IMPACT ON THE USE OF PUBLIC TRANSPORT DUE TO COVID-19 PANDEMIC IN THE WESTERN BALKANS

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ABBREVIATIONS

EBRD	European Bank for Reconstruction and Development
C19	Coronavirus disease 2019 (COVID-19)
GCAP	Green City Action Plan
H&S	Health and safety
NGO	Non-governmental organisation
SUMP	Sustainable Urban Mobility Plan
VAT	Value Added Tax

1 EXECUTIVE SUMMARY

ABOUT THE STUDY

In March 2020, the World Health Organisation announced COVID-19 as a global pandemic, which has had a significant impact on mobility worldwide. Government authorities and public transport operators throughout the world, including the Western Balkans region, reacted by imposing safety measures to reduce the contagion risk, with implications on mobility behaviours. In addition to restricting the movement of people, the use of public transport was limited or in some cases entirely suspended. Consequently, social and health inequalities were exacerbated between those who can work remotely and those who have to travel to work every day, as well as between those with access to private vehicles and other (often low-income) households that depend on shared transit.

To assess the impacts on public transport operations, the European Bank for Reconstruction and Development commissioned the development of a study in a number of cities in the Western Balkans which also identifies practical measures that could be introduced to help reduce health and safety risks to vulnerable passengers and road users. The Study covers the cities of Prishtina (Kosovo); Sarajevo and Banja Luka (Bosnia and Herzegovina), Belgrade and Novi Sad (Serbia), Skopje (North Macedonia) and Tirana (Albania). It was developed through a two-phase approach during the period March-July 2021. The first phase (data gathering) involved a literature review to confirm whether any other similar studies have been undertaken globally or nationally in each country, an online media search to identify the key topics reported in the media with regard to the impact of the pandemic on use of public transport, and mapping of relevant road safety and public health stakeholders. The second phase involved surveying of public transport operators, road safety and public health NGOs, users of the public transport system and direct interviews with a number of organisations in the fields of public transport, traffic safety and public health.

SUMMARY OF CITY LEVEL ANALYSES

Tirana (Albania). The public transport system in Tirana relies entirely on buses. Services are provided by 10 private operators which are currently operating 16 urban and 25 suburban bus lines. The system is overseen by the city's Transport and Mobility Department.

At the beginning of the pandemic, public transport services were initially suspended for several months and thereafter continued along with imposed safety measures such as restricting the capacity of public transport vehicles, social distancing measures in buses and wearing of masks. The number of passengers using public transport declined to a great extent (50-60%), and the number of bus lines was reduced by 25% to 60%. Public transport operators experienced significant financial consequences due to a decrease in revenues during the pandemic, which caused further challenges (such as inability secure the necessary spare parts for the proper functioning and safety of their vehicle fleet during the pandemic or to make additional investments, and problems with vehicle failures/breakdowns during the pandemic). It has been reported that insufficient assistance and support was provided by local authorities to mitigate the losses experienced during the pandemic. In addition, there have been many reported cases of non-compliance with the safety measures such as overcrowding in buses. The majority of public transport users do not feel safe in public transport and believe that protection measures in public transport need to be improved. Furthermore, they are mostly dissatisfied or only partially satisfied with the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Changes in mobility patterns have been significant. Before the pandemic, public transport was the most frequently used type of transport; however, during the pandemic, private cars became the most preferred mode, followed by walking, whereas public transport fell to the third place. The use of bicycles/scooters increased only slightly. It has been noted that the infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians ...) is not adequate and that no specific actions have been taken to protect their health and safety during the pandemic.

Sarajevo and Banja Luka (Bosnia and Herzegovina). The public transport system in Sarajevo encompasses tram, trolley and bus/minibus transport. The public transport operator for all types of transport is a state-owned enterprise; in addition, a private company operates a number of bus and minibus lines. Public transport services in Banja Luka are provided by several companies with different ownership, but the city authorities have complete control over public transport (including taxis) and control the price of transport.

At the beginning of the pandemic, public transport services were initially suspended except for registered taxi carriers, but these services were shortly continued. Obligatory safety measures were introduced, such as wearing of masks, social distancing requirements and restricting passenger capacity. The number of passengers using public transport declined significantly (around 50%). Public transport operators

experienced significant financial consequences (as much as 50-80%), which caused further challenges (such as inability secure the necessary spare parts for the proper functioning and safety of their vehicle fleet during the pandemic or to make additional investments, and problems with vehicle failures/ breakdowns during the pandemic). It has been reported that insufficient assistance and support was provided by local authorities to mitigate the losses experienced during the pandemic – particularly in Banja Luka where private operators are facing the risk of discontinuing their services. In addition, it has been reported that a large number of citizens using public transport and a very small number of public transport vehicles made it impossible to follow social distancing. The majority of public transport users therefore do not feel safe in public transport and believe that protection measures in public transport need to be improved. Furthermore, they are mostly dissatisfied or only partially satisfied with the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Changes in mobility patterns have been significant. Before the pandemic, public transport was the most frequently used type of transport; however, during the pandemic, private cars became the most preferred type of transport while public transport fell to the second place. Walking was the third most preferred type of transport in both periods, with a slight increase during the pandemic. It has been noted that the infrastructure in place to ensure traffic mobility safety for vulnerable is not adequate and that no specific actions have been taken to protect their health and safety during the pandemic.

Prishtina (Kosovo). Public transport in Prishtina is organised through urban and suburban bus lines for the transport of passengers. The main public transport provider is a public company owned by the Municipality of Prishtina. Other privately held smaller companies also provide bus and taxi transport services in the city.

The public transport sector was greatly affected by the pandemic due to financial losses incurred after the government first banned the provision of public transport services and later imposed a limit to the number of passengers (only 20) per bus after the services were reinstated. The pandemic led to a decline in the number of passengers using public transport. The number of bus lines was significantly decreased. Public transport operators experienced significant financial consequences (ranging from 50% to 70%), which caused further challenges (such as inability of private operators to fully pay their employees or to make additional investments, and problems with vehicle failures/breakdowns during the pandemic). In addition, there have been many reported cases of non-compliance with the safety measures such as overcrowding in buses. The majority of public transport users do not feel safe in public transport and believe that protection measures in public transport need to be improved.

Significant changes in mobility behaviours occurred – shifting away from public transport to use of private cars, walking and cycling. Before the pandemic, public transport was the most frequently used type of transport while the vast majority used private cars during the pandemic and public transport fell to the second place. There was also a slight increase in walking and use of bicycles/scooters. It has been noted that the infrastructure in place to ensure traffic mobility safety for vulnerable is not adequate and that no specific actions have been taken to protect their health and safety during the pandemic.

Skopje (North Macedonia). Public transport services in Skopje are based solely on busses, and are provided by three operators (one city-owned company and two private operators). About 75% of the public transport services are provided by the city-owned transport operator.

The pandemic has greatly affected public transport and drastically reduced the number of passengers (by about 50%). The number of bus lines was reduced. Obligatory safety measures were introduced, such as restrictions on capacity of public transport vehicles (by 50% or 30%), social distancing measures in buses, disinfection requirements for all vehicles including taxis, etc. The number of passengers using public transport declined significantly (by around 50%). Public transport operators experienced significant financial consequences, particularly private operators due to reduction in bus lines, leading to indebtedness and job losses. It is believed that the city authorities have failed to provide sufficient support and stimulation, and that this sector will be financially unsustainable if serious support is not provided in the near future. In addition, there have been many reported cases of non-compliance with the safety measures. The majority of public transport users therefore do not feel safe in public transport and believe that protection measures in public transport need to be improved. Furthermore, they are generally dissatisfied or partially satisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Changes in mobility patterns have been significant. Before the pandemic, public transport was the most frequently used type of transport followed by private cars; however, during the pandemic, private cars became the most preferred type of transport, and public transport fell to the second place (reduced by half compared to the pre-pandemic period). While people preferring walking increased to some extent, those using bicycles or scooters increased almost

insignificantly. It has been noted that the infrastructure in place to ensure traffic mobility safety for vulnerable is not adequate and that no specific actions have been taken to protect their health and safety during the pandemic.

Belgrade and Novi Sad (Serbia). The public transport system in Belgrade consists of three main types of transport: buses, trams and trolleybuses. The public transport operator for all types of transport is the city-owned transport company but a number of private companies also operate a number of bus lines. The public transport network in Novi Sad relies entirely on buses and services are provided by a city-owned transport company.

All urban, suburban and local transport lines in Serbia were cancelled at the beginning of the pandemic. They were thereafter reintroduced with a reorganised schedule and imposed safety measures such as restrictions on capacity of public transport, masking and social distancing measures. The pandemic drastically reduced the number of passengers in public transport. When the state of emergency was declared in March 2020 in Serbia, the number of public transport vehicles decreased by more than 80%, as only two operators were providing public transport services during this period. Monthly revenues from fares collected decreased by around 70%. After the state of emergency was lifted in May 2020, public transport services were continued at a level of 77% compared to the pre-pandemic period. In addition, there have been many reported cases of non-compliance with the safety measures. More than half of public transport users therefore do not feel safe in public transport and the majority believes that protection measures in public transport need to be improved. Furthermore, they are generally dissatisfied or only partially satisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Changes in mobility patterns have been significant. Before the pandemic, public transport was the most frequently used type of transport. However, during the pandemic, private cars became the most preferred mode and public transport fell to the second place (reduced by more than half compared to the pre-pandemic period). While people preferring walking increased to some extent, those using bicycles or scooters increased almost insignificantly. It has been noted that the infrastructure in place to ensure traffic mobility safety for vulnerable is not adequate and that no specific actions have been taken to protect their health and safety during the pandemic.

SUMMARY OF CONCLUSIONS

Even before the start of the pandemic, there were numerous urban mobility challenges in the five analysed countries – significant traffic congestions, domination of private vehicles on roads, undeveloped and/or unsafe infrastructure for non-motorised transport and inefficient public transport service delivery (including issues such as public transport coverage). Tackling these issues requires the planning and implementation of policies and programs which are often lacking, as well as financial capacities which are limited in the sector. The situation has been further exacerbated by the start of the pandemic which has undoubtedly affected mobility behaviour patterns and affected the provision of public transport services. Before the start of the pandemic, public transport was the most frequently used type of transport in all of the cities. However, during the pandemic, private cars became the most preferred mode. While walking increased to some extent, it is indicative that the use of bicycles/scooters increased slightly or insignificantly in all of the countries, presumably due to inadequate infrastructure.

The changes in mobility behaviour patterns have negatively affected the business operations of public transport operators in all of the analysed cities and will almost certainly continue to negatively affect them. The operators have reported reduced revenues and believe they received insufficient assistance and support from local authorities to mitigate the losses experienced during the pandemic, particularly taking into account the fact that the prices for public transport services did not change in any of the countries.

Infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians, etc.) has found to be insufficiently adequate, and no specific actions were taken to protect the health and safety of vulnerable people during the pandemic in any of the cities. Those without access to alternative types of transportation had to use public transport even though these capacities were reduced and epidemiological measures were often not respected. The suspension of public transport services and consequently restricted access to work/sources of income, risk of poverty and limited access to healthcare was one of the immediate causes of negative outcomes of the pandemic on a number of vulnerable categories of people. Communication with the public on health and safety issues in public transport and receiving citizens' grievances about public transport during the pandemic is another issue of concern. Other than the regular communication of public transport operators in all cities with their customers on expected changes in timetables and the introduced epidemiological measures as well as some NGO campaigns, there was limited communication between government authorities and the general public or specific vulnerable groups.

It is also evident that, with the exception of several small-scale analyses in some of the countries mainly developed by the NGO sector, there has not been much research conducted in this field in the region.

Consequently, the impacts of the pandemic on public transport operations have not been fully researched in any of the countries. Furthermore, data on traffic safety are not collected to a sufficient extent in any of the countries, and the monitoring of such data is not carried out at a satisfactory level. The collected traffic data are often not disaggregated by types of accidents and do not take into account other forms of mobility such as cycling. Therefore, there are no specific data and indicators for accurately determining the impact of the pandemic on traffic safety.

SUMMARY OF RECOMMENDATIONS

Considerable work needs to be done to offset the impacts of the pandemic on the public transport systems in all of the analysed cities in terms of reducing health and safety risks to vulnerable passengers and road users. The first task at hand will be working on restoring trust and confidence in the safety of public transport services. The enforcement of epidemiological safety measures introduced in public transport has shown to be weak, causing concerns about public transport hygiene among passengers. While some avoided public transport altogether and opted for private vehicles, those who had no alternative mobility options were forced to use public transport despite their concerns. Those affected the most by this situation were undoubtedly vulnerable groups of road users. In addition, the decision to suspend public transport services for several months at a time at the beginning of the pandemic directly and negatively impacted vulnerable groups – not only passengers depending on public transport but also the employees of public transport operators who were financially impacted by the shutdown or decrease of public transport services. It is vital that public transport operators focus on health and safety issues and on making public transport a safer way of travelling in times of social distancing.

Road safety authorities, in collaboration with public transport operators, public health bodies but also the NGO sector, should develop clear and specific strategies on the way forward in this pandemic, which would allow governments to have in place well-devised plans and policies instead of relying on ad-hoc solutions. Such strategies should include details on how (i) public transport will be regulated and organised, including all service aspects such as frequencies, changes in timetables, service variants etc.; (ii) how disruptions in business operations of operators can be offset through financial and other assistance from the authorities; (iii) how communication with the public can be improved and how public perceptions can be managed; (iv) how the imposed measures can be better enforced; (v) how reliable traffic safety data can be collected and monitored.

In the short-term, financial adversity caused by the pandemic poses an immediate threat to many public transport providers. Strategies must urgently be devised at either national level or city level to offer assistance to this sector and to revive the sector. In the medium and long-term, the public transport sector will require significant planning efforts and investments in (i) expanding the availability of services to cover all urban and suburban settlements, and increasing multimodal and shared transport options; (ii) service frequency and optimisation management to enable timetable planning and introduce algorithm-based optimisation and other new technologies (e.g. online ticket sales and contactless readers) which would both enhance the level of services provided but also avoid crowding under social distancing requirements; (iii) reallocating spatial resources by marking dedicated public transport vehicle lanes to enable more efficient travel and avoid congestions; and (iv) expanding vehicle fleets by purchasing a sufficient number of safe and environmentally friendly vehicles. Long-term measures that need to be considered are investments in sustainable urban mobility in general. The relevant authorities could work on ensuring the essential conditions to reshape mobility behaviours. Policies and urban development plans are needed to define solutions for non-motorised mobility. This would imply (i) increasing the safety of non-motorised mobility and infrastructure, and its integration into the urban mobility system; (ii) ensuring acceptable, accessible and affordable transport with low carbon emissions, low noise and vibration; (iii) providing easy and adequate access to all modes of transport and non-motorised mobility; (iv) providing accessible mobility to socially vulnerable populations and people with disabilities; (v) providing economically viable and affordable mobility costs for all; and (vi) raising awareness on alternative modes of transport and movement.

In terms of management of road infrastructure safety, the national road safety authorities should pay more attention to EU directives in road safety, and perform road safety audits and inspections to identify the most common safety deficiencies and evaluate options to expand pedestrian and cycling facilities, improve traffic signalisation and dedicate special lanes for public vehicles and bikes/scooters.

EBRD and other investors could also consider non-financial support to the sector in terms of (i) placing a higher level of focus on reviewing health and safety issues for vulnerable groups of road users within EBRD's due diligence process for public transport projects; capacity building for public transport operators within the context of projects financed by EBRD; and assisting existing or new private SMEs offering public transport services; (ii) capacity building within the EBRD Green Cities program with the aim of ensuring that the measures identified in GCAPs are better implemented and monitored; (iii) policy assistance to support regulatory initiatives for the development of policies and legislation in the public transport sector.

