to boost new train services including at night. Platforms or other organisational structures for this purpose should be open to all Member States. Pilot services on some routes involving all interested stakeholders should be supported, and a combination of public service contracts and open access services could test different models for new connections and services, with the aim of boosting 15 pilots by 2030.

34. The Single European Rail Area needs to be enhanced and the Commission will consider **measures to expand the rail market**[27], addressing the needs of railway undertakings for access to high quality capacity maximising the use of rail infrastructure. **Cross-border tickets should become easier to use and to buy**. Starting in 2021, the Commission will propose regulatory measures to enable innovative and flexible tickets that combine various transport modes and give passengers true options for door-to-door travel.

35. As set out in the 2030 climate target plan, increasing the modal shares of collective transport, walking and cycling, as well as automated, connected and multimodal mobility will significantly lower pollution and congestion from transport, especially in cities and improve the health and well-being of people. **Cities are and should therefore remain at the forefront of the transition towards greater sustainability**. The Commission will further engage with cities and Member States to ensure that all large and medium-sized cities that are urban nodes on the TEN-T network put in place their own sustainable urban mobility plans by 2030. The plans should include new goals, for example on having zero emissions and zero road fatalities. Active transport modes, such as cycling, have seen growth with cities announcing over 2300 km of extra cycling infrastructure. This should be doubled in the next decade towards 5000 km in safe bike lanes. The Commission is also considering developing a mission in the area of Climate-neutral and Smart Cities[28] as a strategic priority for joint action to accomplish decarbonisation within a large number of European cities by 2030.

36. Seamless multimodality enabled by digital solutions is vital in urban and sub-urban areas. Increasing pressure on passenger transport systems has boosted **demand for new and innovative solutions**, with various transport services being integrated into a service accessible on demand, following the Mobility as a Service (MaaS) concept. Simultaneously, many cities are witnessing a shift towards shared and collaborative mobility services (shared cars, bikes, ride-hailing, and other forms of micromobility) facilitated by the emergence of intermediary platforms, thereby enabling the reduction of the number of vehicles in daily traffic.

37. The EU and Member States must deliver on our citizens' expectations of cleaner air, less noise and congestion, and eliminating fatalities on our city streets. By revising the Urban Mobility Package to promote and support these sustainable and healthy transport modes, the Commission will contribute to **the improvement of the current European framework for urban mobility**. Clearer guidance is needed on mobility management at local and regional level, including on better urban planning, and on connectivity with rural and suburban areas, so that

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27 In particular the Commission will assess the interplay among Regulation (EU) No 913/2010 with Directive 2012/34/EU, Regulation (EU) No 1315/2013 and Directive 92/106/EEC.

28 European research and innovation missions will aim to deliver solutions to some of the greatest challenges facing our world. They are an integral part of the Horizon Europe framework programme beginning in 2021.
https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/climate-neutral-and-smart-cities_en

commuters are given sustainable mobility options. European policies and financial support should also reflect the importance of urban mobility for the overall functioning of the TEN-T, with provisions for first/last mile solutions that include multimodal mobility hubs, park-and-ride facilities, and safe infrastructure for walking and cycling.

38. The Commission will 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. The Commission will also **help cities modernise their policy toolbox**, including in areas such as micromobility, support for the procurement[29] of zero-emission vehicles, including buses and ferries, and associated infrastructure. 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.

Flagship 4 **Greening freight transport**

39. The European Green Deal calls for a substantial part of the 75% of inland freight carried today by road to **shift to rail and inland waterways. Short-sea shipping** and efficient zero-emission vehicles can also contribute to greening freight transport in Europe. Urgent action must therefore be taken given the limited progress achieved to date: by way of example, the modal share of rail in inland freight had dropped to 17.9% by 2018[30] from 18.3% in 2011.

40. To support the greening of cargo operations in Europe, the **existing framework for intermodal transport needs a substantial revamp** and must be turned into an effective tool. Options to revise the regulatory framework such as the Combined Transport Directive as well as introducing economic incentives for both operations and infrastructure should be considered. Incentive mechanisms should be based on impartial performance monitoring, according to a European framework to measure transport and logistics emissions.

41. **Multimodal logistics must be part of this transformation**, within and beyond urban areas. The growth of e-commerce has significantly changed consumption patterns, but the external costs of millions of deliveries, including the reduction of empty and unnecessary runs, must be factored in. Hence, sustainable urban mobility planning should also include the freight dimension through dedicated sustainable urban logistics plans. These plans will accelerate the deployment of zero-emission solutions already available, including cargo bikes, automated deliveries and drones (unmanned aircraft) and better use of inland waterways into cities.

42. The **scarcity of transhipment infrastructure**, and of inland multimodal terminals in particular, is pronounced in certain parts of Europe, and should be given the highest priority. Missing links in multimodal infrastructure should be closed. Moreover, the transport system should work more efficiently overall with improved transhipment technologies. The EU needs the multimodal exchange of data, plus smart traffic management systems in all modes. Ultimately all transport modes for freight must come together via multimodal terminals and the Commission will take initiatives so that EU funding and other policies, including R&I support, be geared better towards addressing these issues, while fully respecting the Union's international obligations. The review of the State aid rules for railways, which already provide for a flexible framework to publicly fund multimodality, will further support that objective.

43. In recent years, innovative companies have demonstrated that rail freight can operate reliably and be attractive to customers. However, many domestic rules and technical barriers still hinder performance. **Rail freight needs serious boosting** through increased capacity, strengthened cross-border coordination and cooperation between rail infrastructure managers, better overall management of the rail network, and the deployment of new technologies such as digital coupling and automation. The Commission will propose the revision of regulations governing Rail Freight Corridors and the TEN-T core network corridors. Integrating these corridors into 'European transport corridors', focusing on 'quick wins' like train length, loading gauge and improved operational rules, alongside the completion of key missing links and the adaptation of the core network so that it is fully freight capable, will strengthen the infrastructural dimension of our actions to promote intermodal transport. The Commission will propose to improve rules on rail capacity allocation in line with the ongoing project on the timetable redesign, to provide additional, flexible train paths. The implementation of European rules on rail noise will help alleviate related concerns.

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29 For example the main objective of the Commission's 'Big Buyers for Climate and Environment' initiative is to enhance the uptake of strategic public procurement in Europe through partnership between big public buyers such as cities, regions, hospitals, central purchasing bodies, utilities, etc. working on concrete projects and similar challenges. This objective is achieved by promoting collaboration between big buyers in strategic public procurement with a view to driving the market for innovative goods, services and works.

30 Around half of total rail freight is cross-border. This lends rail freight a strong European dimension, and makes it even more sensitive to a lack of interoperability and cooperation between national rail networks that can affect its competitiveness. Its traditional cargo, like raw materials, has undergone a massive industrial transformation and the expanding 'just in time' higher value goods need different services.

44. Similarly, while successive action programmes[31] have helped **inland waterways transport** to largely maintain its modal share[32], actions are necessary to preserve this accomplishment and seize the untapped potential in a sustainable way, both along TEN-T corridors and in those inner cities where inland waterways can green the last mile of city logistics. The Commission will put forward the NAIADES III programme to exploit this potential by tackling the key challenges such as the need to renew barge fleets and to improve access to financing, while ensuring full compliance with environmental policies, in particular with the Water Framework Directive and the Habitats Directive.

45. In addition, TEN-T support for the Motorways of the Sea has succeeded seeing more cargo transported more sustainably, through **short-sea shipping**. The EU must now also lead by example and make European maritime areas sustainable, smart and resilient.

Milestones[33] on shifting more activity towards more sustainable transport modes:

4. *Scheduled collective travel under 500 km should be carbon-neutral by 2030 within the EU.*

5. *Traffic on high-speed rail will double by 2030 and triple by 2050.[34]*

6. *By 2030, there will be at least 100 climate-neutral cities in Europe.*

7. *Rail freight traffic will increase by 50% by 2030 and double by 2050.[35]*

8. *Transport by inland waterways and short sea shipping will increase by 25% by 2030 and by 50% by 2050[36].*

2.3
WE NEED TO PUT IN PLACE THE RIGHT INCENTIVES TO DRIVE THE TRANSITION TO ZERO-EMISSION MOBILITY

46. As a third pillar to our approach, **incentives for transport users to make more sustainable choices must be reinforced**. These incentives are mainly economic, namely carbon pricing, taxation, and infrastructure charging, but should be complemented by improved information to users.

Flagship 5 Pricing carbon and providing better incentives for users

47. Despite longstanding policy commitments for fair and efficient pricing in transport, progress has been limited. The '**polluter pays**' and '**user pays' principles** need to be implemented without delay in all transport modes. Their environment-related external costs alone[37] amount to EUR 388 billion each year. By internalising these external costs, those who use transport will bear the full costs rather than leaving others in our society to meet them and this will trigger a process towards having more sustainable transport modes with lower external costs. **The Commission will therefore pursue a comprehensive set of measures to deliver fair and efficient pricing across all transport modes**. Emission trading, infrastructure charges, energy and vehicle taxes must come together in a mutually compatible, complementary and coherent policy.

48. In particular, **the EU ETS is the most important instrument of carbon pricing** in order to internalise the cost of CO_2 emissions. The Commission will propose to extend the EU Emission Trading System (EU ETS) to the

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31   NAIADES I and II. https://ec.europa.eu/transport/modes/inland/promotion/naiades2_en

32   Transport by inland waterways increased by 6% between 2005 and 2017.

33   Taking also into account the analysis presented in the accompanying Staff Working Document, these milestones are set out to show the European transport system's path towards achieving our objectives of a sustainable, smart and resilient mobility, thereby indicating the necessary ambition for our future policies.

34   Compared to 2015.

35   Compared to 2015.

36   Compared to 2015.

37   The study, Sustainable Transport Infrastructure Charging and Internalisation of Transport Externalities (June 2019), covered direct CO2 and air pollutant emissions, indirect CO2 and air pollutant emissions from energy production, air pollution and excessive noise and habitat damage. Total taxes and charges collected from the sector are estimated to amount to at least EUR 340 billion. According to the study, the delay costs due to congestion amount to an additional EUR 228 billion. The external costs of road crashes were estimated to reach EUR 250 billion. The study also estimated total infrastructure costs to be EUR 256 billion. For ports and airports, total taxes and infrastructure cost cover only the main ones. These are all figures for EU27.
Source: Study Sustainable Transport Infrastructure Charging and Internalisation of Transport Externalities (June 2019)
https://ec.europa.eu/transport/themes/sustainable/internalisation-transport-external-costs_en

maritime transport sector. For aviation, a proposal will be made to revise the EU ETS Directive, notably to reduce the ETS allowances allocated for free to airlines. As already announced in the European Green Deal, the further expansion of the system could include emissions from road transport and work on an impact assessment is ongoing. EU ETS revenues can be invested in EU R&I to decrease emissions further. The Commission will also propose to implement the ICAO Carbon Offsetting and Reduction Scheme for International Civil Aviation[38] (CORSIA) through revision of the ETS Directive in 2021. At the IMO, the EU will push to advance discussions on market-based instruments as a medium-term measure to implement the greenhouse gas reduction strategy.

49.   **Fossil-fuel subsidies should end**. When revising the Energy Taxation Directive, the Commission will aim at aligning taxation of energy products and electricity with EU energy and climate policies. As part of the ongoing impact assessment, it is looking closely at current tax exemptions, including for aviation and maritime fuels, and will make proposal on how best to close any loopholes in 2021. The taxation of energy content for various fuels should be better aligned, and the uptake of sustainable transport fuels better incentivised.

50.   **Substantial progress is needed on effective charging for infrastructure use**, notably in road transport. This is key to internalising the cost of damage to infrastructure, but it is also imperative to address the cost of pollution and congestion for society. The Commission strongly urges the European Parliament and the Council to act on the Commission's proposal to amend the Eurovignette Directive, living up to the ambitions of the European Green Deal. Smart, distance-based road charging, with varied rates for the type of vehicle and the time-of-use, is an effective tool to incentivise sustainable and economically efficient choices, manage traffic and reduce congestion.

51.   Currently, neither individuals planning a trip, nor shippers/logistics operators organising a delivery, give sufficient consideration to environmental footprint. This is partly because they are not given the **right information**, including on available alternatives. **The most sustainable choice should be clearly indicated**. With adequate information on the environmental footprint and a more systematic opportunity for consumers to voluntarily offset their travel, consumers and businesses will be empowered to make more sustainable delivery and transport choices.

52.   This is why the Commission plans to **establish a European framework for the harmonised measurement of transport and logistics greenhouse gas emissions**, based on global standards, which could then be used to provide businesses and end-users with an estimate of the carbon footprint of their choices, and increase the demand from end-users and consumers for opting for more sustainable transport and mobility solutions, while avoiding greenwashing. Information on the carbon footprint of a specific journey could become a new passenger right and in this case should apply to all transport modes.

53.   Our ability to reduce the environmental impact depends for a substantial part on our choices. The **European Climate Pact** will display and support the many options citizens have for moving around efficiently and in healthier, less polluting ways. It shall play an important role in raising awareness about, foster engagement towards zero-emission mobility and push for action in greening mobility strategies of companies and cities.

Milestones[39] on internalising the external costs of transport, including via the EU ETS:

9.   *By 2030, rail and waterborne-based intermodal transport will be able to compete on equal footing with road-only transport in the EU[40].*

10.   *All external costs of transport within the EU will be covered by the transport users at the latest by 2050.*

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38   https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx

39   Taking also into account the analysis presented in the accompanying Staff Working Document, these milestones are set out to show the European transport system's path towards achieving our objectives of a sustainable, smart and resilient mobility, thereby indicating the necessary ambition for our future policies.

40   In terms of the share of external costs internalized.

3

SMART MOBILITY – ACHIEVING SEAMLESS, SAFE AND EFFICIENT CONNECTIVITY

54.   People should enjoy a seamless multimodal experience throughout their journey, through a set of sustainable mobility choices, increasingly driven by digitalisation and automation. As innovation will shape the mobility of passengers and freight of the future, the right framework and enablers should be in place to facilitate this transition that can make the transport system much more efficient and sustainable.

55.   Public and social acceptance is key for a successful transition, which is why European values, ethical standards, equality, data protection and privacy rules, among others, will be fully respected and at the heart of these efforts, and cybersecurity will be treated with high priority.