2 INTRODUCTION

2.1 CONTEXT

COVID-19 ('C19') belongs to the category of coronaviruses, which are highly contagious respiratory pathogens. The first cases were reported in December 2019. In March 2020, the World Health Organisation announced C19 as a global pandemic. The C19 pandemic has had a significant impact on mobility worldwide. Government authorities and public transport operators all over the world, including the Western Balkans region, had to react by imposing safety measures to reduce the contagion risk, with implications on mobility behaviours. In addition to restrictions on the movement of people, the use of public transport was limited or in some cases completely suspended, given that public transport was identified as the main place of spread of the infection in densely populated areas. As a result, social and health inequalities were exacerbated between those who can work remotely and those who have to travel to work every day, as well as between those with access to private vehicles and other (often low-income) households that depend on shared transit.

The International Association of Public Transport considers the maintenance of high levels of service despite the reduction in travel demand to ensure safe distancing, in particular for high-risk user groups, as one of the main challenges associated with resuming public transport operations. The introduced measures will undoubtedly remain in force for some time to come, which puts public transport in a position where it must be flexible enough to meet the needs of users while respecting all current epidemiological measures.

The C19 pandemic has significantly slowed the implementation of a number of UN transport-related sustainable development goals. Without adequate investments in public transport, citizens are increasingly turning to the use of private cars to protect themselves from the virus, thus jeopardising decades of work on sustainable development.

2.2 OBJECTIVES OF THE STUDY

Recognising that the C19 pandemic has had direct impacts on public transport, the European Bank for Reconstruction and Development (the 'Bank' or the 'EBRD') has engaged the consulting company ENOVA Sarajevo to undertake a study in a number of cities in the Western Balkans (Kosovo, Bosnia and Herzegovina, Serbia, North Macedonia and Albania) to assess the impacts of the pandemic on public transport operations and identify practical measures, both short and long term, that could be introduced to help reduce health and safety ('H&S') risks to vulnerable passengers and road users. The cities selected for analysis based on their size and the public transport system in these five countries are: Prishtina (Kosovo); Sarajevo and Banja Luka (Bosnia and Herzegovina), Belgrade and Novi Sad (Serbia), Skopje (North Macedonia) and Tirana (Albania).

A summary of the Study providing key findings with recommendations which can be shared with key stakeholders from the region, as well as an infographic supporting this Study have also been developed.

2.3 APPROACH AND METHODOLOGY

The Study was developed through a two-phase approach during the period March-July 2021:

Phase 1: Data gathering

A literature review was carried out to confirm whether any other similar studies have been undertaken globally or nationally in each country, that can provide input data on H&S risks in public transport, including road and traffic safety and the impacts which the C19 pandemic has on the H&S of vulnerable road users.

An online media search was conducted by reviewing national and regional news portals, as well as the websites of local and international NGOs that may have carried out research on or reported on identified risks related to use of public transport, behavioural changes and use of alternative transport means (bicycles, scooters, etc.), risks related to road safety for those using alternative transport means, initiatives undertaken by authorities or NGOs, etc.

In parallel with the literature review, relevant road safety and public health agencies in each country (both governmental and non-governmental) were mapped to identify stakeholders that may provide a valuable contribution to this Study.

Phase 2: Surveys and guided interviews

Four types of survey instruments were developed and used for the purposes of this Study:

1. a survey for public transport operators to understand the H&S impacts on both workers and passengers due to the C19 pandemic. The questions were related to service availability, transport schedules, workforce shortages, financial impacts on public transport operations and impacts on workers' wellbeing, aspects of workers' health care and related benefits, occupational H&S measures aimed to protect operators, workers and the travelling public, etc. *The survey questions are provided in Annex 5.1.1 of the Study.*

2. a survey for road safety and public health NGOs to understand the road-, traffic- and public health related risks to all passengers and other road users (including drivers and vulnerable road users (cyclists, pedestrians with reduced mobility, etc.) and road traffic collision data. The survey sought to understand patterns of behavioural changes in use of public transport and other types of urban mobility, aspects of safety on local roads and most common risks to drivers' and road users' safety, statistics on traffic collision data and other types of accidents related to urban mobility, etc. *The survey questions are provided in Annex 0 of the Study.*

3. an online survey for users of the public transport system to understand passengers' sentiments related to use of public transport during the C19 pandemic – separate online surveys for each country in each local language[1] were created and published in May and June 2021 using the "SurveyMonkey" tool. The survey questionnaire consisted of a total of 31 questions divided into three parts: i) socio-economic characteristics of respondents, ii) use of public transport before and during the pandemic, and iii) respondents' perceptions of safety in public transport. It included questions related to the frequency of use of public transport, perception of safety in vehicles, mobility substitutes during the pandemic, restoring trust and confidence once the pandemic ends, etc. *The questionnaire is provided in Annex 5.1.3 of the Study.*

4. Direct interviews were held with a number of organisations in the fields of public transport, traffic safety and public health based on a structured list of questions to gain an understanding of the effects of the pandemic on public transport in each country. *The list of questions is provided in Annex 5.1.4 of the Study.*

[1] In North Macedonia, the survey was published in both Macedonian and Albanian language.

2.4 REVIEW OF SIMILAR GLOBAL STUDIES AND RESEARCH

A systematic review of the most relevant global research related to the public transport challenges associated with the pandemic crisis was conducted, and the key results are summarised as follows:

- The global study *"Impact of COVID-19 pandemic on mobility in ten countries and associated perceived risk for all transport modes"* (February 2021)[2] examined the individual mobility patterns for all transport modes (walking, bicycles, buses, trams, etc.) before and during the restrictions adopted in ten countries on six continents: Australia, Brazil, China, Ghana, India, Iran, Italy, Norway, South Africa and the United States. This cross-country study also aimed to understand the predictors of protective behaviours related to the transport sector and C19. Findings hinge upon an online survey conducted in May 2020. It concludes that: (i) the significant mobility disruptions related to the restrictions enforced to tackle the C19 pandemic pertained to all transportation modes and all travelling purposes, albeit the extent of the transformations was different for each surveyed country; (ii) the main socio-economic drivers of change in travel cognitive behaviour and individual perceptions were income inequality, expressed as Gini index, and the reported death toll due to C19 per 100,000 inhabitants; (iii) socio-economic inequality and morbidity are not only related to actual health risks, as well documented in Protection Motivation Theory and Health Belief Model literature, but also to the perceived risks. As the C19 pandemic is likely to entail a long-term effect on transport mode choice and people's cognitive assessment towards travel, transit operators need to carefully take into consideration the modal split changes and, regardless of socio-economic inequalities, endeavour to gain public trust and make journeys less risky by interpreting the pandemic as a "catalyst for change" and "hallmark of recovery".

- The World Health Organisation publication *"Supporting healthy urban transport and mobility in the context of COVID19"* (2020)[3] defines, among other things, specific actions in transport systems supportive of C19 measures. Governments, at both national and local levels, have an important role to play in maintaining the trust of users while providing safe and efficient public transport options that reduce the risk of infection. This support may include government subsidies and investment in the public transport sector to compensate for the loss of revenue from lower rates of usage and additional operating costs resulting from new sanitation measures, such as more frequent cleaning and disinfection of vehicles. Governments also play a key role in creating the policy frameworks for promoting safe active mobility, including through investment in safe infrastructure for pedestrians and cyclists, reallocation of public space and enforcement of road safety measures.

- The *International Transport Forum (ITF) (2021), Covid-19 and Transport: A Compendium*[4] includes eleven briefs first published on the ITF C19 special webpage and a summary of the six special C19 webinars focusing on urban mobility, transport data, supply chain management and freight logistics, aviation, gender equality, and infrastructure investment. With regard to the impact of the C19 pandemic on public transport and in particular vulnerable groups, it contains an interesting brief on women in public transport which states that women's travel patterns have exacerbated gender inequality because of greater reliance on public transport than on private cars in many regions. As more women depend on public transport to access jobs and services, including childcare, education and health facilities, limited public transport supply affects women more than men. The pandemic offers an opportunity to improve gender equality by rethinking transport design and policies to address the needs of women transport users and workers. Policy responses should reduce the disproportionate risks faced by women transport users and workers by improving safety and security in transport services and the workplace.

[2] Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0245886

[3] Available at: https://www.who.int/publications/i/item/9789240012554

[4] Available at: https://www.itf-oecd.org/sites/default/files/covid-19-transport-compendium.pdf

➲ The *„No going back: European public opinion on air pollution in the Covid-19 era“* (2020)[5] survey conducted in 21 cities across six countries by the Transport and Environment and the European Public Health Alliance concluded that a strong majority in cities throughout the countries polled do not want to go back to pre-crisis levels of air pollution and a large majority are willing to make changes to urban mobility, such as giving up public space for cleaner forms of transport and banning polluting cars from city centres. This should serve as a wakeup call to city authorities who should ban private combustion cars and should mandate public and private fleets, such as taxis, to go emissions-free by 2025. Interest in cycling is also up. Though it is hard to maintain physical distancing on public transport, almost all public transport users are willing to return if the right precautions are in place. Modernising and electrifying the bus fleet can offer an opportunity to at the same time put in place provisions to ensure people are feeling safe and comfortable.

[5] Available at:
https://www.transportenvironment.org/sites/te/files/publications/Briefing%20-%20polling%20Covid-19%20%26%20mobility.pdf

3 COUNTRY LEVEL ANALYSES

3.1 ALBANIA – TIRANA

Tirana is the capital of Albania and the largest urbanised area in the country. Tirana is further subdivided in 11 urban administrative units and 13 rural units. It has a total population of 828,000 inhabitants (2018), of which more than 750,000 live in the administrative units of Tirana, Kashar, Dajt and Farke.

3.1.1 PUBLIC TRANSPORT SYSTEM IN TIRANA

The public transport system relies entirely on buses. Since 2013, the urban public transport service is contracted on a line/route basis to 10 private operators which are currently operating 16 urban and 25 suburban bus lines that mostly connect the outer/rural municipal villages and suburbs to the city centre. The system is coordinated by the city's Transport and Mobility Department, whereas the Consumer Protection Agency controls the performance of different collective passenger transport services (including taxis). The current organisation has completely replaced the former in-house system provided by the state-run company PTUU and also numerous private microbuses that offered informal urban transport as a consequence of the low level of service of official public transport lines. Today, the presence of private informal microbuses is not allowed on urban roads. There are currently around 1,000 licensed taxis. It is estimated that approx. 200,000 cars circulate in the city on a daily basis.

Cycling facilities are limited; the current network infrastructure is composed of approx. 28.5 km bike lanes. Some of the recently refurbished streets have well designed separated bike paths, while others have a painted line on the pavement that is usually ignored by car drivers. Intersections for bicycles are virtually non-existent – there are only a few such intersections in the city centre, where dedicated bicycle lanes allow bikers to cross safely. Even though the newly built sections of cycling infrastructure are of high quality, with smooth red asphalt and well-laid cobblestones, there are some serious safety concerns regarding the position of stormwater drains, the high level of water during heavy rains and the presence of many potholes.

The Sustainable Urban Mobility Plan (SUMP) for Tirana was published in February 2020[6]. The document provides an analysis of the current situation in road traffic and transport. Even though it does not specifically address the impacts of the pandemic, it contains a strategy and a five-year action plan to prioritise actions that are key steps in implementing the SUMP strategies.

[6] Available at: https://www.tirana.al/en/page/territorial-planning-and-development

3.1.2 RELEVANT ROAD SAFETY AND PUBLIC HEALTH AGENCIES

An overview of relevant road safety and public health agencies in Albania, both governmental and non-governmental, is provided in Table 1 below.

Table 1: *Overview of relevant road safety and public health agencies in Albania*

	Name and website of stakeholder	Territorial level	Relevance of stakeholder for the study
GOVERNMENTAL			
1	Municipality of Tirana **www.tirana.al**	City level	➲ Responsible for planning, monitoring and organising all issues related to public transport and mobility
2	Ministry of Interior **www.asp.gov.al**	National level	➲ Responsible for enforcement of personal protection measures by citizens, transporters and other traffic users ➲ Collects data on traffic accidents
3	Ministry of Health and Social Protection **www.shendetesia.gov.al**	National level	➲ Responsible for the HealthCare System Database and C19 measures
4	Polytechnic University of Tirana **www.upt.al**	National level	➲ Provides higher education programs related to transport infrastructure and conducts scientific research in the field of transport and communications
5	General Directorate of Road Transport Services	National level	➲ Responsible for maintaining a database of drivers and vehicles for the entire country
6	Public Health Institute of Albania **www.ishp.gov.al**	National level	➲ Monitors the epidemiological situation and proposes measures to prevent the spread of infectious diseases ➲ Conducts statistical research on infectious diseases
NON-GOVERNMENTAL			
7	Public transport operators (in private ownership)	National/city level	➲ There are 10 different bus operators in Tirana
8	Automobile Club Albania **www.aca.al**	National level	➲ Monitors road safety and proposes preventive measures in the field of traffic safety to competent authorities ➲ Informs the public on road conditions and provides technical assistance to drivers
9	Institute of Transport **www.ital.gov.al**	National level	➲ The only Albanian intermodal network ➲ Conducts studies in the field of transport ➲ Maintains a database in the field of transport, supports the authorities with data and analytical tools to develop policies and strategies for the transport sector
10	NGO “Steps Centre” **www.qendrasteps.al**	National level	➲ A non-profit organisation that conducted the study “Level of satisfaction of citizens on the quality of public transport in Tirana” during the pandemic (more details on the study provided in the next section of this Study)
11	NGO “Ecovolis” **www.ecovolis.al**	National level	➲ Community-based bike sharing program in Tirana launched in 2011 by the environmental NGO Social Stimulating Alternatives Program ➲ Has proven successful in significantly increasing bicycle use in Tirana by offering its bicycle-rental services
12	Urban and Intercity Public Transport Association **www.shoqatabus.simplesite.com**	National level	➲ Has been active during the pandemic to advocate for the interests of public transport operators which experienced losses
13	Albanian Union of Taxis **www.facebook.com/pages/category/Taxi-Service/Sindikata-Shqiptare-e-Taksive-242565932880777**		➲ Informal association of taxi drivers ➲ Very active in advocating for the interests of the taxi community

3.1.3 KEY RESEARCH FINDINGS FOR TIRANA

Primary research in Tirana for purposes of this study was conducted among public transport operators, NGOs, government stakeholders and citizens.

Six governmental organisations, five non-governmental organisations and four public transport operators in Tirana were contacted during the development of this Study. The stakeholders who contributed their opinions or information/data are:

- Municipality of Tirana
- Ministry of Interior
- Polytechnic University of Tirana and Agriculture University of Tirana
- NGO "Ecovolis"
- Albanian Union of Taxis
- Urban and Intercity Public Transport Association
- Public transport operator "Alba Trans"
- Public transport operator "Shega Trans"
- Public transport operator "Tirana Lines"
- Public transport operator "Shpresa-Al"

The report on the full results of the survey conducted among public transport users in Tirana is provided in Annex 5.2 of this Study.

In addition, a literature review was carried out to confirm whether any other similar studies have been undertaken at city, regional or national level. An online media search was conducted to identify the key topics reported in the media in Tirana with regard to the impact of the pandemic on use of public transport in the city.

The key findings of research conducted in Tirana are as follows:

1. National studies/research conducted in the field of impacts of the pandemic on transport of passengers, traffic safety or public health

The Municipality of Tirana, in cooperation with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), has conducted field measurements in the framework of ongoing projects (Sustainable Urban Transport in Tirana), and has reported that it is currently analysing data to understand the impacts on urban public transport. The results are not publicly available yet.

The NGO "Ecovolis" also provided information that it has conducted research but the results are not publicly available yet.

The only published study on the topic of the impact of the pandemic on transport at either national, regional or Tirana city level is the "Level of satisfaction of citizens on the quality of public transport in Tirana" survey[7] conducted by the NGO "Steps Centre" and published in November 2020. The study covers the period from July to October 2020. The most relevant results of the survey are summarised as follows:

[7] Available at: https://qendrasteps.al/wp-content/uploads/2020/12/RAPORT_STUDIMOR-Artivizem.pdf

- *Perceptions of safety:* The vast majority of public transport users (82.4%) feel unsafe in public transport, and only a very small percentage (1.7%) report that they feel safe.

- *Quality of service:* 90.7% are dissatisfied with the quality of service.

- *Frequency of buses:* Only 1.67% of citizens are 'very satisfied' and 0.59% 'fully satisfied' with the frequency of buses.

- *Social distancing in buses:* Only 0.39% are 'very satisfied', and 0.69% 'fully satisfied' with the implementation of social distancing measures in buses.

- *Cleanliness of buses:* Only about 1% reported a high level of satisfaction related to hygiene in buses.

- *Accessibility of public transport for vulnerable categories:* Only 0.49% of participants believe that buses are 'fully accessible' for people with disabilities (people in wheelchairs, people with visual impairments and deaf people), the same percentage believes buses are 'fully accessible' for mothers with young children, and 2.06% that buses are 'fully accessible' for the elderly.

2. Media reporting

A summary of the media search results indicate that the key topics reported in the media in Tirana included the following:

i) The effects of the C19 pandemic on public transport

At the beginning of the pandemic, public transport services in Tirana were initially suspended for four months. After they were continued, news portals reported that the C19 pandemic caused a 60% decrease in the number of passengers that use public transport in Tirana, which led to financial stress for public transport operators. Public transport workers protested due to the grim financial situation, requesting from the government to adopt mitigation measures. The Urban and Intercity Public Transport Association requested VAT reduction to 0% for the year, the removal of excise duties on oil and fuel, state subsidies due to empty seats during the pandemic, and salaries for workers during periods when public transport could not operate due to the lockdown. It was further reported that the Municipality of Tirana and the Association reached a mutual agreement regarding some of these demands.

ii) Recommendations and measures for public transport in the context of C19

Since the beginning of the pandemic, government authorities in Tirana have been issuing media announcements on obligatory measures as well as recommendations for use of public transport. These included restricting the capacity of public transport vehicles (by 30%), social distancing measures in buses and wearing of masks. However, the media have reported that the C19 safety protocol was not well implemented as there were many cases of non-compliance with the measures such as overcrowding in buses, and that this was contributing to an upsurge in C19 cases. Authorities urged citizens to be more responsible in respecting the measures. Experts recommended avoiding the use of buses and advised citizens to use alternative solutions such as bicycles. The situation was described as 'alarming'.

iii) Non-motorised mobility options

The media has reported that the number of w users is increasing but the road infrastructure for bicycles is not adequate, which has led to deterioration of road safety. Tirana generally has a problem with heavy traffic, as access roads and roads leading to the centre are congested. At times, thousands of vehicles and citizens are stuck in traffic, including dozens of ambulances. The infrastructure interventions in the Great Ring of Tirana and in some city streets during the pandemic worsened the situation due to the increased presence of heavy trucks and increased congestion – some of the reasons cited are interventions without a proper plan, incorrect signage and traffic mismanagement. Changes made to the Durrës road and the addition of bicycle lanes without a proper plan, leading to narrowing of roads, exacerbated the situation on the roads of Tirana.

3. Impacts of the pandemic on mobility behaviour patterns

The Municipality of Tirana has confirmed that the pandemic has led to a decline in the number of passengers using public transport. All four public transport operators surveyed for the purpose of this Study also confirmed a significant (50-60%) decrease in the number of public transport users during the pandemic. The number of bus lines was reduced by 25% to 60%. For most operators, the reasons for not maintaining bus schedules were lack of passengers, introduction of restrictive measures, lack of functioning vehicles and lack of driving staff. Most agree that the level of public transport services offered to citizens during the pandemic has not been completely satisfactory.

Changes in mobility patterns have been reported by the surveyed public transport users as well. Before the pandemic, around 90% of the respondents used public transport. Significant changes, however, occurred during the pandemic – the percentage of frequent users of public transport dropped by almost three times, whereas the percentage of those who now do not use public transport at all increased to more than a third of respondents.

Before the pandemic, public transport was the most frequently used type of transport (for more than half of respondents). However, during the pandemic, private cars were the most preferred mode, followed by walking, whereas public transport fell to the third place. The use of bicycles/scooters increased slightly.

Around half of the respondents stated that they depend on public transport to get to work/school, whereas the other half has access to other modes of transport. A small percentage of respondents do not depend on public transport but prefer it for environmental reasons.

Only a third of respondents will continue to use public transport the same way even after the pandemic. The others will use it less or are not sure yet. A very small number plans to completely stop using public transport after the pandemic.

The surveyed government stakeholders believe that the best responses to the post-pandemic challenges in terms of public transport should be improvement of infrastructure, investments in (more environmentally friendly) vehicle fleets, and restoring confidence in the safety of public transport use.

4. Safety in public transport during the pandemic

The epidemiological measures introduced in public transport in Tirana included social distancing requirements, use of disinfectants in public transport vehicles, regular disinfection of vehicles and wearing of masks. The taxi companies also implemented anti-C19 measures such as disinfection and wearing of masks.

The public transport operators in Tirana have stated that the prescribed protection measures are applied in public transport vehicles either fully or partially, but all agree that these measures are only partially satisfactory. The greatest challenges in the implementation of measures for the protection of drivers and passengers in public transport vehicles have been lack of passengers' discipline, and lack of financial and material resources for enforcement of these measures. Most of the operators believe that additional measures are needed to protect the health of staff and passengers during the pandemic.

The majority of public transport users have reported that they do not feel safe in public transport as they have often noticed violations of epidemiological measures. More than half believe that no measures were taken to protect the H&S of vulnerable people in public transport during the pandemic. The vast majority believes that protection measures in public transport need to be improved.

5. Use of sustainable modes of transport

Both the government stakeholders and NGOs contacted during the development of this Study have stated that they noted an increase in the use of alternative modes of transport during the pandemic (such as walking or cycling). However, the survey conducted among public transport users has shown that this increase has not been as significant as widely believed. As explained above, private cars became the most preferred type of transport during the pandemic in lieu of public transport which was the most frequently used type of transport before the pandemic. In addition, while the number of people preferring walking doubled, those using bicycles or scooters increased almost insignificantly.

The NGO sector believes that the impact of the pandemic will lead to some changes in the habits and behaviours in terms of an increase in alternative modes of transport, but is not overly optimistic. It considers that the majority of citizens are only partially interested in using sustainable modes of transport because the infrastructure for such transport in Tirana is deemed insufficiently developed to ensure safe transport. Therefore, it is believed that the use of such modes of transport will not increase significantly after the pandemic even though some positive trends may emerge. The majority of the surveyed public transport users said that they are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc., but half of them only under the condition that adequate and secure infrastructure is built. For the majority, environmental protection is "very important" or "important".

6. Effects of the pandemic on business operations of public transport operators

All four public transport operators surveyed for the purpose of this Study have reported that they experienced significant financial consequences due to a decrease in revenues during the pandemic (ranging from 40% to 60%). For two of them, there was no reduction in earnings of employees during the pandemic but the employees of the other two earned less (by 30% and 40%) – for both, this affected the provision of transport services. Only one was able to make additional investments during the pandemic and it invested in vehicles. All had problems with vehicle failures/breakdowns during the pandemic – to a significant extent by two, and to a lesser extent by the other two. Most were unable to secure the necessary spare parts for the proper functioning and safety of their vehicle fleet during the pandemic. It should be noted that the prices of bus tickets in Tirana did not change during the pandemic.

All public transport operators in Tirana agree that infrastructure and new technologies are the areas that need to be developed to reduce the impact of the pandemic on public transport. One also added investments in the vehicle fleet, and the other added personnel policy as additional areas in need of development. All also agree that there is insufficient financial and other support for the development of and investments in "clean" technologies in public transport. They believe that online ticket sales, contactless readers and vehicle modernisation would improve the use of public transport in Tirana.

The operators emphasised that insufficient assistance and support was provided by local authorities to mitigate the losses experienced during the pandemic. They consider that there is also insufficient will to upgrade the infrastructure and technology in this sector.

7. Communication with the public on issues of health and safety in transport and citizens' grievances about public transport during the pandemic

The surveyed public transport users reported that they are dissatisfied or only partially satisfied with the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Other than the regular publishing of information by public transport operators on expected changes in timetables and the introduced epidemiological measures, there was no meaningful communication with the public beyond some NGO efforts. All the surveyed NGOs confirmed they communicated with their members during the pandemic and received complaints regarding safety concerns about public transport travel due to overcrowding etc.

8. Effects of the pandemic on traffic safety

All stakeholders have confirmed that data on traffic safety and public health are not collected to a sufficient extent and their monitoring is not carried out at a satisfactory level.

As stated by the Ministry of Interior, the number of accidents has decreased significantly during the pandemic. However, the Ministry has noted that although the reduction in traffic has led to a reduction in the number of accidents, the severity of accidents may have increased in many cases because of a higher risk of speeding in the absence of an adequate number of police staff on streets (who were reallocated to the tasks of enforcement of anti-C19 measures).

Official traffic safety data are kept by the Albanian Institute of Statistics but available only for Albania as a whole. Data show that the total number of accidents decreased by 17.6% in 2020 compared to 2019 (from 1,498 to 1,234 accidents). Both the number of people of killed and people injured in traffic accidents also decreased, both at around 22%.

The NGOs believe, however, that the pandemic has led to deterioration in traffic safety and a greater risk to public health during the pandemic. The reasons cited are increased use of private cars and walking/cycling compared to the use of public transport, lack of safe infrastructure for walking/cycling, and increased infrastructure interventions during the pandemic in the entire city (over 70 construction sites throughout Tirana).

9. Illegal public transport (taxi and van transport)

There are no official estimates on illegal public transport in Tirana, but the Municipality of Tirana and the Polytechnic University/Agriculture University of Tirana do not believe there was an increase in such transport during the pandemic. In addition, three of the four public transport operators surveyed for the purpose of this Study believe there was no increase in illegal transport during the pandemic.

Around half of the surveyed public transport users stated that they did not use illegal transport before the pandemic, but the other half did use it at least sometimes or stated that they were not aware who was a legal or illegal carrier. The pandemic, however, led to a decrease in the number of people who used such transport.

10. Adequacy of infrastructure in place to ensure traffic mobility safety for vulnerable persons, and adequacy of actions taken to protect the H&S of vulnerable people during the pandemic

The stakeholders participating in the study were unanimous that:

- the infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians ...) is not adequate;
- no specific actions were taken to protect the H&S of vulnerable people during the pandemic;
- those without access to alternative types of transportation had to use public transport whose capacities were reduced and where epidemiological measures were often not respected.

The additional H&S measures proposed by stakeholders are improved policies and planning documents, promotion of walking/cycling, better communication with the public, and greater enforcement of anti-C19 measures in public transport.

3.2 BOSNIA AND HERZEGOVINA – SARAJEVO AND BANJA LUKA

The City of Sarajevo is the capital city of Bosnia and Herzegovina. In administrative terms, it belongs to Sarajevo Canton (one of 10 cantons in the entity of Federation of Bosnia and Herzegovina). Sarajevo Canton has a population of 413,593 and covers an area of 1,277 km^2.

The City of Banja Luka is the second largest city in the country, with a population of 184,257. Administratively it belongs to the entity of Republika Srpska. It covers an area of 1,238.91 km^2.

3.2.1 PUBLIC TRANSPORT SYSTEM IN SARAJEVO AND BANJA LUKA

Sarajevo. The public transport system in Sarajevo encompasses three main types of transport: tram, trolley and bus/minibus. There is a high level of integration within the system. Per the number of passengers transported, trams are the dominant mode of transport (43%), followed by buses (34%), trolleys (16%) and lastly minibuses (7%). The public transport operator for all types of transport is the Cantonal Enterprise "GRAS". In addition, a private company ("Centrotrans Sarajevo") operates a number of bus and minibus lines. There are also around 100 taxi stations in the city.

The number of motor vehicles in Sarajevo Canton has been constantly increasing in recent years, to more than 140,000 vehicles. Taking into consideration that a large number of citizens from neighbouring cantons also travel to in Sarajevo by car for work purposes on a daily basis, it is estimated that there are 200,000 vehicles on the streets of Sarajevo. Such a large number of vehicles inevitably leads to significant difficulties in the operation of the traffic system in the entire city, particularly in older parts of the city with narrow streets.

The Ministry of Traffic of Sarajevo Canton, together with the City of Sarajevo, developed the Sustainable Urban Mobility Plan (SUMP) for Sarajevo in July 2020[8]. The document provides an analysis of road traffic and transport, road safety, public transport, non-motorised forms of transport. Even though it does not specifically address the impacts of the pandemic, it contains recommendations for, among others, sustainable spatial planning and urban mobility; walking and cycling; public transport and individual transport. The vision statement of SUMP is minimising the use of private vehicles in the city; building adequate infrastructure for walking and promoting non-motorised modes of transport; focusing on using public transport; improving the existing road infrastructure; and achieving a higher level of safety and protection in transport.

Banja Luka. Urban and suburban public transport services in Banja Luka are provided by several companies with different ownership, on a network of lines that pass through one "corridor" in the inner city. Currently, 23 city lines and 34 suburban lines are registered. It is the only city in the country that has a single monthly ticket for all lines. The city authorities have complete control over public transport (including taxis) and control the price of transport.