Flagship 6 Making connected and automated multimodal mobility a reality

56.   **The EU needs to take full advantage of smart digital solutions and intelligent transport systems (ITS)**. Connected and automated systems have enormous potential to fundamentally improve the functioning of the whole transport system and contribute to our sustainability and safety goals. Actions will focus on supporting the integration of transport modes into a functioning multimodal system.

57.   Europe must seize the opportunities presented by **connected, cooperative, and automated mobility** (CCAM). CCAM can provide mobility for all, give back valuable time and improve road safety. The Commission will drive research and innovation, possibly with a new European partnership on CCAM envisaged under Horizon Europe and through other partnerships focusing on digital technologies. Such partnerships are important when it comes to developing and implementing a shared, coherent and long-term European research and innovation agenda, by bringing together actors from the entire value chain. The EU needs to make sure that efforts are well coordinated, and that results reach the market. For instance, the lack of harmonisation and coordination of relevant traffic rules and liability for automated vehicles needs to be addressed. The vision is to make Europe a world leader in the development and deployment of CCAM services and systems and thereby provide a significant contribution to European leadership in safe and sustainable road transport.[41]

58.   The Commission will explore options **to further support safe, smart and sustainable road transport operations** under an existing agency or another body. This body could support the deployment and management of ITS and sustainable connected and automated mobility across Europe. It could facilitate the preparation of relevant technical rules, including as regards the use of automated vehicles cross-border and on the deployment of recharging and refuelling infrastructure, provided for in Union legislation and to be adopted by the Commission. Such rules would in turn create synergies across Member States. It could for example prepare drafts of roadworthiness inspection methods and carry out other specific road safety tasks, as well as collect relevant data. It could also accomplish specific tasks in the area of road transport in the face of major disruptions like the COVID-19 pandemic, where emergency measures and solutions such as Green Lanes[42] have been necessary.

59.   **Planning and purchasing tickets for multimodal journeys** is cumbersome, as a conducive framework for EU-wide, integrated, multimodal information, ticketing and payment services is lacking. Addressing this will involve overcoming the insufficient availability and accessibility of data, sub-optimal cooperation between suppliers and vendors, the absence of digital tickets in some cases, inadequate payment system interoperability, and the existence of different licencing and distribution agreements. The EU needs to transform its legal framework to support multimodal travel information, booking and ticketing services, while at the same time looking at the rights and obligations of online intermediaries and multimodal digital service providers selling ticketing and/or mobility services. The Commission will examine whether data sharing, including on fares, in road and rail passenger transport services, and selling arrangements are fit for purpose. Meanwhile, smart and interoperable payment services and tickets require further development; making them a standard requirement in any relevant public procurement contract would promote greater use.

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41   Other partnerships focusing on the core issues of data portability should protect the users and offer them clear and transparent view on how the data can be used or transferred.

42   C(2020) 1897 final Communication "on the implementation of the Green Lanes under the Guidelines for border management measures to protect health and ensure the availability of goods and essential services" and COM(2020) 685 final Communication "upgrading the transport Green Lanes to keep the economy going during the COVID-19 pandemic resurgence"

60. The vision of a seamless travel experience and the digitalisation of information exchange is particularly relevant for land transport. **Future mobility should offer paperless options in all modes**, for professionals and individual drivers alike. Digital certificates for drivers and vehicles and freight transport information, including in the form of electronic consignment notes, easy and affordable use of cross-border car rentals, contactless payments for parking and tolls, and better information about areas in which cities or local authorities restrict car use to tackle congestion or improve air quality would all contribute to a smoother driving experience. Availability of electronic certificates and freight transport information would also facilitate digital enforcement, while real time tracking and tracing of goods would be a significant step towards the completion of the Digital Single Market, the real time economy and green transition.

61. To create a truly smart transport system, **efficient capacity allocation and traffic management** must also be addressed to avoid a capacity crunch and reduce CO_2 emissions. The roll out of the European Rail Traffic Management System (ERTMS) and the Single European Sky remains a priority for the Commission and for Next Generation EU: investments in its deployment count fully for the digital spending targets and substantially towards the climate spending targets. Further efforts to develop train automation as well as air traffic management (ATM) systems are needed, for instance through joint undertakings (JUs). The Commission is considering such JUs for Horizon Europe (e.g. Shift2Rail (S2R) and the SESAR Joint Undertakings) and other future partnerships under that programme. Further development of Vessel Traffic Monitoring and Information Systems (VTMIS) will facilitate safe deployment of automated and autonomous maritime operations.

62. For rail automation and traffic management to become a reality on cross border main lines, the Commission will propose to **update technical specifications for interoperability (TSIs)** to encompass new technologies like 5G and satellite data, and provide a readily upgradeable and common system architecture. This is needed so that the ERTMS can be at the heart of a digital rail system.[43]

63. As for aviation, improving the efficiency of air traffic management (ATM) holds great potential for modernisation and sustainability, helping to cut excess fuel burn and CO_2 emissions caused by flight inefficiencies and airspace fragmentation[44]. **Completing and effectively implementing the Single European Sky** (SES) will also ease the travelling experience: a modernised regulatory framework and digital ATM infrastructure will help reduce bottlenecks, enabling flights to depart and arrive more punctually. The legislative process on the SES should therefore be completed without delay.

Flagship 7 Innovation, data and Artificial Intelligence for smarter mobility

64. **Proactively shaping our future mobility by developing and validating new technologies and services is key to staying ahead of the curve**. The EU will therefore put in place favourable conditions for the development of new technologies and services, and all necessary legislative tools for their validation. We can expect the emergence and wider use of drones (unmanned aircraft) for commercial applications, autonomous vehicles, hyperloop, hydrogen aircraft, electric personal air vehicles, electric waterborne transport and clean urban logistics in the near future. An **enabling environment for such game-changing mobility technologies is key**, so that the EU can become a prime deployment destination for innovators. Start-ups and technology developers need an agile regulatory framework to pilot and deploy their products. The Commission will work towards facilitating testing and trials, and towards making the regulatory environment fit for innovation, so as to support the deployment of solutions on the market.

65. The Commission will **drive the research and deployment of innovative and sustainable technologies in transport**. Investment in disruptive solutions will pave the way for important breakthroughs and environmental gains in the years and decades to come. Today's EU research programmes will be crucial for tomorrow's deployment, through instruments like the Connecting Europe Facility (CEF), the Cohesion Fund, the European Regional Development Fund or InvestEU.

66. The **Commission fully supports the deployment of drones and unmanned aircraft**, and will further develop the relevant rules, including on the U-space, to make it fit for enhancing safe and sustainable mobility. The Commission will also adopt a 'Drone Strategy 2.0' setting out possible ways to guide the further development of this technology and its regulatory and commercial environment.

67. Furthermore, in order to make the digital transformation of the transport sector a reality, **the EU needs to ensure**

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43 This will help accelerate the digitalisation of rail operations with the Future Railway Mobile Communication System (FRMCS) and the implementation of the "Gigabit Train" concept.

44 This can reduce up to 10% of air transport emissions and also ATM could help to address the non-CO_2 climate impacts of aviation.

that the key digital enablers are in place, including electronic components for mobility, network infrastructure, cloud-to-edge resources, data technologies and governance as well as Artificial Intelligence. The EU should further strengthen its industrial capacities related to the digital supply chain. This includes the design and production of components, software platforms and the Internet of Things technology for a further electrification and automation in transport and mobility.[45]

68. The EU also needs to ensure **the highest level and performance of digital infrastructure**, notably through **5G**, which offers a wide range of services and helps to reach higher levels of automation across different mobility applications. In addition, further efforts are needed to achieve the objective of uninterrupted coverage across the major transport corridors across Europe with 5G connectivity infrastructure, as set out in 2016 5G Action Plan[46]. Having a digital single market that functions well is key.

69. **Artificial Intelligence** (AI) is becoming essential for transport automation in all modes, with digital technologies and components at their core. The Commission envisions an AI ecosystem of both excellence and trust, which will be shaped with the funding of research, innovation and deployment through Horizon Europe and Digital Europe programmes. In this context, the Commission will support testing and experimentation facilities on AI for smart mobility under the Digital Europe Programme.

70. The digital transformation of the transport and mobility sector requires further efforts related to **data availability, access and exchange**. Currently, they are often hampered due to unclear regulatory conditions, a lack of an EU market for data provision, the absence of an obligation to collect and share data, incompatible tools and systems for data collection and sharing, different standards, or data sovereignty concerns. The availability of data and statistics is also essential, in particular real time data, as it enables better services to citizens or transparency of supply chains in freight transport.

71. That is why the Commission will propose further actions to **build a European Common Mobility Data Space**. It will take into consideration the horizontal governance set out in the data strategy[47] and the Data Act and the principle of technology neutrality. The aim is to collect, connect and make data available to meet EU objectives, from sustainability to multimodality. This Mobility Data Space should function in synergy with other key systems, including energy, satellite navigation and telecommunications, while being cyber safe and compatible with Union data protection standards. At the same time, a level playing field for data in the value chain must be preserved so that innovation can thrive and new business models emerge. The Commission will consider different regulatory options to give operators a safe and trustworthy space to share their data within and across sectors, without distorting competition and while respecting privacy and the Union's international obligations.

72. As access to vehicle data will be instrumental for transport data sharing and smart mobility, the Commission will propose, in 2021, a new initiative on access to car data, through which it will propose a balanced framework guaranteeing fair and effective access to vehicle data by mobility service providers.

Milestones[48] towards smart mobility:

11. *By 2030, seamless multimodal passenger transport will be facilitated by integrated electronic ticketing and freight transport will be paperless.*

12. *By 2030, automated mobility will be deployed on large scale.*

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45   The EU will reinforce its support to the field through the Key Digital Technologies Joint Undertaking and the support to low power consumption and secure processor technologies.

46   COM(2016)588 final, "5G for Europe: An Action Plan"

47   COM (2020) 66 final, "A European strategy for data"

48   Taking also into account the analysis presented in the accompanying Staff Working Document, these milestones are set out to show the European transport system's path towards achieving our objectives of a sustainable, smart and resilient mobility, thereby indicating the necessary ambition for our future policies.

4
RESILIENT MOBILITY – A MORE RESILIENT SINGLE EUROPEAN TRANSPORT AREA: FOR INCLUSIVE CONNECTIVITY

73. **Transport has been one of the sectors hit hardest by the COVID-19 pandemic**[49], with damage stemming from the huge negative demand shocks following the necessary containment and mitigation measures. This has given rise to supply chain disruptions, steep reductions in foreign and domestic travel and tourism, and reduced connectivity across the EU as a whole. This has also resulted in immense operational and financial difficulties for many businesses active in the transport sector, many of them small and medium-sized enterprises (SMEs). **This strategy must help the sector and relevant ecosystems such as travel and tourism bounce back better from this crisis and become greener, smarter and more resilient**.

Flagship 8 Reinforcing the single market

74. **The EU has now an opportunity to build a mobility system that is sustainable, smart, and resilient: a system for future generations**. The Commission's previous assessment showed the need for investments at scale and at speed, including substantial public and private investments at national level: the additional investments for 2021-2030 in vehicles (including rolling stock, vessels, and aircraft) and renewable and low carbon fuels infrastructure deployment are estimated at EUR 130 billion per year, compared to the previous decade[50]. The 'green and digital transformation investment gap' for infrastructure would add an additional EUR 100 billion per year[51]. Just to complete the TEN-T core network and build it as a truly multimodal system, EUR 300 billion is needed over the next 10 years. These **investments are key to reinforce the single market**.

75. **Investment must be coordinated and prioritised within EU funding programmes**, including the NextGenerationEU recovery instrument, along the following principles. Firstly, non-repayable support, notably from the new Recovery and Resilience Facility, ERDF and Cohesion Fund, Innovation Fund, should be prioritised for projects with the highest social, environment, economic and EU added value and direct impact on jobs, growth and resilience. The CEF is the main instrument to finance infrastructure development with maximum EU-added value, while mainstreaming the green and digital objectives. Second, the market failure and sub-optimal investment level in policy priority areas should be addressed through financing instruments, notably through the Sustainable Infrastructure and Research, Innovation and Digitalisation Windows of the InvestEU Programme, complemented, where necessary with further use of blending instruments. Third, the transport lending policy of the EIB should also help achieve the strategy's objectives, by offering a comprehensive framework that will attract private investment to improve resilience and accelerate the deployment of sustainable and smart technologies in all modes.

76. Investment in the recovery of the transport sector should be accompanied by **investments by businesses in more sustainable and digital mobility**. The technical screening criteria based on the Taxonomy Regulation[52] should be defined for all transport modes while recognising the specific investment needs. Financing sustainable transport investment could also build on the upcoming European Green Bonds Standard anchored on the EU taxonomy. The upcoming revision of the transport relevant State aid rules must also be used to drive the sector's transition to sustainability, giving all modes an increasing opportunity to compete on equal terms for a subsidy.

77. To build a credible pipeline of viable projects and accelerate investment, advisory **support for public authorities and project promoters** is needed. This can be provided through the Technical Support Instrument and the InvestEU Advisory Hub, as well as through technical assistance available within programmes financed under cohesion policy.

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49 For example, in May 2020, the impact was of approximately -90% of air traffic compared to a year ago (Source: Eurocontrol), -85% long-distance rail passenger service, -80% on regional rail passenger services (including sub-urban), near standstill on international rail passenger services (Source: CER); more than -90% for cruise and passenger ships in mid-April compared to a year ago (Source: EMSA)

50 COM (2020) 562 final, "Stepping up Europe's 2030 climate ambition - Investing in a climate-neutral future for the benefit of our people"

51 SWD (2020) 98 final, based on TEN-T related estimates and EIB calculations. This estimate does not include the costs of equity repairs, or that of the regular renewal of the fleet, which however may be delayed due to the impact of the COVID-19 pandemic on transport companies.

52 Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, OJ L 198, 22.6.2020, p. 13.

78. **SMEs**[53] **need easier access to finance**, notably for fleet renewals and other innovative and green investments. This can be achieved through clearer communication and guidance, dedicated administrative support, and simplified financial support schemes. Support for the creation of pooling, funds and other intermediation mechanisms will ensure a critical mass for access to finance. Member States should designate a one-stop shop for businesses to request such support.

79. Investment in **transport infrastructure** across the EU is key to ensuring connectivity, the sustainable functioning of the economy and cohesion among Member States. This is why a review of the European economic governance framework is now necessary: the EU must promote transport investment based on an EU infrastructure asset class. Such a class could comprise infrastructure projects whose implementation is based on European strategic planning, such as the TEN-T projects. The Commission will equally ensure that the new TEN-T Guidelines are consistent with the 'do no significant harm' principle and with the European Green Deal. Infrastructure must also be adapted to climate change and made resilient to disasters, and the Commission will address this issue both in the TEN-T review and the climate adaptation strategy, including through dedicated guidance on the climate proofing.