[8] Available at: https://gradskovijece.sarajevo.ba/wp-content/uploads/2021/01/Plan-odr%C5%BEive-urbane-mobilnosti-Kantona-Sarajevo-i-Grada-Sarajevo-SUMP-1.-dio.pdf

3.2.2 RELEVANT ROAD SAFETY AND PUBLIC HEALTH AGENCIES

An overview of relevant road safety and public health agencies in Bosnia and Herzegovina, both governmental and non-governmental, is provided in Table 2 below

Table 2: *Overview of relevant road safety and public health agencies in Bosnia and Herzegovina*

	Name and website of stakeholder	Territorial level	Relevance of stakeholder for the study
GOVERNMENTAL			
1	Ministry of Traffic of Sarajevo Canton **www.ms.ks.gov.ba**	Regional level – Sarajevo	➲ The key body in charge of public transport in Sarajevo Canton ➲ Responsible for planning, development and monitoring of the public transport system in the city
2	Department of Traffic and Roads – City of Banja Luka **www.banjaluka.rs.ba**	Regional level – Banja Luka	➲ The key body in charge of public transport in Banja Luka ➲ Responsible for planning, development and monitoring of the public transport system in the city
3	Ministry of Interior of Sarajevo Canton **www.mup.ks.gov.ba**	Regional level – Sarajevo	➲ Responsible for implementation of personal protection measures by citizens, transporters and other traffic users in Sarajevo ➲ Collects data on traffic accidents
4	Ministry of Interior of Republika Srpska – Office in Banja Luka **www.mup.vladars.net**	Regional level – Banja Luka	➲ Responsible for implementation of personal protection measures by citizens, transporters and other traffic users in Banja Luka ➲ Collects data on traffic accidents
5	Ministry of Health of Sarajevo Canton **www.mz.ks.gov.ba**	Regional level – Sarajevo	➲ Monitors the health status of the population ➲ For the C19 pandemic, the Ministry established a Crisis Headquarters to make health related decisions including decisions regarding public transport
6	Ministry of Health and Social Protection **www.mup.vladars.net**	Entity level – Republika Srpska	➲ Monitors the health status of the population ➲ Member of the government's Crisis Headquarters for the C19 pandemic
7	Public Health Institute of the Federation of BiH **www.zzjzfbih.ba**	Entity level – Federation of BiH	➲ Monitors the epidemiological situation at entity level and proposes measures to prevent the spread of infectious diseases ➲ Conducts statistical research on infectious diseases
8	Public Health Institute of Republika Srpska **www.phi.rs.ba**	Entity level – Republika Srpska	➲ Monitors the epidemiological situation at entity level and proposes measures to prevent the spread of infectious diseases ➲ Conducts statistical research on infectious diseases
9	Cantonal Public Transport Enterprise "GRAS Sarajevo" **www.gras.ba**	Regional level – Sarajevo	➲ Public enterprise owned by the Sarajevo Canton ➲ Provides public transport services through a network of tram, bus, trolleybus and minibus traffic in Sarajevo and its surroundings
NON-GOVERNMENTAL			
10	Private transport company "Centrotrans Sarajevo" **www.centrotrans.com**	Regional level – Sarajevo	➲ Public transport operator in private ownership ➲ Operates a fleet of 200 buses and minibuses
11	Association of Traffic and Communication Engineers of BiH **www.uisk.ba**	National level	➲ Gathers professionals in the fields of traffic and transport in the entire country
12	Faculty of Traffic and Communications Sarajevo **www.fsk.unsa.ba**	Regional level – Sarajevo	➲ Provides higher education programs and conducts scientific research in the field of transport and communications
13	Bosnia and Herzegovina Automobile and Motorcycle Club (BIHAMK) **www.bihamk.ba**	Entity level – Federation of BiH	➲ Monitors road safety and proposes preventive measures in the field of traffic safety to competent authorities ➲ Informs the public on road conditions and provides technical assistance to drivers
14	Automobile and Motorcycle Association of Republika Srpska (AMSRS) **www.ams-rs.com**	Entity level – Republika Srpska	➲ Monitors road safety and proposes preventive measures in the field of traffic safety to competent authorities ➲ Informs the public on road conditions and provides technical assistance to drivers

15	Cycling Association "Giro di Sarajevo" **www.girodisarajevo.ba**	Regional level – Sarajevo	➲ NGO active in efforts to improve cycling conditions in the urban environment within the city centre of Sarajevo ➲ Provides education and raising awareness of cycling
16	Centre for Environment Banja Luka **www.czzs.org**	Regional level – Banja Luka	➲ NGO active in efforts to promote public transport, pedestrian traffic, use of bicycles and other forms of sustainable transport in Banja Luka ➲ Has an active "transport program" in the framework of its activities, aimed at promoting sustainable modes of transport
17	Foreign Trade Chamber of BiH **www.komorabih.ba**	National level	➲ Advocates for the interests of transport operators
18	Chamber of Commerce of Republika Srpska **www.komorars.ba**	Entity level – Republika Srpska	➲ Advocates for the interests of transport operators
19	Taxi companies in Sarajevo and Banja Luka Sarajevo Taxi and other smaller taxi service providers	City level – Sarajevo and Banja Luka	➲ Sarajevo Taxi is the largest taxi service provider in the country ➲ All taxi companies had to implement C19 measures in its vehicles

3.2.3 KEY RESEARCH FINDINGS FOR SARAJEVO AND BANJA LUKA

Primary research in Sarajevo and Banja Luka for purposes of this study was conducted among public transport operators, NGOs, government stakeholders and citizens.

Ten governmental organisations, six non-governmental organisations and two public transport operators were contacted during the development of this Study. The stakeholders who contributed their opinions or information/data are:

- Ministry of Traffic of Sarajevo Canton
- City of Banja Luka (Department of Traffic and Roads)
- Faculty of Traffic and Communications Sarajevo
- NGO "Giro di Sarajevo"
- Association of Traffic and Communication Engineers of BiH
- Bosnia and Herzegovina Automobile and Motorcycle Club (BIHAMK)
- Cantonal Public Transport Enterprise "GRAS Sarajevo"
- Private transport company "Centrotrans Sarajevo"
- Foreign Trade Chamber of BiH
- Chamber of Commerce of Republika Srpska

The report on the full results of the survey conducted among public transport users is provided in Annex 5.3 of this Study.

In addition, a literature review was carried out to confirm whether any other similar studies have been undertaken at city, regional or national level. An online media search was conducted to identify the key topics reported in the media in Sarajevo and Banja Luka with regard to the impact of the pandemic on use of public transport in these cities.

The key findings of research conducted in Sarajevo and Banja Luka are as follows:

1. National studies/research conducted in the field of impacts of the pandemic on transport of passengers, traffic safety or public health

The Ministry of Traffic in Sarajevo Canton, together with the Cantonal Public Transport Enterprise "GRAS Sarajevo", conducted a data collection survey on public transportation in Sarajevo Canton in January 2020[9]. It does not specifically address the impacts of the pandemic but it presents data on public transportation in the city, to be used as the basis for the formulation of a transport strategy in Sarajevo Canton.

In addition, the Bosnia and Herzegovina Automobile and Motorcycle Club (BIHAMK) has confirmed that it has conducted research in the field of impacts of the pandemic on transport of passengers, traffic safety and public health, but the results are not yet publicly available.

2. Media reporting

A summary of the media search results indicate that the key topics reported in the media in Sarajevo and Banja Luka included the following:

i) The effects of the C19 pandemic on public transport

At the beginning of the pandemic, public transport services were initially suspended except for registered taxi carriers, but these services were shortly continued. Obligatory safety measures were introduced.
The media reported on the drop in the number of passengers that use public transport and the financial losses incurred by public transport operators but no statistical data or estimates were provided. It was, however, reported that the Government of the Federation of BiH, at the proposal of the Federal Ministry of Transport and Communications, granted financial assistance to public road passenger transport operators during the pandemic. 176 companies from the sector of public road passenger transport received assistance. In Banja Luka, the city provided subsidies for public transport operators to enable regular functioning of urban and suburban transport of passengers.

ii) Recommendations and measures for public transport in the context of C19

Since the beginning of the pandemic, government authorities in Sarajevo and Banja Luka have been issuing media announcements on obligatory measures as well as recommendations for use of public transport. The measures included mask wearing, restrictions on capacity of public transport vehicles (decreasing the number of transported passengers), social distancing measures, disinfection requirements for all vehicles, etc. In addition, public health institutes published recommendations for the operation of public transport, such as providing information and education to public transport employees.
However, the media also reported that a large number of citizens using public transport and a very small number of public transport vehicles made it impossible to follow social distancing. Hence, there were numerous cases of non-compliance with the measures and the lack of enforcement of these measures in public transport.

iii) Promotion of non-motorised mobility options

The media and NGO websites have reported on some initiatives undertaken by urban mobility associations with regard to the expansion and improvement of the urban cycling infrastructure in both Sarajevo and Banja Luka. It was reported that the sale of bicycles increased during the pandemic. The NGO "Giro di Sarajevo" which promotes cycling in Sarajevo and the NGO "Centre for Environment" from Banja Luka sent a letter to all governmental levels in BiH stating that the biking and walking infrastructure in the country is not sufficiently developed, with a request to ensure the necessary conditions to establish biking and walking lanes and paths. These NGOs proposed some additional measures such as allocation of bicycle lanes on roads, setting up new parking spaces for bicycles, banning the movement of motor vehicles in certain streets, etc.

The NGO "Giro di Sarajevo" also sent a media appeal for expanding and improving the cycling infrastructure in Sarajevo (which only has 30 km of biking lanes) and implementing urgent measures to facilitate cycling during the pandemic, such as the allocation of road lanes for cyclists or the reallocation of parking spaces in the central areas of the city for bicycles instead of motor vehicles.

[9] Available at: https://openjicareport.jica.go.jp/pdf/12327342.pdf

3. Impacts of the pandemic on mobility behaviour patterns

In Sarajevo, the Cantonal Public Transport Enterprise "GRAS Sarajevo" has reported that there has been a decrease in the number of public transport users during the pandemic – as much as 50% compared to the period before. The private bus operator "Centrotrans" states that the number of its users dropped by 15-20%. While "GRAS Sarajevo" stated that there were no changes in the number of bus/tram lines it operates, the private operator stated that it reduced its bus lines by 50%. Both companies expressed that the pandemic made it significantly difficult to maintain public transport schedules due to introduction of restrictive measures (lockdown, curfew, etc.) and fewer passengers using public transport. Nevertheless, both believe that satisfactory public transport services have been provided to citizens during the pandemic.

In Banja Luka, the Chamber of Commerce of Republika Srpska has confirmed that the pandemic caused a decrease in the number of passengers using public transport. The city authorities have stated that the number of bus lines did not change during the pandemic but there was a 10-30% decrease in the number of buses transporting passengers. The pandemic made it significantly difficult to maintain public transport schedules due to introduction of restrictive measures and decreased number of public transport passengers. The level of public transport services provided to citizens during the pandemic have been assessed as partially satisfactory by city authorities.

Changes in mobility patterns have been reported by the surveyed public transport users as well. The vast majority of the surveyed public transport users relied on public transport before the pandemic (two thirds used it "frequently"). However, the pandemic led to significant changes – the percentage of frequent public transport users dropped by almost four times. Whereas only a minority never used public transport before the pandemic, that number increased to a third of the sample during the pandemic.
In the period before the pandemic, the most preferred type of transport was public transport, followed by private cars. However, during the pandemic, private cars became the most preferred type of transport while public transport fell to the second place. Walking was the third most preferred type of transport in both periods, with a slight increase during the pandemic. In both periods, taxis and bicycles/scooters were used very little.
Since many people own private cars, almost half of the people do not depend on public transport. However, around 15% declared that they do not depend on it, but prefer public transport because of environmental reasons.
It is important to highlight that only half of the public transport users stated that they plan continue to use public transport after the pandemic at the same frequency as before the pandemic.

4. Safety in public transport during the pandemic

The epidemiological measures introduced in public transport in Sarajevo and Banja Luka included regular disinfection of public transport vehicles, wearing of masks, social distancing requirements, restricting passenger capacity, and enforcing compliance with the measures through the engagement of control personnel in public transport vehicles. The taxi companies also implemented anti-C19 measures, including disinfection and wearing of masks.

All public transport operators in Sarajevo and Banja Luka have confirmed that all the prescribed protection measures are applied in public transport vehicles. While "GRAS Sarajevo" stated that these measures are completely satisfactory, the private operator "Centrotrans Sarajevo" and the City of Banja Luka believe that they are only partially satisfactory. All agree, however, that lack of enforcement coupled with the lack of passengers' discipline are the greatest challenges in the implementation of measures for the protection of drivers and passengers in public transport vehicles.

All the surveyed NGOs believe that the measures were not adequately implemented, and that a larger number of public transport vehicles, greater control and better communication with the public are needed. Furthermore, the great majority of surveyed public transport users have reported that they do not feel completely safe in public transport during the pandemic. Two thirds have noticed frequent violations of epidemiological measures in public transport. More than half believe that vehicles are not disinfected regularly and thoroughly, and more than half of them believe that drivers were not adequately protected. The vast majority believes that passenger protection measures in public transport need to be improved.

5. Use of sustainable modes of transport

As explained above, public transport was the most frequently used type of transport before the pandemic. During the pandemic, private cars became the most preferred type of transport. Walking increased only slightly, whereas bicycles/scooters were used very little both before and during the pandemic.

The NGO sector considers that the majority of citizens are interested in using sustainable modes of transport, provided that adequate and secure infrastructure is provided. Currently, such infrastructure which would ensure safe transport is deemed as insufficiently built by the NGOs. The NGOs also believe that there is no systemic promotion of alternative forms of mobility (such as walking, bicycles, electric scooters, electric vehicles, etc.) by the authorities. They expect that

interest in using sustainable modes of transport will continue after the pandemic, but only if there are appropriate policies adopted and comprehensive measures taken to encourage and promote such modes.

This has also been confirmed through the conducted survey among public transport users – the vast majority are interested in more frequent use of non-motorised types of mobility options but around half of them under the condition that proper infrastructure is built. For most people, environmental protection when choosing the means of transport is either "important" or "very important".

6. Effects of the pandemic on business operations of public transport operators

In Sarajevo, the prices of transport services did not change during the pandemic. Both the Cantonal Public Transport Enterprise "GRAS Sarajevo" and the private bus operators have confirmed that they experienced significant financial consequences due to a decrease in revenues during the pandemic – as much as 80% less compared to the period before the pandemic for "GRAS Sarajevo" and 50% less for the private operator. While there was no reduction in earnings of "GRAS Sarajevo" employees during the pandemic, the private operator stated that its employees did experience a 10-15% reduction compared to the period before. Neither company made any additional investments during the pandemic. Problems with vehicle failures/breakdowns during the pandemic were encountered by "GRAS Sarajevo" to a significant extent, whereas the private operator reported no such issues. Both companies had difficulties in securing the necessary spare parts for the proper functioning and safety of the vehicle fleet during the pandemic. Neither reported any changes in the number of public vehicle accidents during the pandemic.

"GRAS Sarajevo" considers that the vehicle fleet is the only area that needs to be developed to reduce the impact of the pandemic on public transport, whereas the areas listed by the private operator are the vehicle fleet and personnel policy. Both agree that there is insufficient financial and other support for the development of and investments in "clean" technologies in public transport. Both also believe that online ticket sales, contactless readers and vehicle modernisation would improve the use of public transport in Sarajevo.
The prices of transport services did not change in Banja Luka either during the pandemic. The City Department of Traffic and Roads which is in charge of public transport (including taxi transport) emphasised that the areas that need to be developed to reduce the impact of the pandemic on public transport include infrastructure, personnel policy, vehicle fleets and new technologies. It also believes that online ticket sales, contactless readers and vehicle modernisation would improve the use of public transport. There is insufficient financial and other support for the development of and investments in "clean" technologies in public transport.

The Chamber of Commerce of Republika Srpska believes, based on its communication with transport operators, that public transport operators are facing the risk of discontinuing their services, and that the only measure needed to tackle challenges faced by public transport operators is providing financial support to these operators by the authorities. None of the operators had to discontinue their business operators yet and none of their employees were laid off, but the reduced number of passengers and thus revenues has affected them to a great extent. The Government of Republika Srpska has provided financial assistance to some transporters but this is deemed to be insufficient.

7. Communication with the public on issues of health and safety in transport and citizens' grievances about public transport during the pandemic

The majority of surveyed public transport users are either dissatisfied or partially satisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Other than the regular publishing of information by public transport operators on expected changes in timetables and the introduced epidemiological measures, there was no meaningful communication with the public beyond some NGO efforts. All the surveyed NGOs confirmed they communicated with their members during the pandemic but none received any grievances from citizens.

8. Effects of the pandemic on traffic safety

All stakeholders have confirmed that data on traffic safety and public health are not collected to a sufficient extent and their monitoring is not carried out at a satisfactory level.
No specific research on the impact of the pandemic on road traffic safety has been conducted in the country. There are also no data on the types of accidents which were dominant during the pandemic so it is not possible to analyse the impact of the pandemic on the types of accidents. According to the Ministry of Traffic and the Faculty of Traffic, there was a noticeable trend of a decrease in the number of road accidents in 2020, caused by the decrease in mobility due to the imposed movement restrictions.

Official traffic safety data for of Canton Sarajevo show that the total number of accidents decreased by 11.3% in 2020 compared to 2019 (from 9,231 to 8,188 accidents). The number of accidents involving fatalities and injured persons also decreased – by 9.5%. There are no available data for 2020 yet for Banja Luka but the data for the wider area of Republika Srpska show similar trends – the total number of accidents decreased by 11% in 2020 compared to 2019 (from 10,221 to 9,096), and the number of accidents involving fatalities and injured persons decreased by 8.1%.