80. **All necessary steps must be taken to complete the TEN-T on time**. The Commission will propose to reinforce the role of the European Coordinators to drive progress on transport corridors across the continent to seek their completion by 2030. The EU must prioritise the closing of the East-West and North-South divides for modern infrastructure. The successes of the Øresund bridge between Denmark and Sweden and the high-speed rail network between Paris-London-Brussels-Amsterdam and Cologne demonstrate the need to complete projects like Rail Baltica, Lyon-Torino, Y-basque, Fehmarn, Brenner, Dresden-Prague, Vienna-Bratislava-Budapest, Seine-Scheldt and many others, without delay. More cross-border projects will be needed to integrate all Member States into the European rail system of the future, in turn establishing smooth interconnections for cross-border rail travel across Europe. This will be achieved while maintaining accessibility for rural and remote regions.

81. At the same time, **investment must finance the modernisation of fleets in all modes**. This is necessary to ensure that low and zero emission technology options are deployed, including through retrofitting and appropriate renewal schemes in all transport modes. Increased use of joint and cross-border public procurement within the EU, based on the Most Economically Advantageous Tender principle, can contribute to doing this cost-efficiently. Support for such fleet renewals, while provided in line with the EU's international obligations on subsidies and with EU State aid rules, will help to preserve a thriving manufacturing ecosystem in areas where Europe has a strategic technological advantage such as the aircraft, train and vessel manufacturing industries. This would increase the prospects of adequate production capacities and supply value chains being built up within the European manufacturing industry in line with the New Industrial Strategy for Europe[54], and of preserving the technological leadership of the EU's manufacturing base.

82. Building on the success of the European Battery Alliance[55], **the Commission supports strategic value chains (including on batteries, raw materials, hydrogen and renewable and low-carbon fuels)**[56] with regulatory and financial instruments. This is essential to ensuring secure supply of materials and technologies indispensable for sustainable and smart mobility, avoiding Europe's dependence on external suppliers in strategic sectors to achieve greater strategic autonomy. Europe needs to capitalise on its space assets that provide satellite services, data, and communications across all modes of transport and are particularly critical for CCAM.

83. The Single European Transport Area is more integrated than ever before, but it is still far from complete. **Obstacles to the free movement of goods and services remain**, as do obstacles to fair competition, while relevant rules are not implemented or properly enforced in a timely manner.

84. The COVID-19 pandemic has shed light on the vulnerabilities of the single market. Uninterrupted land, waterborne and air cargo services are of crucial importance for the transport of goods and inputs to manufacturing industries, the functioning of the EU's single market, and the EU's effective response to the current and future crises. Efforts to ensure multimodality and interoperability between different modes should be stepped up, and the **completion of the Single European Transport Area must be accelerated**.

85. The integrity of the single market and a level playing field for operators must be maintained, including by ensuring that there is no discrimination among incumbents and new market entrants, for instance when granting State aid, and that no new barriers for competition are introduced. The **Commission will rigorously pursue the**

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53 There were more than 1.1 million enterprises in the EU-27's transportation and storage services sector in 2017, employing 8.1 % of the total number of persons working in the non-financial business economy. More than half of them are employed by SMEs.

54 COM (2020) 102 final, "A New Industrial Strategy for Europe"

55 The European Battery Alliance established in 2017 gathers over 500 actors with over € 100 bn of combined investments announced along the EU value chain.

56 https://www.eba250.com/; https://erma.eu/; https://ec.europa.eu/growth/industry/policy/european-clean-hydrogen-alliance_en

enforcement of EU rules, and will review or propose, as necessary, legislation to remove obstacles to the free movement of goods and services affecting transport. While doing so the Commission will seek to improve the efficiency of the transport system and transport operations, for example by aiming to reduce empty runs, thus avoiding harmful emissions and pollution.

86.   To achieve all the goals in this strategy, support for modernisation efforts is needed in every mode to provide EU citizens with smart connectivity at affordable and transparent prices. In aviation, the Commission will propose to **revise the Air Services Regulation**[57]. While maintaining the highest levels of air safety, the objectives will be to protect consumer interests, to shape a resilient and competitive European air services industry while preserving high quality employment. The modernisation of EU rules governing airport charges, slots and computer reservation systems will complement this initiative. In rail, the Commission will assess whether current **rules on track access charges** offer the right incentives to boost competitive markets and the attractiveness of rail.

87.   To avoid future disruptions, in response to the call by the Council, the **Commission will prepare crisis contingency plan(s)**, bringing together EU and Member State authorities with sector representatives. Its objective would be to ensure business continuity, and coordinate response measures in the transport sector on the basis of guidelines and legislation developed during the COVID-19 pandemic, such as for the Green Lanes[58]. With a view to further ensuring uninterrupted freight transport operations and passenger transport services in crisis scenarios, the Commission will assess the possibilities of providing for new health-safety and operational measures, and of setting out a harmonised minimum level of essential transport services. The EU may also need to adapt existing transport legislation to allow for a swift response to crises.

Flagship 9 **Making mobility fair and just for all**

88.   The economic shock has highlighted the need for **affordable, accessible and fair mobility** for passengers and other users of transport services. Indeed, whereas the single market in transport has increased connectivity, mobility remains expensive for people with low disposable income, and not sufficiently accessible for people with disabilities or reduced mobility, and those with low IT-literacy. In rural, peripheral and remote areas, including the outermost regions and islands, improved public transport links will be essential to guarantee unhindered access to mobility for all.

89.   The shift towards sustainable, smart and resilient mobility must be just or else risks not taking place. The Commission will therefore ensure that possibilities under **the just transition mechanism are fully explored to make this new mobility affordable and accessible in all regions and for all passengers including those with disabilities and reduced mobility**. The Commission will also continue to help by providing support from the Cohesion Fund and ERDF in less developed Member States and regions.

90.   In addition, PSOs should be even more targeted and efficient and, where possible, serve the shift to a multimodal system. To guarantee the best use of public money and support, national and local authorities need to be able to **utilise PSOs to improve connectivity** and to reflect specific policy objectives. This could be achieved through sustainability criteria for PSOs, such as a criterion whereby PSOs for short-haul flights cannot be imposed where an alternative, suitable, more sustainable and competitive link exists. The Commission will consider options to bring about a multimodal PSOs system, notably with a view to allowing all transport modes to compete on an equal footing to fulfil relevant transport needs.

91.   Fair mobility also means **protection for passengers and their rights**. The mass cancellations during the COVID-19 pandemic showed the importance of EU-wide rules and their uniform implementation and enforcement. The EU must help passengers when transport operators go bankrupt or are in a major liquidity crisis as in the context of COVID-19 pandemic. Stranded passengers need to be repatriated and their tickets have to be reimbursed in case of cancellations by carriers. The Commission considers options and benefits of possible means that protect passengers against such events and will, if appropriate, make legislative proposals.

92.   EU passenger rights should be better implemented, clearer for both carriers and passengers, offer adequate assistance, reimbursement, possibly compensation when disruptions arise, and appropriate sanctions if the rules are not properly applied. The Commission will consider options and benefits to go further with a **multimodal framework for passenger rights** that is simplified, more consistent and harmonised.