9. Illegal public transport (taxi and van transport)

There are no official estimates on illegal public transport in Sarajevo or Banja Luka. The private operator "Centrotrans" believes that there may have been an increase in Sarajevo to a smaller extent (5-10%). The City of Banja Luka does not believe there was an increase, whereas the Chamber of Commerce of Republika Srpska stated that a significant increase in illegal transport occurred.

More than two thirds of surveyed public transport users stated that they did not use illegal transport before the pandemic, and even less people used such transport during the pandemic. A very small percentage of people used illegal transport before the pandemic and that number slightly decreased during the pandemic.

10. Adequacy of infrastructure in place to ensure traffic mobility safety for vulnerable persons, and adequacy of actions taken to protect the H&S of vulnerable people during the pandemic

The stakeholders participating in the study were unanimous that:

- the infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians ...) is not adequate;
- no specific actions were taken to protect the health and safety of vulnerable people during the pandemic;
- those without access to alternative types of transportation had to use public transport whose capacities were reduced and where epidemiological measures were often not respected.

The recommendations given by stakeholders for additional H&S measures needed to keep public transport passengers safe include: (i) a larger number of public transport vehicles; (ii) enforcement of epidemiological measures in public transport; (iii) improved communication with the public; (iv) promotion of alternative modes of transport and development of the necessary infrastructure such as bicycle lanes.

3.3 KOSOVO – PRISHTINA

Prishtina is the capital and the largest economic, administrative, educational and cultural centre in Kosovo. It covers an area of 514 km2 and has around 200,000 inhabitants (2011 Census). Albanians are the majority while other communities consist of Turks, Ashkalli, Serbs and others.

3.3.1 PUBLIC TRANSPORT SYSTEM IN PRISHTINA

Public transport in Prishtina is organised through urban and suburban bus lines for the transport of passengers. The main public transport provider is “Trafiku Urban Prishtina” – a public company owned by the Municipality of Prishtina. Other privately held smaller companies also provide bus and taxi transport services in the city.

In 2019, the Municipality of Prishtina developed a Sustainable Urban Mobility Plan (SUMP) with an aim to identify possible solutions towards more sustainable transport practices, evaluate different options for improving current the traffic, transport and parking situation, and a shift in modal transport towards more sustainable alternatives. Based on the identified issues and problems (such as heavy congestions and safety problems at many junctions in the city), the SUMP proposes the introduction of measures to build a more cohesive system of bus service network, reliability of bus services, improved information on bus services and regulating taxi services. In the field of traffic safety, the SUMP proposes the enhancement of non-motorised travel such as cycling and walking. Since cyclists account for less than 1% of transport users in Prishtina, the SUMP proposes the improvement of cycling infrastructure.

3.3.2 RELEVANT ROAD SAFETY AND PUBLIC HEALTH AGENCIES

An overview of relevant road safety and public health agencies in Kosovo, both governmental and non-governmental, is provided in Table 3 below.

Table 3: *Overview of relevant road safety and public health agencies in Kosovo*

	Name and website of stakeholder	Territorial level	Relevance of stakeholder for the study
GOVERNMENTAL			
1	Ministry of Environment, Spatial Planning and Infrastructure **www.mit-ks.net**	National level	➲ Responsible for transport issues in the whole country ➲ Has two relevant departments: Department of Road Infrastructure and Department of Road Transportation
2	Ministry of Health **www.msh.rks-gov.net**	National level	➲ Responsible for public health in Kosovo including management of the C19 pandemic
3	National Institute of Public Health **www.niph-rks.org**	National level	➲ Plans, programs and evaluates health policies, prepares and implements the public health strategy in Kosovo
4	Municipality of Prishtina – Directorate of Health and Social Welfare **www.prishtinaonline.com**	City level	➲ Manages the C19 pandemic at the level of Prishtina
5	Municipality of Prishtina – Directorate of Public Services, Defence and Rescue **www.prishtinaonline.com**	City level	➲ Responsible for public transport organisation and management in Prishtina
6	Main Family Health Centre of Prishtina **www.qkmf-pr.org**	City level	➲ Primary public health institution in Prishtina
7	Family Health Centre 7 of Kalabria **www.qkmf-pr.org**	City level	➲ C19 health centre in Prishtina
8	Regional Traffic Police Prishtina	City level	➲ Responsible for traffic safety in the city
9	Public Transport Company (Trafik Urban Prishtina) **www.trafikurban-pr.com**	City level	➲ Public company owned by the Municipality of Prishtina ➲ Provides public transport services in Prishtina
10	Faculty of Mechanical Engineering (Department of Traffic and Transport) **www.uni-pr.edu**	National level	➲ Provides higher education studies in the field of traffic in the country
NON-GOVERNMENTAL			
11	Private bus operators in the city	City level	➲ 11 privately owned bus operators provide public transport services in Prishtina, with 24 Yjet being one of the largest ones as it gathers the majority of private operators in the form of a joint stock company
12	Taxi companies	City level	➲ Taxi companies operating in the city include “Victory”, “Asi”, “Dallas”, etc.
13	Kosovo Transporters Association	National level	➲ Association of private transporters in the country ➲ Informs members of any changes to schedules, how to apply measures imposed by the government, etc.
14	Contemporary Association of the Engineers of Traffic and Transport	City level	➲ Works on advancement of urban traffic, increase of road safety, road infrastructure, etc.
15	Traffic and Transport Engineers Group	City level	➲ Contributes to improving the traffic and transport sectors
16	Institute of Road Safety and Transportation Research **www.tempulli.org**	City level	➲ Conducts research, analysis, education and training in the field of road safety
17	NGO Cycling Club Prishtina **FB @kcprishtina**	City level	➲ Association of cyclists

3.3.3 KEY RESEARCH FINDINGS FOR PRISHTIN

Primary research in Prishtina for purposes of this study was conducted among public transport operators, NGOs, government stakeholders and citizens.

15 governmental organisations, 15 public transport operators and ten non-governmental organisations in Prishtina were contacted during the development of this Study. The stakeholders who contributed their opinions or information/data are:

- Municipality of Prishtina (Directorate of Public Services, Defence and Rescue)
- Ministry of Environment, Spatial Planning and Infrastructure (Department of Road Transportation and Division for Passenger Transportation)
- Public Transportation Company (Trafiku Urban)
- Transport Operator City Bus Sh.P.K.
- Transport Operator Prishtina Shpk
- Transport Operator Arberia Sh.P.K
- Transport Operator Vneshta Company Shpk.
- Transport Operator Ardhemerija
- Transport Operator Qendra 2, Shpknt
- Transport Operator N.T. Qendrimi
- Traffic Police (Unit) for Prishtina
- Urban/Suburban Public Transport Association “Unitrans”
- Professors at the Faculty of Mechanical Engineering, University of Prishtina
- National Institute of Public Health (NIPH)
- Main Family Health Centre of Prishtina
- Family Health Centre 7 of Kalabria

The report on the full results of the survey conducted among public transport users in Prishtina is provided in Annex 5.4 of this Study.

In addition, a literature review was carried out to confirm whether any other similar studies have been undertaken at city, regional or national level. An online media search was conducted to identify the key topics reported in the media in Prishtina with regard to the impact of the pandemic on use of public transport in the city.

The key findings of research conducted in Prishtina are as follows:

1. National studies/research conducted in the field of impacts of the pandemic on transport of passengers, traffic safety or public health

No specific research has been conducted in this field at either country or city level.

2. Media reporting

A summary of the media search results indicate that the key topics reported in the media in Prishtina included the following:

i) The effects of the C19 pandemic on public transport

News portals reported that the public transport sector was greatly affected by the C19 pandemic due to financial losses incurred after the government first banned the provision of public transport services and later imposed a limit to the number of passengers (only 20) per bus after the services were reinstated. The Public Transport Company ("Trafiku Urban") highlighted that, despite financial issues, the company continued to provide public transport services to a certain degree. Its services were free of charge during December 2020, although it was initially proposed to continue offering free services for at least 4 months – the Mayor of Prishtina praised this decision but brought attention to the need for budget changes to implement the proposal. During the shutdown of public transport in Prishtina, "Trafiku Urban" received subsidies for workers' salaries from the municipality. The company had planned to reorganise public transport (to increase its services for some villages in Prishtina, such as in the Gollak area), but the plans were suspended due to the pandemic. The media has reported that residents of the Gollak area and other villages organised a protest demanding provision of public transport services since residents did not have access to such services for a long time.

ii) Recommendations and measures for public transport in the context of C19

Since the beginning of the pandemic, government authorities in Prishtina have been issuing media announcements on measures to be applied in public transport vehicles. These included restrictions on capacity of public transport vehicles (the number of transported passengers was limited to 20 per bus), social distancing measures and use of face masks. However, the media reported on cases of non-compliance with such measures, and the mayor appealed to the citizens to respect the measures in public transport.

iii) Promotion of non-motorised mobility options

The news portals have reported on the health and environmental benefits related to the use of bicycles, and how the C19 pandemic contributed to raising of citizens' awareness of cycling. This was confirmed by the NGO "Fans of Bicycles" whose Facebook group followers increased from 4,000 before the pandemic to 15,000 members after the pandemic started. Prishtina cyclists have been continuously active in promoting cycling in the city, particularly due to its beneficial effects on reducing air pollution.

3. Impacts of the pandemic on mobility behaviour patterns

The Ministry of Environment, Spatial Planning and Infrastructure as well as the Public Transport Company ("Trafiku Urban") have confirmed that the pandemic has led to a decline in the number of passengers using public transport. Additionally, private transport operators confirmed that the number of lines significantly decreased during the pandemic, while the planned schedules remained the same but could not be fully implemented by private operators due to financial difficulties, introduction of restrictive measures but also lack of passengers. The situation was worsened by the imposed limits to the number of passengers.

Public transport users surveyed during the development of this Study confirmed that significant changes in mobility behaviours occurred – shifting away from public transport to use of private cars, walking and cycling. Before the pandemic, public transport was the most frequently used type of transport while the vast majority used private cars during the pandemic and public transport fell to the second place. There was also a slight increase in walking and use of bicycles/scooters. More than one third of people depend on public transport. Every sixth person does not depend on public transport but prefers it because of environmental reasons. The survey also revealed that almost two thirds of respondents will continue using public transport the same way they did before the pandemic. Only small number plans to stop using public transport altogether.

The Public Transport Company ("Trafiku Urban") believes that restoring public transport services to the pre-pandemic level will need a set of measures to ensure that safe services are provided, such as investing in the vehicle fleets, more favourable ticket prices and restoring confidence in the safety of public transport use.

4. Safety in public transport during the pandemic

The epidemiological measures introduced in public transport included cleaning and disinfection of public transport vehicles at the end of day, wearing of masks, social distancing and reducing the number of passengers in the buses.

While most of the seven surveyed public transport operators confirmed that measures for the protection of drivers and passengers are applied in their vehicles, some of the privately owned operators stated that they implemented them only partially. The greatest challenges have been lack of financial and material resources and lack of passengers' discipline.

Only less than a third of surveyed public transport users said that they feel completely safe in public transport. Most have noticed frequent violations of

epidemiological measures in public transport. Almost three quarters believe that passenger protection measures should be improved.

5. Use of sustainable modes of transport

Both the government stakeholders and NGOs contacted during the development of this Study have stated that they noted an increase in the use of alternative modes of transport during the pandemic (such as walking or cycling). It was also reported that municipal authorities have undertaken numerous activities to promote cycling, walking and similar activities by, for example, organising marathons both at national and city level. These initiatives were supported by NGOs dealing with protection of environment and promotion of green transport. However, the survey conducted among public transport users has shown that this increase has not been as significant – private cars became the most preferred type of transport during the pandemic and there was only a slight increase in walking and use of bicycles/scooters.

NGOs believe that the impact of the pandemic will lead to some changes in the habits and behaviours in terms of an increase in sustainable modes of transport, and that the pandemic can lead to a positive trend in use of such transport, but that the infrastructure is only partially developed to ensure safe transport. The vast majority of surveyed public transport users confirmed that they interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc., but about half of them only under the condition that adequate and safe infrastructure is built. For the majority, environmental protection is “very important” or “important”.

6. Effects of the pandemic on business operations of public transport operators

All seven public transport operators surveyed for the purpose of this Study have experienced significant financial consequences due to a reduction in revenues during the pandemic, ranging from 50% to 70%. The prices of bus tickets in Prishtina did not change during the pandemic except for one operator, who decreased the prices for 20%. Six operators had to reduce the earnings of employees during the pandemic (ranging from 20% to 60%), and this had a significant impact on the provision of transport services.

None of the seven operators were able to make additional investments during the pandemic. Four of them experienced significant problems with vehicle failures/breakdowns, while three operators declared that such failures/breakdowns occurred to a lesser extent. Five operators faced disruptions in the supply of spare parts, causing significant difficulties for the proper functioning of their vehicles. The rest were able to obtain spare parts although some with minor difficulties.

The operators all agree that the three key areas that should be developed to reduce the impact of the pandemic on public transport are investments in public transport infrastructure, new technologies and vehicle fleet. All also agree that there is insufficient financial and other support for the development of and investments in "clean" technologies in public transport.

7. Communication with the public on issues of health and safety in transport and citizens' grievances about public transport during the pandemic

The public transport operators regularly published information on the expected changes in timetables and the introduced epidemiological measures, but no meaningful communication with the public took place between citizens and government stakeholders or even between citizens and NGOs with regard to H&S issues in transport – all the surveyed NGOs confirmed they did not communicate or insufficiently communicated with citizens during the pandemic.

It is surprising, therefore, that the majority of surveyed public transport users reported that they were either satisfied or partially satisfied with the public transport response to the pandemic and the level of information they received about public transport during the pandemic, while only a small number expressed dissatisfaction. This may be related to the generally low expectations of citizens regarding public communication and consultations.

8. Effects of the pandemic on traffic safety

According to the Ministry of Environment, Spatial Planning and Infrastructure, traffic safety increased due to imposed traffic and movement restrictions during the pandemic. This resulted in a decrease in the number of accidents, which was also confirmed by the Head of Traffic Unit for Prishtina. Based on research conducted by the Traffic Police, data show that fatal accidents in 2020 were reduced by 40% compared to 2019. The reason cited is the limited number of vehicles on roads.

Official traffic safety data for of the city of Prishtina show that the total number of accidents decreased by 11.4% in 2020 compared to 2019 (from 5,845 to 5,174 accidents). Both the number of fatal accidents and accidents involving injuries also decreased (by 39% and 13% respectively).

The NGOs have divided opinions regarding the impact of the pandemic on traffic safety. Two NGOs believe that public health is at greater risk due to increased use of private cars compared to use of public transport, while the other two NGOs stated that the pandemic did not led to a deterioration in traffic safety.

9. Illegal public transport (taxi and van transport)

Although there are no official data on the increase or decrease of illegal public transport, representatives of the Ministry of Environment, Spatial Planning and Infrastructure as well as the Public Transport Company "Trafiku Urban" emphasised that they believe the number of illegal taxis and vans (predominantly small vehicles) increased during the pandemic. The majority of public operators share this view, and declared that the increase in illegal public transport ranges from 30% to 100%.

More than half of the surveyed public transport users stated that they did not use illegal transport during the pandemic, but more than 20% did use it. A small percentage was not aware who was a legal or illegal carrier. The pandemic, however, led to a decrease in the number of people who used such transport.

10. Adequacy of infrastructure in place to ensure traffic mobility safety for vulnerable persons, and adequacy of actions taken to protect the H&S of vulnerable people during the pandemic

The majority of stakeholders participating in the study stressed that no specific actions and measures were taken to protect the health and safety of vulnerable people during the pandemic and that the infrastructure to ensure the safety of vulnerable persons is insufficiently developed.

The "Trafiku Urban" representatives stated that the company plans to provide free of charge transportation for students with disabilities in Prishtina for an indefinite period. For this purpose, a special vehicle has been purchased.

3.4 NORTH MACEDONIA – SKOPJE

The City of Skopje is the capital of North Macedonia and the main centre of the Skopje Region. It covers an area of 571.5 km2 and has a population of 546,824 (2016). It is the largest political, administrative, educational, cultural and economic centre in the country. The Skopje region includes the City of Skopje with 10 urban municipalities and an additional 7 rural municipalities.

3.4.1 PUBLIC TRANSPORT SYSTEM IN SKOPJE

In urban terms, the City of Skopje intensively developed immediately after the earthquake in 1963. During the past two decades, the street network system (established in 1970-80) has expanded. More than 100,000 people from surrounding rural municipalities in the Skopje region and neighbouring regions enter and exit the city daily, mostly using their private cars (90%). Almost 190,000 cars commute through Skopje on a daily basis.

Public transport services are based solely on busses, and are provided by three operators: the Public Transport Enterprise (PTE) Skopje owned by the City of Skopje, and private operators “Sloboda prevoz” and “Makekspres”. About 75% of the public transport services are provided by PTE Skopje. There are also at least 4000 taxies in the city, of which around 2400 are licensed. Some unmarked and unlicensed private carriers transport passengers by private cars or small buses to parts of the city as well.

The City of Skopje adopted its first Sustainable Urban Mobility Plan (SUMP) in 2011. Many measures and actions in line with recommendations from the SUMP have been implemented over the last decade, such as the renewal of the public transport bus fleet, introduction of automatic vehicle location and real time passenger information system, implementation of smart ticketing system, upgrading of the bicycle infrastructure, establishment of a centre for traffic control in real time, etc. However, the City of Skopje, given its size and mobility characteristics, has overgrown its bus public transport system. The regular bus system with vehicles that operate on the same streets together with the remaining traffic offers low quality of service, mostly due to low travel speeds, low frequencies of service and lack of capacity on some routes. The City greatly needs high performance, high speed and high-capacity mode of public transport[10].

A significant improvement in some parts of Skopje’s urban traffic network has been achieved but traffic demand in Skopje significantly exceeds the capacity of the existing urban mobility infrastructure. The estimated number of people traveling daily to Skopje exceeds 90,000 commuters, causing significant congestions every day. This is the consequence of a significant increase of vehicle-based mobility in the past decade and years of neglect of transport infrastructure development. Additionally, many old diesel road vehicles (mostly cars) with EURO-I or -II norm engines were imported in the last decade due to the economic crisis. This has resulted in an increased pollution due to vehicle emissions in the city[11].

[10] Krstanoski, Nikola. (2019). Toward Sustainable Urban Mobility: What is the main disadvantage in Skopje. 10.20544/TTS2018.P46.

[11] Koltovska, Daniela & Ivanjko, Edouard & Pavleski, Daniel. (2018). Creating Infrastructure for Urban Mobility: Case Study of Skopje. PROMET – Traffic & Transportation. 30. 429-443. 10.7307/ptt.v30i4.2675.

3.4.2 RELEVANT ROAD SAFETY AND PUBLIC HEALTH AGENCIES

An overview of relevant road safety and public health agencies in North Macedonia, both governmental and non-governmental, is provided in Table 4 below.

Table 4: *Overview of relevant road safety and public health agencies in North Macedonia*

	Name and website of stakeholder	Territorial level	Relevance of stakeholder for the study
GOVERNMENTAL			
1	Ministry of Transport and Communications **www.mtc.gov.mk**	National level	➲ Responsible for overall transport and traffic in the country
2	Ministry of Health **www.zdravstvo.gov.mk**	National level	➲ Responsible for organisation of the public health system within the country
3	Ministry of Interior **www.mvr.gov.mk**	National level	➲ Responsible for implementation of personal protection measures by citizens, transporters and other traffic users
4	Ministry of Labour and Social Policy **www.mtsp.gov.mk**	National level	➲ Responsible for labour regulations ➲ Very active in the sphere of protection against C19, particularly for workers
5	Republic Council for Road Traffic Safety **www.rsbsp.org.mk**	National level	➲ Responsible for traffic safety in the country ➲ Works on improving road traffic safety and education of traffic participants ➲ Encourages, develops and assists in scientific research work in the field of road traffic safety ➲ Promotes greater use of bicycles and implementation of safety measures in traffic in general
6	Institute of Public Health of Republic of N. Macedonia *(Sector for Control and Monitoring of Communicable Diseases)* **www.iph.mk**	National level	➲ Responsible for application, monitoring and implementation of the public health policy in the country
7	City of Skopje – Traffic Department **www.skopje.gov.mk**	City level	➲ Owner of the largest bus company in the city "Public Transport Enterprise - PTE Skopje" ➲ Oversees the entire traffic system in the city
8	Centre for Public Health – Skopje **www.cph.mk/en**	City level	➲ Monitors, researches and studies the health condition of the population, the reasons for the occurrence and spread of infectious and other diseases, as well as the impact of environmental factors on health ➲ Proposes and undertakes measures for protection and promotion of human health in Skopje
9	Health Centre Skopje **www.zds.mk**	City level	➲ Responsible for public health in Skopje ➲ Performs testing for C19
10	Public Transport Enterprise (PTE) Skopje **www.jsp.com.mk**	City level	➲ Public enterprise owned by the City of Skopje ➲ Provides bus transport services in urban and suburban/ rural areas in Skopje
11	Skopje Bus Station **www.sas.com.mk**	National and regional level	➲ Largest bus station in the country ➲ Main bus station in Skopje for buses traveling between cities in the country
NON-GOVERNMENTAL			
12	Faculty of Technical Sciences **www.tfb.edu.mk**	National level	➲ Provides higher education studies in the field of traffic in the country
13	Association of Traffic Engineers of N. Macedonia **www.zsim.mk**	National level	➲ Gathers professionals in the fields of traffic and transport in the entire country ➲ Works on improving legislation in accordance with the European norms in the field of traffic
14	Macedonian Occupational Health and Safety Association	National level	➲ Professional association in the field of OHS ➲ Has prepared Guidelines for Transport Workers for Protection against C19

15	Auto Moto Association of Macedonia **www.amsm.mk**	National level	➲ Largest driver's association in the country ➲ Protects the interests of its members and works on improvement of traffic safety through numerous preventive - safety actions and free services for all traffic participants
16	Associations of Private Transport Operators in Skopje "Sloboda Prevoz"	City level	➲ Provides bus transport services in urban and suburban/ rural areas in Skopje
17	Private Transport Operator in Skopje "Makekspres" **www.makekspres.mk**	City level	➲ Provides bus transport services in urban areas in Skopje
18	Cycling Social Centre "Pedala" **www.inicijativi.org.mk**	City level	➲ Supporter of the cycling culture in Skopje ➲ Provides training and education related to cycling ➲ Has been active in communicating with national and local institutions with regard to expansion of biking infrastructure during the pandemic
19	Group of Skopje Cyclists "On Wheels" **https://natochak.blogspot.com/**	City level	➲ Promotes urban cycling ➲ Has conducted research on the effects of the pandemic on transport
20	Taxi companies Taxi Global Taxi Cammeo Taxi Elita-El (Skopje Airport Taxi)	City level	➲ Taxi Global and Taxi Cammeo are among the largest taxi companies in the City of Skopje, whereas Taxi Elita-El is the sole licensed company to operate at the Skopje Airport ➲ Have implemented anti-C19 measures in their vehicles

3.4.3 KEY RESEARCH FINDINGS FOR SKOPJE

Primary research in Skopje for purposes of this study was conducted among public transport operators, NGOs, government stakeholders and citizens.

11 governmental organisations, ten non-governmental organisations and three public transport operators in Skopje were contacted during the development of this Study. The stakeholders who contributed their opinions or information/data are:

- Public Transport Enterprise (PTE) Skopje
- Association of Private Transport Operators in Skopje "Sloboda Prevoz"
- Republic Council for Road Traffic Safety
- Skopje Bus Station
- Macedonian Occupational Health and Safety Association
- Association of Traffic Engineers of North Macedonia
- Auto Moto Association of Macedonia
- Group of Skopje Cyclists "On Wheels"
- Cycling Social Centre "Pedala"

The report on the full results of the survey conducted among public transport users in Skopje is provided in Annex 5.5 of this Study.

In addition, a literature review was carried out to confirm whether any other similar studies have been undertaken at city, regional or national level. An online media search was conducted to identify the key topics reported in the media in Skopje with regard to the impact of the pandemic on use of public transport in the city.

The key findings of research conducted in Skopje are as follows:

1. National studies/research conducted in the field of impacts of the pandemic on transport of passengers, traffic safety or public health

None of the government stakeholders conducted any research in this field since the start of the pandemic.

The only study on the topic of the impact of the pandemic on transport at either national, regional or Skopje City level is the "Transport During Corona" study[12] conducted by an informal association for urban cycling and the Association of Citizens for Sustainable Initiatives in November 2020. The results of the online survey showed that public transport users decreased by 55.43% during the pandemic, and the number of car users increased by 21.56%. The number of people walking increased by 22.47%, and the number of people riding bicycles rose by 20.88%. Notably, over 75% of those who do not use bicycles at all said they would use them if there was better infrastructure. The main conclusion of the survey was that urgent measures are needed in the public space to stimulate bicycle and pedestrian traffic in Skopje, for which there is support from over 72% of the citizens. The study also concludes that increased use of bicycles is the second most feasible anti-C19 measure after the increased number of bus lines, and that the C19 crisis is a great opportunity to improve cycling infrastructure.

2. Media reporting

A summary of the media search results indicate that the key topics reported in the media in Skopje included the following:

i) The effects of C19 pandemic on public transport

News portals reported that the C19 pandemic caused a huge drop in the number of passengers that use public transport in Skopje – around 28 million passengers less than before the pandemic. During 2020, "PTE (Public Transport Enterprise) Skopje" buses and the buses of private bus operators transported almost 28 million passengers, compared to 57 million passengers in 2019. This significant decrease in the number of passengers and consequently the financial losses incurred by "PTE Skopje" led to a concern that subsidies from the City of Skopje would not be able to cover such losses. "PTE Skopje" stated in 2021 that it is planning to increase the interest in the use of public transport with two measures – the purchase of 10 mini-busses and the introduction of a fully functional mobile application that will allow electronic purchase and validation of tickets in buses.
The media has reported about the challenges faced by private bus operators as well, specifically financial losses due to restrictions on the number of passengers in buses but also due to the operation of illegal taxis. The Ministry of Transport and Communications stated that several private transport companies had to suspend their operations.

ii) Recommendations and measures for public transport in the context of C19

Since the beginning of the pandemic, government authorities in Skopje have been issuing media announcements on obligatory measures as well as recommendations for use of public transport. These included restrictions on capacity of public transport vehicles (decreasing the number of transported passengers), social distancing measures in buses, disinfection requirements for all vehicles including taxis, etc. However, the media have extensively reported on cases of non-compliance with such measures and the lack of enforcement of these measures in public transport.

iii) Promotion of non-motorised mobility options

The media and NGO websites have reported on initiatives undertaken by cycling associations with regard to the expansion and improvement of the urban cycling infrastructure in Skopje. An example is the initiative of 42 organisations led by an informal association for urban cycling and the Association of Citizens for Sustainable Initiatives, demanding from authorities to improve the cycling infrastructure as a measure to deal with the crisis. One of the institutions that supported the initiative was the Ministry of Environment and Physical Planning which acknowledged that walking and cycling needs to be promoted as a measure to reduce air pollution in Skopje. It pointed out that nitrogen oxide concentrations exceed the annual limit value near all major streets and roads in Skopje, and traffic is identified as a sector that has a 20% share in the total concentrations of PM10. Furthermore, the Ministry stated that it was already evident based on data from measuring stations that there was a decrease in the concentrations of nitrogen oxides as a result of the restriction of the movement. It recommended to the local self-government units and the City of Skopje to work on expansion of the cycling and walking network in order to promote the use of bicycles and other alternative methods of transport.

[12] Available at: https://natochak.blogspot.com/2020/12/prevoz-za-vreme-na-korona.html

However, the media have also reported on challenges faced by the authorities in Skopje with regard to collection of data for these newly emerging trends in alternative mobility options. Namely, cyclists and pedestrians are not counted as participants in traffic, so the Centre for Traffic Management and Control (CTMC) in Skopje only keeps data on motor vehicles. Furthermore, the last traffic study developed for Skopje dates back to 2011. NGOs have been proposing to transform CTMC into a data collection centre for all types of traffic. On the other hand, the City of Skopje officials have reported on some activities undertaken during the last few years – removing 240 billboards and city lights from public areas to free space for cyclists and pedestrians; constructing bicycle lanes by reducing the width of the traffic lanes; and installing physical barriers against illegal vehicle parking on sidewalks.

3. Impacts of the pandemic on mobility behaviour patterns

Both governmental and non-governmental stakeholders have confirmed that the pandemic has greatly affected public transport and drastically reduced the number of passengers, while leading to an increase in other forms of transport (walking, bicycles, private cars). "PTE (Public Transport Enterprise) Skopje" estimates that the number of public transport users is less by 50% compared to previous years. The "Transport During Corona" study conducted by the NGO sector (mentioned under item 1 – National studies/research conducted) found that public transport users decreased by 55.43% during the pandemic.

"PTE Skopje" has confirmed that there has been a decrease in the number of bus lines during the pandemic and that the pandemic made it slightly difficult to maintain the public transport schedules, due to two reasons: lack of driving staff and introduction of restrictive measures (lockdown, curfew, etc.). Nevertheless, it maintains that public transport services provided to citizens during the pandemic remained at a satisfactory level.
The private operators have confirmed that the City of Skopje imposed a drastic reduction in the number of bus lines – up to 60% on some lines, which consequently caused changes to bus schedules.

The vast majority of the surveyed public transport users used public transport before the pandemic (slightly less than half used it "frequently"). However, the pandemic led to significant changes – the percentage of frequent public transport users decreased by almost three times. Furthermore, more than half of the people did not use public transport at all during the pandemic.

Before the pandemic, public transport was the most frequently used type of transport, followed by private cars. However, during the pandemic, private cars became the most preferred type of transport, and public transport fell to the second place (reduced by half compared to the pre-pandemic period). While people preferring walking increased to some extent, those using bicycles or scooters increased almost insignificantly.

Since the majority of people own private cars, only one quarter of people stated that they depend on public transport. However, every tenth person declared that they do not depend on it, but prefer public transport because of environmental reasons.

It is important to point out that only around a third of public transport users stated that they will continue to use public transport after the pandemic at the same frequency as before the pandemic. This may be linked to the high percentage of people who own private cars and do not depend on public transport for mobility.

4. Safety in public transport during the pandemic

The epidemiological measures introduced in public transport (both by "PTE Skopje" and the private bus operators) included regular disinfection of public transport vehicles, wearing of masks, social distancing requirements (marking bus seats with stickers), restricting passenger capacity by 50% or 30%, and enforcing compliance with the measures through the engagement of 100 control personnel in public transport vehicles. The two largest taxi companies also implemented anti-C19 measures, including disinfection, installation of partitions and wearing of masks.