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57   Regulation No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community

58   C(2020) 1897 final Communication "on the implementation of the Green Lanes under the Guidelines for border management measures to protect health and ensure the availability of goods and essential services" and COM(2020) 685 final Communication "upgrading the transport Green Lanes to keep the economy going during the COVID-19 pandemic resurgence"

93. The sector's most valuable asset by far is its people and the sustainable and smart transition will not be possible without the support and buy-in of **transport workers**. However, certain parts of the transport sector often suffer from harsh working conditions. Precarious working conditions, including long working hours, periods spent away from home and low paid work, are exacerbated by a lack of respect for, and proper enforcement of, applicable labour standards. Providing higher social standards would contribute directly to reverse the current general lack of attractiveness of the sector. The workforce is rapidly ageing and significant shortages of labour force are already very visible in certain occupations[59]. The issues faced by the transport workers have been exacerbated by the COVID-19 pandemic. This situation risks deteriorating further if no action is taken.

94. This is why the Commission will consider **measures across the different modes of transport to strengthen the legislative framework on conditions for workers**, and ensure the correct implementation and give more clarity on the applicable social rights in line with the various instruments available to implement the European Pillar of Social Rights. The Commission will seek to promote high social standards, including in the aviation sector that faces specific challenges, and will work with the European Labour Authority to support Member States in enforcing the relevant legislation. In the international domain, the Commission will push for progress in the context of the IMO, the International Labour Organization and other international institutions to ensure decent working and living conditions on board and timely crew changes, in particular during a global pandemic.

95. Changes in the sector, in particular those relating to automation and digitalisation, are creating many new challenges. Jobs in the transport sector, especially low- and medium-skilled jobs, may be at **risk due to automation and moves towards greater sustainability**. At the same time, the ongoing digital transformation presents new opportunities, such as an improved working environment and quality jobs that could become more attractive for women and young people. Therefore, a credible path is needed for the **just transition for transport workers**. The Commission will issue recommendations for the transition to automation and digitalisation and on means to mitigate their impact on the transport workforce.

96. Finally, in order to address the growing shortage of skilled workers, the Commission is calling on transport stakeholders and social partners to contribute to the implementation of the European **Skills** Agenda for sustainable competitiveness, social fairness and resilience[60] and in particular to join the Pact for Skills[61]. Transport stakeholders should also create further apprenticeships, to become members of the European Alliance for Apprenticeships, and to participate actively in the European Vocational Skills Week.

97. The Commission will duly apply **equality mainstreaming** to its transport related policy initiatives and continue to support stakeholder cooperation and exchange of good practices on the "More Women in Transport – Platform for Change", to increase the number of women in transport professions. It will also raise awareness on equality issues by setting up and supporting a network of Diversity Ambassadors. Any future proposal for transport will be compliant with the Commission's Gender Equality Strategy[62] and Disability Strategy[63].

Flagship 10 **Enhancing transport safety and security**

98. The **safety and security** of the transport system is paramount and should never be compromised and the EU should remain a world leader in this field. Continuous efforts with international, national and local authorities, stakeholders, and citizens is key if we are to meet our goal of zero fatalities from mobility.

99. **Europe remains the safest transport region in the world**. While air, sea and rail travel are very safe, there is no room for complacency, particularly on road safety. Some 22 700 people lost their lives on EU roads in 2019, and for every person killed, around five more suffer serious injuries with life-changing consequences. The Commission therefore remains fully committed to implementing the EU road safety strategy of 2018[64].

100. **Factors such as speed, alcohol and drug consumption, and distractions while driving** are strongly correlated with both causation and severity of road crashes. The Commission will consider what action is warranted to tackle these issues, for instance through further use of EU recommendations. Protecting vulnerable road users will be a priority, as will better data collection and analysis, and the Commission will also assess the added value

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59   For example, the International Road Transport Union reported in 2019 that a fifth of driver positions are unfilled in the European road transport sector.

60   COM (2020) 274 final, "European Skills Agenda for sustainable competitiveness, social fairness and resilience (2020)"

61   The Commission will take into account the experience of the recently launched Automotive Partnership as part of the Pact for Skills, to help the industry manage the up- and re-skilling challenges it faces during the green and digital transition.

62   COM (2020) 152 final, "A Union of Equality: Gender Equality Strategy 2020-2025"

63   COM (2010) 636 final, European Disability Strategy (2010-2020). The Commission will present a strengthened strategy for disability in 2021, building on the results of the ongoing evaluation of the European Strategy for Disability 2010-2020."

64   COM(2018) 293 final, "Sustainable Mobility for Europe: safe, connected, and clean"

of in-depth crash investigation at this level. The upgrading of existing high-risk infrastructure should remain a priority for infrastructure investments, with a particular attention on ageing and underdeveloped network segments. Measures to give more space to various forms of active mobility will help prevent deaths and serious injuries for vulnerable road users.

101. In the maritime sector, the Commission is planning to initiate a major review of existing legislation on **flag state responsibilities, port state control and accident investigation**, together with the continued strengthening of EU rules on recognised organisations. The overall objective is to enable safe, secure and efficient maritime transport with lower costs for businesses and administrations. Maritime safety and smart and sustainable shipping in EU waters will continue to rely on the contribution of the European Maritime Safety Agency whose mandate should be modernised and possibly extended to additional areas.

102. Alongside other efforts to make the transport sector and related infrastructure more resilient, the EU will **update and improve the existing security framework**, including tackling cyber threats, under the overarching umbrella of the existing rules governing this matter[65]. Building upon the EU wide certification framework for ICT products, processes and services, and the designation of "Operators of Essential Services" (OES) for mobility infrastructures, the option of setting up an EU-level rapid alert mechanism for security will be explored. In addition, related regulations will be improved, such as on the cybersecurity certification framework for automated vehicles.

Milestones[66] towards resilient mobility:

> *13. A multimodal Trans-European Transport Network equipped for sustainable and smart transport with high speed connectivity will be operational by 2030 for the core network and by 2050 for the comprehensive network.*

> *14. By 2050, the death toll for all modes of transport in the EU will be close to zero.*

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65   Directive (EU) 2016/1148, Directive on security of network and information systems (NIS Directive), Regulation (EU) 2019/881, Cybersecurity Act, and the Directive on European critical infrastructure protection (Directive 2008/114/EC)

66   Taking also into account the analysis presented in the accompanying Staff Working Document, these milestones are set out to show the European transport system's path towards achieving our objectives of a sustainable, smart and resilient mobility, thereby indicating the necessary ambition for our future policies.

5
THE EU AS THE WORLD'S CONNECTIVITY HUB

103.   In view of rapidly changing geopolitical developments, the EU needs to act to safeguard and further EU interests. For all transport modes with an international dimension, **ensuring undistorted international competition, reciprocity and a level playing field is essential**. To address, effectively, the distorting effects of foreign subsidies in the internal market, including in public procurement, the Commission will propose a dedicated instrument[67].

104.   Further action could include the use, by Member States, of available mechanisms for the screening of foreign direct investments into European transport companies and assets on the grounds of security or public order. It could also include changes, on the Union's part, in respect of trade defence, in light of criteria in place for aviation. The Commission will also continue **to promote the use of European technical, social, environmental and competition standards** in international fora, and in relations with individual non-EU countries across transport modes. Transport equipment and solutions are the engine of European exports and the sustainable and smart transformation of the sector is an opportunity for our manufacturing industry to lead globally.