All stakeholders agree, however, that better enforcement of compliance with these measures are needed to protect the H&S of public transport staff and passengers during the pandemic. Lack of enforcement by inspection authorities, coupled with the lack of passengers' discipline, were cited as the greatest challenges in the implementation of measures for the protection of drivers and passengers in public transport vehicles. Some believe that imposing a reduced number of vehicles in public transport may have created an opposite effect on the H&S of the passengers – a smaller number of vehicles increased the potential of spread of infection and buses became one of the largest potential clusters for infection of passengers.

The great majority of surveyed public transport users do not feel safe in public transport during the pandemic. More than half of respondents noticed frequent violations of epidemiological measures in public transport. Almost half believe that vehicles are not disinfected regularly and thoroughly, and more than a third believe that drivers were not adequately protected. The vast majority believes that passenger protection measures in public transport need to be improved.

5. Use of sustainable modes of transport

As explained above, public transport was the most frequently used type of transport before the pandemic. During the pandemic, private cars became the most preferred type of transport. In addition, while people preferring walking increased to some extent, those using bicycles or scooters increased almost insignificantly.

The NGO sector thinks that the City of Skopje authorities undertook minimal activities to promote alternative forms of mobility (such as walking, bicycles, electric scooters, electric vehicles, etc.) during the pandemic. The NGOs consider that the majority of citizens are very interested in using sustainable modes of transport, provided that adequate and secure infrastructure is provided. This has also been confirmed through the conducted survey among public transport users – the vast majority are interested in more frequent use of non-motorised types of mobility options. For most people, environmental protection when choosing the means of transport is either "important" or "very important". However, infrastructure which would ensure safe alternative transport is insufficiently developed – for example, bicycle paths are marked but are non-functional because the curbs are not set to the level of the road, and more pleasant green areas where citizens would feel comfortable while walking are needed.
The NGOs expect that the interest in using sustainable modes of transport will continue after the pandemic, but only if there are appropriate policies adopted and comprehensive measures taken to encourage and promote such modes.

6. Effects of the pandemic on business operations of public transport operators

"PTE Skopje" has reported that it experienced significant financial consequences due to a decrease in revenues during the pandemic but has not provided details on the impact on its revenues. The prices of transport services did not change during the pandemic. There was no reduction in earnings of employees during the pandemic. The company made additional investments during the pandemic in vehicles – but the contract for the supply of vehicles was concluded before the start of the pandemic. Problems with vehicle failures/breakdowns during the pandemic were encountered but to a lesser extent. The company was able to secure the necessary spare parts for the proper functioning and safety of its vehicle fleet during the pandemic.

The company considers that infrastructure, vehicle fleet and personnel policy are three areas that need to be developed to reduce the impact of the pandemic on public transport. There is also insufficient financial and other support for the development of and investments in "clean" technologies in public transport. It believes that online ticket sales, contactless readers and vehicle modernisation would improve the use of public transport in Skopje.

The private operators in Skopje also confirmed they experienced very significant losses of revenues due to the reduction in bus lines, leading to indebtedness and job losses. They believe that the city authorities have failed to provide sufficient support and stimulation, and that this sector will be financially unsustainable if serious support is not provided in the near future. The situation, they believe, may lead to closure of private companies and job losses. The private operators consider that investments in a greater number of vehicles and ensuring efficiency, safety, quality and comfort in public transport are needed to bring back the citizens' trust and reduce the impact of the pandemic on public transport.

7. Communication with the public on issues of H&S in transport and citizens' grievances about public transport during the pandemic

The surveyed public transport users are generally dissatisfied or partially satisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.

Other than the regular communication of public transport operators with their customers on expected changes in timetables and the introduced epidemiological measures, only one NGO confirmed it regularly communicated with citizens during the pandemic through the social media campaign #ПросторАнтиКорона (Anti-corona Space) and received complaints regarding the limited number of passengers in both public transport and private vehicles as unfeasible measures not providing any mobility alternatives to citizens.

8. Effects of the pandemic on traffic safety

All stakeholders have confirmed that data on traffic safety and public health are not collected to a sufficient extent and their monitoring is not carried out at a satisfactory level.

The Republic Council for Road Traffic Safety stated that, given the fact that the pandemic has still not ended, it has not conducted specific research on the impact of the pandemic on road traffic safety. Therefore, there are no specific data and indicators for accurately determining the impact of the pandemic on traffic safety. The Council uses official traffic safety data from the Ministry of Interior. It believes that there is a trend of improving road safety but still not at the required and desired level (for e.g., at the level of the EU member states).

Official traffic safety data for North Macedonia show that the total number of accidents decreased by 10% in 2019 compared to 2020 (from 3,233 to 2,916%). However, the number of persons injured increased by 11.2%, and the number of people killed increased only slightly (by 5.3%). Similarly, at Skopje level, the number of fatal accidents decreased by 10% but the number of accidents involving injuries increased significantly – by 52.8%.

The NGO sector believes that the reduction in the number of accidents was not proportional to the reduction in traffic and that a comprehensive analysis of the reduction of traffic volume should be made to determine whether road safety improved or deteriorated. The increased use of other types of mobility during the pandemic without an adequate and safe traffic infrastructure in place may have contributed to increasing the risks of traffic accidents.

9. Illegal public transport (taxi and van transport)

Both "PTE Skopje" and the Bus Station Skopje believe that there was an increase in illegal public transport services (taxi and van transport) during the pandemic. On the other hand, the private bus operators state that there was no noticeable trend of increase in illegal public transport.

The great majority of surveyed public transport users stated that they did not use illegal transport before the pandemic, and this number increased during the pandemic. A very small percentage of people used illegal transport before the pandemic, but that number was half as low during the pandemic.

10. Adequacy of infrastructure in place to ensure traffic mobility safety for vulnerable persons, and adequacy of actions taken to protect the H&S of vulnerable people during the pandemic

The stakeholders participating in the study were unanimous that:

- the infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians ...) is not adequate;
- no specific actions were taken to protect the health and safety of vulnerable people during the pandemic;
- those without access to alternative types of transportation had to use public transport whose capacities were reduced and where epidemiological measures were often not respected.

All surveyed NGOs have confirmed that additional H&S measures are needed to keep public transport passengers safe. The recommendations for such measures include: (i) a larger number of public transport vehicles; (ii) enforcement of epidemiological measures in public transport (social distancing, installation of partitions); (iii) improved communication with the public; (iv) promotion of alternative modes of transport and development of the necessary infrastructure such as bicycle lanes in the city.

3.5 SERBIA – BELGRADE AND NOVI SAD

The City of Belgrade is the capital city of Serbia, covering an area of 3.222,68 km2. It is administratively divided into 17 municipalities. There are 1,659,440 people living in the city (2011 Census).
The City of Novi Sad is one of the largest cities in Serbia. It consists of 16 settlements: 4 urban and 12 rural/ suburban settlements. There are 341,625 people living in the city (2011 Census).

3.5.1 PUBLIC TRANSPORT SYSTEM IN BELGRADE AND NOVI SAD

Belgrade. The public transport system in Belgrade consists of three main types of transport: buses, trams and trolleybuses. The public transport operator for all types of transport is the City Transport Company "Belgrade" which transport around 1.5 million passengers a day, with a total of 1,116 vehicles. In addition, a number of other companies (Ariva Litas, Avala Bus, "Lasta", "Lastra", "Strela-Ub", "Strela - Obrenovac") operate a number of bus lines. Moreover, there are officially 24 taxi associations in Belgrade, with over 4,000 taxi vehicles.

There are about 95 km of bicycle paths in Belgrade, mostly in the largest municipality within the city (Novi Beograd). There are no officially organised "bike-sharing" systems. Although there are no official data, the participation of cyclists in traffic in Belgrade is estimated at less than 1% of the total traffic.

Novi Sad. The public transport network relies entirely on buses. Bus transport services in Novi Sad are provided by the Public City Transport Company "Novi Sad". It operates a vehicle fleet of 272 buses, and it is estimated that about 250,000 passengers use public transport on a daily basis. There are also 17 taxi associations in Novi Sad, with an estimated 1,700 taxi vehicles.

There are over 90 km of bicycle paths in Novi Sad. There are no officially organised "bike-sharing" systems. The participation of cyclists in traffic in Novi Sad is estimated at 9% of the total traffic.

3.5.2 RELEVANT ROAD SAFETY AND PUBLIC HEALTH AGENCIES

An overview of relevant road safety and public health agencies in Serbia, both governmental and non-governmental, is provided in Table 5 below.

Table 5: *Overview of relevant road safety and public health agencies in Serbia*

	Name and website of stakeholder	Territorial level	Relevance of stakeholder for the study
GOVERNMENTAL			
1	Ministry of Construction, Transport and Infrastructure **www.mgsi.gov.rs**	National level	➲ Responsible for transport safety in Serbia ➲ Developed instructions and recommendations on organising public during the C19 pandemic
2	Ministry of Interior / Traffic Police Directorate **www.mup.gov.rs**	National level	➲ Responsible for implementation of personal protection measures by citizens, transporters and other traffic users ➲ Collects data on traffic accidents
3	Ministry of Public Administration and Local Self-government **www.mduls.gov.rs**	National level	➲ Issued instructions for organising public transport taking into account C19 prevention measures
4	Ministry of Health **www.zdravlje.gov.rs**	National level	➲ Responsible for public health in the country
5	Ministry of Health **www.zdravlje.gov.rs**	National level	➲ Responsible for traffic safety in the country
6	Faculty of Transport and Traffic Engineering, Belgrade **www.sf.bg.ac.rs**	City-level/ Belgrade	➲ Provides higher education programs specifically related to traffic, transport, communications and logistics
7	Faculty of Technical Sciences - Department of Transport, Novi Sad **www.ftn.uns.ac.rs/n1779346934/saobracaj-i-transport**	City-level/ Novi Sad	➲ Conducts scientific research and prepares development projects in the fields of traffic safety, transport technology, vehicle development, etc.
8	Institute of Transport and Traffic Engineering, Belgrade **www.old.sf.bg.ac.rs/index.php/sr-YU/fakultet/institut**	National level	➲ Interdisciplinary research organisation within the Faculty of Transport and Traffic Engineering ➲ Specialises in research in all areas of traffic and transportation
9	Secretariat for Public Transport - City Administration of the City of Belgrade **www.bgprevoz.rs**	City-level/ Belgrade	➲ Responsible for organisation and management of public transport in Belgrade ➲ Publicised a report titled “Organisation of Public Transport in Belgrade during the C19 Pandemic in Belgrade”
10	City Institute for Public Health Belgrade **www.zdravlje.org.rs**	City-level/ Belgrade	➲ Responsible for application, monitoring and implementation of public health policy in Belgrade
11	Institute of Public Health Belgrade of Vojvodina **www.izjzv.org.rs**	Regional level	➲ Responsible for application, monitoring and implementation of public health policy in Novi Sad
12	City Transport Company “Belgrade” **www.gsp.rs**	City-level/ Belgrade	➲ Largest public transport operator in Belgrade
13	Belgrade Bus Station **www.bas.rs**	City-level, regional, national, international	➲ Bus station with largest number of daily arrivals/ departures in Serbia
14	Public City Transport Company “Novi Sad” **www.gspns.co.rs**	City-level/ Novi Grad	➲ Public transport operator in Novi Sad
NON-GOVERNMENTAL			
15	Auto-Moto Association of Serbia **www.amss.org.rs**	National level	➲ Monitors road safety and proposes preventive measures in the field of traffic safety to competent authorities ➲ Informs the public on road conditions and provides technical assistance to drivers

16	Public transport operators in private ownership	City-level, Regional, National, International	➲ Companies providing bus transport services in Belgrade, such as “Lasta”, “Srbijatransport”, etc.
17	Taxi companies	City-level/ Belgrade and Novi Sad	➲ Taxi companies such as “Pin Taxi, “Belgrade Taxi”, “Naxis Taxi”, “Maksi-Novosađani Taxi”, “Red Taxi”, etc.
18	NGO “Streets for Cyclists” Belgrade **www.uzb.rs**	City-level/ Belgrade	➲ Works together with relevant institutions and other NGOs to improve cycling conditions and safety ➲ Has been promoting cycling during the C19 pandemic
19	NGO Novi Sad Cycling Initiative **www.nsbi.org.rs**	City-level/ Novi Sad	➲ Works together with relevant institutions and other NGOs to improve cycling conditions and safety ➲ Has been promoting cycling during the C19 pandemic
20	NGO Centre for Democracy Foundation **www.centaronline.org**	National level	➲ One of the most active NGOs in the country; works on social issues in the country
21	NGO European Movement in Serbia **www.emins.org**	National level	➲ Active in the field of researching and proposing improvements to public policies in Serbia
22	NGO Belgrade Centre for Human Rights **www.bgcentar.org.rs**	City-level/ Belgrade	➲ Works on social issues in the country
23	NGO NALED **www.naled.rs**	National level	➲ Provides information on the C19 pandemic and its impacts
24	NGO Fenomena **www.fenomena.org**	National level	➲ Provides information on the C19 pandemic and its impacts
25	American Chamber of Commerce in Serbia **www.amcham.rs**	International/ National level	➲ Has undertaken C19 business impact surveys and studies

3.5.3 KEY RESEARCH FINDINGS FOR BELGRADE AND NOVI SAD

Primary research in Belgrade and Novi Sad for purposes of this Study was conducted among public transport operators, NGOs, government stakeholders and citizens.

11 governmental organisations, 19 non-governmental organisations and five public transport operators were contacted during the development of the Study. The stakeholders who contributed their opinions or information/data are:

- City Institute for Public Health Belgrade
- Ministry of Public Administration and Local Self-government
- Institute of Public Health Belgrade of Vojvodina
- Public transport operator – City Transport Company “Belgrade”
- Maksi-Novosađani Taxi
- NGO Centre for Democracy Foundation
- NGO Belgrade Centre for Human Rights
- NGO European Movement in Serbia
- NGO “NALED”
- NGO “Fenomena”
- NGO Cycling Initiative Novi Sad
- American Chamber of Commerce in Serbia

The report on the full results of the survey conducted among public transport users in Belgrade and Novi Sad is provided in Annex 5.6 of this Study.

In addition, a literature review was carried out to confirm whether any other similar studies have been undertaken at city, regional or national level. An online media search was conducted to identify the key topics reported in the media in Belgrade and Novi Sad with regard to the impact of the pandemic on use of public transport in these cities.

The key findings of research conducted in Belgrade and Novi Sad are as follows:

1. National studies/research conducted in the field of impacts of the pandemic on transport of passengers, traffic safety or public health

The City Administration of the City of Belgrade (Public Transport Secretariat) developed a brief report on C19 pandemic impacts on public transport in Belgrade[13], covering the period from March to December 2020. The report provides a brief overview of implemented anti-C19 measures in public transport and states that the City of Belgrade provided public transport operators with vehicle disinfection agents. Additionally, the Public Transport Secretariat distributed personal protective equipment (face masks and gloves) to two public transport operators. The report provides data on organisation of public transport at various stages of the pandemic (reduction of lines from 530 regular to 80 special lines; reduction of number of vehicles from 1,664 to 273 vehicles; free transport provided for medical staff, army and police). The number of passengers per day decreased from 2,5 million to 35,000, which led to decreased revenues from fares (from EUR 5.9 million to EUR 1.67 million per month). The report also contains proposals for modernisation of the public transport system such as contactless payments, application of innovative solutions, promoting the use of cycling and walking, etc.

The relevant second study is the "C19 Socio-Economic Impact Assessment"[14] developed in September 2020 by UN Serbia. The assessment revealed that rural households, women and commuting workers were the categories that were most impacted by suspension of the public transport network. Since women have a much lower rate (35%) of having a driver's license compared to men (71%), women had to rely on family members or were left without viable means of transportation.