105.   To achieve the goals of the Paris Agreement, a significant reduction in transport emissions is needed by 2050 beyond the EU as well. It is therefore crucial that **the European Green Deal and this strategy are well reflected in our external actions**, that global action towards sustainable and smart mobility is widely promoted to achieve the Sustainable Development Goals, and that policy coherence is ensured when projecting internal EU policies outside the EU. Accordingly, various strands of action for translating good practices, quality solutions and standards on sustainable and smart mobility into the EU development cooperation will be developed, including with our African partners[68], while taking into account the specific challenges and constraints of emerging and development countries.

106.   The EU will **continue to deepen transport relations**, including with key strategic partners and international organisations, and will further develop links with new international partners, such as high-growth and emerging economies. This is paramount for sectors that need a global level playing field, such as aviation and maritime. The Commission will seek authorisations from the Council to open negotiations for new air transport agreements with third countries, and will explore options for appropriate action as regards maritime transport relations with third countries and regions. The EU should also strive, within IMO, ICAO and other international organisations, for high standards, including in the field of safety, security, and environmental protection, notably climate change.

107.   Transport is a key component of policies and instruments supporting the enlargement process to the Western Balkans and the **EU neighbourhood policy**, including the Eastern Partnership and Southern Neighbourhood. The Commission will strengthen the link between transport and neighbourhood policies in key areas, and will develop a comprehensive approach to connectivity with neighbouring countries, including by working closely with the Transport Community, extending the TEN-T, providing technical support and cooperation, and concluding new sectoral agreements.

108.   To achieve the EU's international ambitions and priorities in the field of transport, it is important to mainstream transport policies in the EU external dimension and act on the international stage, with a **strong, unified and coherent voice**. It is to be recalled in that respect that this requires all Union institutions and Member States to fully apply the provisions of the Treaties, in particular those on the negotiation and the conclusion of new transport agreements and those on the representation in international fora, such as the ICAO and the IMO, as the Lisbon Treaty was precisely designed to make the Union more effective in its external relations.

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67   COM(2020) 253 final "White Paper on levelling the playing field as regards foreign subsidies"
68   JOIN(2020) 4 final, Towards a comprehensive Strategy with Africa

6
CONCLUSIONS

109.   The recovery from the crisis caused by the COVID-19 pandemic should be used to accelerate the decarbonisation and modernisation of the entire transport and mobility system, limiting its negative impact on the environment and improving the safety and health of our citizens. **The twin green and digital transitions should reshape the sector, redraw connectivity and re-energise the economy**. The Commission acknowledges that this transformation – which needs to be socially fair and just – will not come easily, and will require the full dedication and support from all transport actors, as well as a substantial increase of growth-generating investment from public and private sectors.

110.   The sustainable European transport system that the EU strives for must be smart, flexible and adaptable to ever-changing transport patterns and needs, based on cutting-edge technological advancements to provide seamless, safe and secure connectivity to all European citizens. **Transport should showcase European ingenuity and industriousness – standing at the vanguard of research, innovation and entrepreneurship, and driving the twin transitions**.

111.   The Commission is putting forward a comprehensive set of measures listed in this strategy's action plan to put the EU on the path to creating the sustainable, smart and resilient mobility system of the future and bringing about the fundamental changes needed to achieve the objectives of the European Green Deal. These efforts can only be successful if there is sufficient commitment by all those concerned, namely European institutions, Member States and their authorities at all levels of government, stakeholders, businesses as well as citizens.

ANNEX

to the

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Sustainable and Smart Mobility Strategy
– putting European transport on track for the future

{SWD(2020) 331 final}

ACTION PLAN [1]

SUSTAINABLE MOBILITY

Flagship 1 – Boosting uptake of zero-emission vehicles, renewable & low-carbon fuels and related infrastructure

1.	Revision of the recast Renewable Energy Directive	**2021**
2.	Adopt relevant implementing legislation under the recast Renewable Energy Directive setting out methodologies for measuring GHG emissions savings and promotion of renewable and low-carbon fuels	**2021**
3.	Revision of the CO2 emission performance standards for cars and vans, for lorries and put in place CO2 emission performance standards for buses	**2021-2022**
4.	Revision of the Weights and Dimensions Directive	**2022**
5.	Explore the benefits of retrofitting and renewal schemes in various transport modes	**2021**
6.	Propose post-Euro 6/VI emission standards for cars, vans, lorries and buses	**2021**
7.	Improve emissions testing in roadworthiness checks	**2023**
8.	Develop coherent rules for environmental, energy and safety performance of tyres	**2023**
9.	Foster development of energy efficiency and alternative fuel measures at IMO	**2021**
10.	Revision of the Alternative Fuels Infrastructure Directive [2] and a roll-out plan with funding opportunities and requirements	**2021**
11.	Revision of the Energy Performance of Buildings Directive including enhanced provisions on charging infrastructure for e-mobility	**2021**

Flagship 2 – Creating zero-emission airports and ports

12.	Launch FuelEU Maritime – Green European Maritime Space [3] and ReFuelEU Aviation – Sustainable Aviation Fuels	**2021**
13.	Consider to establish the Renewable and Low-Carbon Fuels Value Chain Alliance [4]	**2021**
14.	Revision of the Ship-source pollution Directive	**2022**
15.	Revision of the EU Ship Recycling Regulation [5]	**2023**
16.	Revision of the Airport Slots Regulation [6] and the Airport Charges Directive [7]	**2021-2022**
17.	Establish sustainable taxonomy criteria for all modes [8]	**2021**

Flagship 3 – Making interurban and urban mobility more sustainable and healthy

18.	EU 2021 Rail Corridor Initiative - Action Plan to boost passenger rail transport	**2021**
19.	Put in place measures to better manage and coordinate international rail traffic, including if necessary through revised rules for capacity allocation and infrastructure charging in rail [9]	**2022**
20.	Revision of the Urban Mobility Package of 2013	**2021**
21.	Zero pollution action plan for air, water and soil; revision of air quality standards and reduction of noise pollution	**2021; 2022**
22.	Issue guidelines to support the safe use of micromobility devices	**2021**
23.	Assess the need for measures to ensure a level playing field for local, on-demand passenger transport and ride-hailing platforms	**2022**

Flagship 4 – Greening freight transport

24.	EU 2021 Rail Corridor Initiative - Revise the Rail Freight Corridor Regulation	**2021**
25.	Review of the regulatory framework for intermodal transport, including the Combined Transport Directive	**2022**
26.	Launch NAIADES III to exploit the untapped potential of inland waterways transport	**2021**
27.	Enable B2A multimodal data exchange through implementation of the e-FTI Regulation and Maritime Single Window environment	**2025**
28.	Issue guidelines for operators and platforms on informing users about the carbon footprint of their deliveries and on offering sustainable delivery choices [10]	**2023**

Flagship 5 – Pricing carbon and providing better incentives for users

29.	Revision of the EU Emissions Trading System (ETS), with respect to maritime transport; aviation; and CORSIA [11]	**2021**
30.	Revision of the Energy Taxation Directive [12]	**2021**
31.	Review VAT exemptions for international passenger transport	**2022**
32.	Put forward market-based measures for shipping at IMO	**2022**
33.	Establish EU framework for harmonised measurement of transport and logistics emissions	**2022**
34.	Issue guidelines for operators and platforms to inform passengers about the carbon footprint of their trip and to enable passengers to voluntarily offset it, and for wider use of eco-routing for (in-built) navigation software	**2023**
35.	Development of an environmental label programme for aviation by EASA	**2022**

SMART MOBILITY

Flagship 6 – **Making connected and automated multimodal mobility a reality**

36.	Revise Delegated Regulation 2015/962 on real time traffic information services to extend geographical coverage and datasets; revise Delegated Regulation 2017/1926 on multimodal travel information services to include mandatory accessibility of new dynamic datasets	**2021; 2022**
37.	Assess the need for regulatory action on rights and duties of multimodal digital service providers and issue a recommendation to ensure public service contracts do not hamper data sharing and support the development of multimodal ticketing services, together with an initiative on ticketing, including rail ticketing	**2022**
38.	Revision of the Directive on Intelligent Transport Systems, including a multimodal ticketing initiative	**2021**
39.	Complete the EU legal framework on the approval of automated vehicles	**2021**
40.	Assess the need for an agency or other body to support safe, smart and sustainable road transport operations [13]	**2022**
41.	Adopt the implementing legislation for the approval of connected and automated vehicles	**2021**
42.	Adopt railway technical standards and specifications package on ERTMS/Control-Command and Signalling (CCS); and develop mandatory deployment plans for automatic train operation, automated traffic management and advanced CCS	**2022**
43.	Revision of the Directive on Harmonised River Information Services	**2022**
44.	Propose measures on electronic documents for inland crew and vessels	**2021**

Flagship 7 – **Innovation, data and AI for smart mobility**

45.	Develop/renew R&I partnerships: Connected, cooperative and automated mobility; Shift2Rail; SESAR; Waterborne; Clean Aviation; Clean Hydrogen Partnership; Smart Networks and Services; AI, Data and Robotics; and Key Digital Technologies	**2020-2021**
46.	Further develop the regulatory framework for drones and unmanned aircraft, including U-Space; adopt a Drone Strategy 2.0	**2021-2023; 2022**
47.	Assess the need for regulatory actions to ensure safety and security of new entrants and new technologies, such as hyperloop	**2021**
48.	Set up a high-level group ('New Mobility Tech Group') as a first step toward the development of a coherent EU approach and a set of recommendations on facilitating testing and trials of emerging mobility technologies and solutions in the EU ('European Mobility Test Beds')	**2022**
49.	Develop a common European mobility data space and establish a stronger coordination mechanism for the national access points established under the ITS Directive	**2021**
50.	Set out an AI roadmap for mobility	**2021**
51.	Review the regulatory framework for interoperable data sharing in rail transport (ERTMS, rail telematics applications)	**2022**
52.	Review the current EU type approval legislation to facilitate car data-based services including interaction with energy system	**2021**
53.	Propose a new regulatory framework to open up access to car data to mobility services	**2021**
54.	Propose rules on a trusted environment for corridor data exchange to support collaborative logistics	**2022**

RESILIENT MOBILITY

Flagship 8 - Reinforcing the single market

55.	Revision of the Regulation on the Trans-European Transport Network (TEN-T) [14]	**2021**
56.	Assess the impacts of the COVID-19 pandemic on connectivity and competition in the market, and propose follow-up measures as appropriate	**2021-22**
57.	Review the transport relevant State aid rules	**2023**
58.	Prepare crisis contingency plan(s) for the transport sector, including health-safety and operational measures and setting out essential transport services	**2021-2023**
59.	Revision of the Air Services Regulation	**2021-22**
60.	Propose measures to encourage cross-border car rentals	**2022**
61.	Guidance on climate proofing of transport infrastructure, networks and systems	**2021**

Flagship 9 - Making mobility fair and just for all

62.	Review of the interpretative guidelines on the Land PSO Regulation; revise rules on air PSOs; and provide guidance on freight PSOs	**2021; 2022; 2023**
63.	Review of the passenger rights regulatory framework, including to ensure its resilience to extensive travel disruptions, and including options for multimodal tickets [15]	**2021-2022**
64.	Assess the options and propose, if appropriate, an adequate financial protection scheme to protect passengers against the risk of a liquidity crisis or an insolvency regarding the reimbursement of tickets and if needed their repatriation	**2021-2022**
65.	Revision of the Code of Conduct for computerised reservation systems	**2021-2022**
66.	Assess the need for a proposal to require efficient exchange of odometer readings across the EU	**2021**
67.	Revision of the Directive on the certification of train drivers	**2022**
68.	Launch initiatives to enhance living and working conditions for seafarers (including the revision of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers at the IMO)	**2021**
69.	Issue recommendations for the transition to automation and digitalisation and their impact on the transport workforce	**2023**
70.	Launch initiatives to increase the attractiveness of the transport sector	**2021-2023**

Flagship 10 - **Enhancing transport safety and security**

71.	Revision of the Directive on cross-border enforcement of traffic rules	**2021-2022**
72.	Revision of the Driving Licence Directive to address technological innovation [16], including digital driving licences	**2022**
73.	Consider new guidance on issues such as the maximum permitted blood alcohol content for drivers of motorised vehicles and on the use of alcohol interlocks	**2022**
74.	Assess the need to propose rules for auditing, inspecting and reporting on infrastructure quality for bridges or other sensitive infrastructure	**2023**
75.	Adapt the eCall legal framework to new telecommunication technologies; consider the extension of eCall to powered two wheelers, trucks, buses and agricultural tractors	**2021; 2022**
76.	Revision of the maritime safety framework (Directives on flag state responsibilities, port state control and accident investigation)	**2021**
77.	Revise the mandate of the European Maritime Safety Agency	**2022**
78.	Propose EU manning requirements for inland navigation	**2023-2024**
79.	Consider setting up an EU rapid alert mechanism for security, including cyber threats	**2022**
80.	Explore the need to adapt existing rules to address cyber risks and insider threats, in line of the toolbox on 5G cybersecurity	**2022**
81.	Improve security for passenger rail travel by implementing the results of the action plan on rail security and the Rail Passenger Security Platform	**2022**
82.	Establish a scheme under the cybersecurity certification framework for automated vehicles	**2023**

(1)   Unless otherwise indicated, the Action Plan lists Commission initiatives.

(2   This action has relevant aspects for flagship 2 in particular.

(3)   This action has relevant aspects for flagship 1 in particular.

(4)   This action has relevant aspects for flagship 1 in particular.

(5)   This action has relevant aspects for flagship 10 in particular.

(6)   This action has relevant aspects for flagship 5 in particular.

(7)   This action has relevant aspects for flagship 5 in particular.

(8)   This action has relevant aspects for flagship 1 in particular.

(9)   This action has relevant aspects for flagship 4 in particular.

(10) This action has relevant aspects for flagship 5 in particular.

(11) The action has relevant aspects for flagship 1-4 in particular.

(12 The action has relevant aspects for flagship 1-4 in particular.

(13) This action has relevant aspects for flagship 10 in particular.

(14) This action has relevant aspects for flagships 1-4 in particular.

(15) This action has relevant aspects for flagship 6 in particular.

(16) This action has relevant aspects for flagship 6 in particular.