The third relevant study is the "Impact of the C19 Pandemic on the Position and Rights of Workers in Serbia"[15]developed in June/July 2020 by the Centre for Democracy Foundation. The study found that lack of public transport services directly and negatively impacted the exercising of the right to work for all workers, with vulnerable groups particularly more affected (women, informal workers, workers with disabilities. Additionally, due to the lack of public transport young caregivers were unable to reach the elderly people they had looked after. The findings of the research conducted in April 2020 show that 8% of respondents who worked in February lost their jobs, with many employees resigning because of the inability to come to work due to a shutdown of public transport. The study recommends the development of a strategy by the relevant ministries as well as local self-government authorities for regulating public transport during epidemics.

The fourth relevant study is the "Impact of the C19 on Vulnerable Groups and Groups at Risk"[16], developed in Belgrade in 2020 by UN Human Rights, Social Inclusion and Poverty Reduction Unit of Government of Serbia and the Swiss Agency for Development and Cooperation. The study addresses the causes of social exclusion of certain groups in Serbia. It identifies the suspension of public transport services and consequently restricted access to work/sources of income/risk of poverty/access to healthcare as one of the immediate causes of negative outcomes of the C19 pandemic on a number of vulnerable categories of people (such as the Roma population, homeless people, etc.).

The fifth relevant study is the "Impact of the C19 Pandemic and Measures for its Prevention on Employment and Working Conditions"[17], developed in June 2020 by a group of organisations[18]. The study concludes that the lack of availability of public transport had a negative effect on working conditions, employment and gender equality. It recommends that authorities and employers consider appropriate transport options for workers, and that public transport should not be suspended but rather increased in terms of the numbers of lines and frequency of buses to avoid overcrowding in public transport vehicles.

2. Media reporting

A summary of the media search results indicate that the key topics reported in the media in Belgrade and Novi Sad included the following:

i) The effects of the C19 pandemic on public transport

The media reported that all departures on all lines in urban, suburban and local transport in Serbia were cancelled at the beginning of the pandemic. It was thereafter reintroduced with a reorganised schedule. Public transport was used daily by almost 50% of citizens in Belgrade before the pandemic, but this 13

[13] Available at https://unece.org/sites/default/files/2021-01/SI_JV_1.pdf
[14] Available at https://serbia.un.org/sites/default/files/2020-09/seia_report%20%281%29.pdf
[15] Available at http://www.centaronline.org/userfiles/files/publikacije/cdf-the-impact-of-the-covid-19-epidemic-on-the-position-and-rights-of-worker.pdf
[16] Available at https://serbia.un.org/sites/default/files/2021-02/LNOB%20analiza_ENG_web.pdf
[17] Available at https://www.secons.net/files/publications/133-publication.pdf
[18] Including UN Women, „Kljucni koraci ka rodnoj ravnopravnosti", „EU za Tebe", „SeConS"

percentage significantly decreased. Public transport became one of the riskiest environments for transmission of the C19 virus due to a large number of people gathering in small spaces. The pre-pandemic problem of inadequate services in public transport (overcrowded vehicles, unreliable schedules, coupled with an insufficient number of vehicles and drivers) was exacerbated by the new situation as restrictions on vehicle capacities led to even greater overcrowding and longer waiting periods at stations.

It was also reported during the earlier days of the pandemic that the number of road accidents had decreased but the number of people killed in traffic accidents had significantly increased. The Road Safety Agency provided data in the media that by April 2020, there were 1,699 road accidents and 970 injured people less than in April 2021, but there were 17 more people killed in road accidents. It was concluded that the road accidents had become more fatal even though decreased in number, due to greater speeding on less congested streets. The Agency stated that detailed analyses would need to be conducted to understand the exact causes.

ii) Recommendations and measures for public transport in the context of C19

Since the beginning of the pandemic, government authorities in Belgrade and Novi Sad have been issuing media announcements on obligatory measures as well as recommendations for use of public transport. These included restrictions on capacity of public transport (decreasing the number of transported passengers), masking, social distancing measures, disinfection of all vehicles both before the start of the day and at the end of the day, etc. Media reported that police officers and communal controllers would fine passengers who do not comply with the measures.

It was also stated, however, that the imposed measures in public transport were not respected by passengers at times. There were numerous instances of overcrowding and no social distancing in vehicles.

iii) Promotion of non-motorised mobility options

The media and NGOs have reported on initiatives undertaken by cycling associations with regard to the expansion and improvement of the urban cycling infrastructure in Belgrade and Novi Sad. It was reported that the number of bicycle users is increasing but the cycling infrastructure is not yet well developed, which negatively impacts traffic safety. The Traffic Police reports in the media indicate that around 55 cyclists die in accidents every year in Serbia, mostly at intersections and at night.

NGOs were active in promoting cycling and working with the authorities to encourage citizens to cycle. For example, the NGO “Streets for Cyclists” developed a cycling campaign to encourage citizens to use bikes more often. It formulated specific measures as proposals to the authorities, such as the expansion of bicycle lanes throughout Serbia, expansion of walking zones, introduction of e-bike systems, abolition of VAT for purchase of bicycles, etc. This NGO received the support of the City of Belgrade for so-called “bicycle streets” (shorter streets where cyclists are allowed to walk in the middle of the lane) as an alternative to bike lanes. As another example reported in the media, the authorities in Novi Sad decided to subsidise the purchase of bicycles.

It was also, however, reported that the authorities in Serbia rejected the joint proposal of the NGO “Streets for Cyclists” and the Initiative “Let’s Not Drown Belgrade” for allocation of yellow lanes for cyclists during the pandemic and possibly after the pandemic if such solution proves to be effective. No details were provided on the reasons for rejection.

3. Impacts of the pandemic on mobility behaviour patterns

The Belgrade City Administration publicised some data on the effects of the pandemic on public transport in the city for the period March-December 2020. During some periods, public transport services were completely halted, and in other periods schedules were minimised, minibus lines were cancelled and night-time transport suspended. When the state of emergency was declared in March 2020 in Serbia, the number of public transport vehicles decreased from 1,664 to 273, as only two operators were providing public transport services during this period. The number of passengers per day in public transport decreased from 2.5 million to 35,000. Revenues from fares collected decreased from EUR 5,900,000 per month to EUR 1,670,000 per month. After the state of emergency was lifted in May 2020, public transport services were continued at a level of 77% compared to the pre-pandemic period. 1,058 public transport vehicles (buses, trams, trolleys and electric buses) continued to operate on urban lines, and 234 buses on suburban and local lines.

The public transport operator surveyed for the purpose of this Study also confirmed a significant decrease in the number of public transport users during the pandemic. The reason for not maintaining bus schedules was the introduction of restrictive measures throughout the entire country. It believes, nevertheless, that the level of public transport services offered to citizens during the pandemic has been completely satisfactory.

Changes in mobility patterns have been reported by public transport users as well. More than half of them frequently used public transport before the pandemic, followed by more than one third of respondents who used it sometimes. Significant changes, however, occurred during the pandemic – the percentage of frequent public

transport users decreased by more than twice, while on the other hand the percentage of respondents who did not use public transport during the pandemic exceeded one third of respondents.
Before the pandemic, public transport was the most frequently used type of transport (for more than a half of respondents). However, during the pandemic, private cars became the most preferred mode and public transport fell to the second place (reduced by more than half compared to the pre-pandemic period). While people preferring walking increased to some extent, those using bicycles or scooters increased almost insignificantly.

More than half of respondents do not depend on public transport to get to work/school, which may be directly related to the fact that more than two thirds of respondents own private cars. However, one third of respondents depend on public transport, while about every tenth person does not depend on it, but prefers public transport because of environmental reasons. Almost 50% of respondents plan continue to use public transport after the pandemic at the same frequency as before. The others have stated that they will use it less or are not sure yet. A very small number of respondents plan to completely stop using public transport after the pandemic.

The surveyed government stakeholders believe that the best responses to the post-pandemic challenges in terms of public transport should be investments in expanding vehicle fleets.

4. Safety in public transport during the pandemic

The epidemiological measures introduced in public transport in Belgrade and Novi Sad included social distancing requirements, installation of partitions for drivers, exit and entry of passengers only at marked doors, preventing overcrowding by marking empty seats, control of compliance with measures by sanitary inspectors and communal police, disinfection of vehicles and wearing of masks. The taxi companies also implemented anti-C19 measures, including disinfection and wearing of masks.

The surveyed public transport operator has stated that the prescribed H&S measures are fully applied in public vehicles and that these are entirely satisfactory. The City Institute for Public Health in Belgrade and other government stakeholders have confirmed that the public transport operators adequately responded to the new situation and were able to provide safe transport services to citizens, adding that the introduced measures significantly contributed to curbing the spreading of C19. The greatest challenge in the implementation of measures for the protection of drivers and passengers in public transport vehicles has been the lack of passengers' discipline.

None of the NGOs believe, however, that these measures helped curb the spread of C19. This has been confirmed by public transport users as well – more than half of respondents do not feel safe in public transport during the pandemic and more a than third feels partially safe. The majority has noticed frequent violations of epidemiological measures in public transport. The vast majority believes that passenger protection measures in public transport need to be improved. Only a minority are satisfied with the current measures and believe that there is no need for improvement.

5. Use of sustainable modes of transport

The majority of NGOs contacted during the development of this Study have stated that they noted an increase in the use of alternative modes of mobility during the pandemic (such as walking or cycling). However, the survey conducted among public transport users has shown that this increase has not been as significant as hoped for. As explained above, private cars became the most preferred type of transport during the pandemic in lieu of public transport which was the most frequently used type of transport before the pandemic. In addition, while the number of people preferring walking increased to some extent, those using bicycles or scooters increased almost insignificantly.

The NGO sector believes that the citizens of Belgrade and Novi Sad are either very interested or partially interested in using sustainable modes of transport. All of the eight contacted NGOs, however, consider that the infrastructure for sustainable modes of transport is insufficiently developed to ensure safe transport. While some think that the use of such modes of transport will increase after the pandemic, others are sceptical. Nevertheless, all are optimistic that the pandemic will lead to some positive trends with regard to sustainable transport.
The vast majority of citizens surveyed have stated that they are interested in more frequent use of non-motorised types of mobility options, but only half of them under the condition that adequate and secure infrastructure is built. Only about every tenth person is not interested. For most respondents, environmental protection is "very important" or "important".

6. Effects of the pandemic on business operations of public transport operators

The surveyed public transport operator has stated that it did not experience a decrease in revenues during the pandemic (most likely due to government subsidies), and that there was no reduction in earnings of employees during the pandemic even though the prices of public transport services did not change during the pandemic. The company did not make any additional investments during the pandemic. It did not report any problems with vehicle failures/breakdowns during the pandemic and was able to secure the necessary spare parts for the proper functioning and safety of its vehicle fleet during the pandemic.

The public transport operator is of the opinion that new technologies are the only area that need to be developed to reduce the impact of the pandemic on public transport, and that online ticket sales, contactless readers and vehicle modernisation would improve the use of public transport. It also believes that there is sufficient financial and other support for the development of and investments in "clean" technologies in public transport.

7. Communication with the public on issues of health and safety in transport and citizens' grievances about public transport during the pandemic

The majority of surveyed public transport users are generally dissatisfied or only partially satisfied with the way public transport authorities responded to the challenges of the pandemic. Only a small number of are completely satisfied. Similarly, almost half of respondents are dissatisfied with the level of received information related to public transport during the pandemic, and slightly more than one third of respondents are partially satisfied.

Other than the regular communication of public transport operators with their customers on expected changes in timetables and the introduced epidemiological measures, only two of the eight NGOs surveyed for the purpose of this Study confirmed they communicated with citizens during the pandemic but none received any complaints regarding H&S concerns about public transport travel.

8. Effects of the pandemic on traffic safety

All stakeholders have confirmed that data on traffic safety and public health are not collected to a sufficient extent and their monitoring is not carried out at a satisfactory level.

Some NGOs believe, however, that the pandemic has led to deterioration in traffic safety and a greater risk to public health during the pandemic. The reason cited most often is increased walking/cycling compared to the use of public transport.

Official traffic safety data for of the city of Belgrade show that the total number of accidents decreased by 16.6% in 2020 compared to 2019 (from 10,873 to 9,061 accidents). The number of fatal accidents also decreased – by around 9%. Similarly, data for the city of Novi Sad show that the total number of accidents decreased by 9.5% in 2020 compared to 2019 (from 1,455 to 1,316 accidents), and the number of fatal accidents decreased by 14.2%.

9. Illegal public transport (taxi and van transport)

There are no data or estimates on illegal public transport in either Belgrade or Novi Sad based on which it could be assessed whether the use of such transport increased or decreased during the pandemic. The majority of surveyed public transport users stated that they did not use illegal transport before the pandemic, and this number increased further during the pandemic. A minority used illegal transport before, but that number decreased during the pandemic.

10. Adequacy of infrastructure in place to ensure traffic mobility safety for vulnerable persons, and adequacy of actions taken to protect the H&S of vulnerable people during the pandemic

The NGOs participating in the Study are unanimous that:

- the infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians ...) is not adequate;
- no specific actions were taken to protect the health and safety of vulnerable people during the pandemic;
- those without access to alternative types of transportation had to use public transport whose capacities were reduced and where epidemiological measures were often not respected.

The public transport operator has ranked the accessibility of public transport services for vulnerable groups as 'good', and that some actions have been taken to protect the health and safety of vulnerable people during the pandemic. The City Institute for Public Health in Belgrade, however, believes that the conditions of use of public transport by vulnerable groups need to be enhanced. The additional health and safety measures proposed are a larger number of public transport vehicles, a higher level of enforcement of social distancing and other measures in public transport, and better communication with the public.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

1. Given the impact of urban mobility on both economic growth and the environment, the EU promotes urban mobility that is sustainable. This involves the development of strategies that stimulate a shift towards cleaner and more sustainable modes of transport, such as walking, cycling, public transport, and new patterns for car use and ownership. Good public transport is key to sustainable urban mobility, as it provides an alternative to the use of private cars. An efficient and effective public transport network is a crucial condition for encouraging citizens to shift towards more sustainable modes of transport .

2. Even before the start of the C19 pandemic, there have been numerous urban mobility challenges in the five analysed countries (Albania, Bosnia and Herzegovina, North Macedonia, Kosovo and Serbia). The most notable challenges include significant traffic congestions, domination of private vehicles on roads (with a constant increase in the number of motor vehicles in the recent years), undeveloped and/or unsafe infrastructure for non-motorised transport and inefficient public transport service delivery (including issues such as public transport coverage). Tackling these issues requires the planning and implementation of policies and programs which are often lacking, as well as financial capacities which are limited in the sector.

3. The situation has been further exacerbated by the start of the C19 global pandemic. The pandemic has undoubtedly affected mobility behaviour patterns in all of the five analysed countries, and affected the provision of public transport services. Use of public transport has decreased to a significant extent, as confirmed by government stakeholders, public transport operators and public transport users in the studied countries. The key reasons are the introduction of restrictive measures (such as limiting the number of passengers in public transport vehicles) and decreased interest of citizens to use public transport due to health and safety concerns.

4. Since the start of the pandemic, a range of introduced epidemiological measures were introduced in public transport to protect the safety of passengers and public transport staff, as it was considered that public transport vehicles were one of the riskiest environments for the spread of the coronavirus. Similar measures were imposed in public transport in all of the cities – social distancing, regular disinfection of vehicles, wearing of masks, etc. However, the implementation of these measures seems to be a point of concern – the greatest challenge has been lack of enforcement of these measures. It is concerning that the majority of public transport users in all of the countries do not feel safe in public transport during the pandemic as they have often noticed violations of epidemiological measures. The majority believes that passenger protection measures in public transport need to be improved.

5. The patterns of mobility have been found to be very similar in all of the countries both before and after the pandemic. Before the start of the pandemic, public transport was the most frequently used type of transport in all of the cities. However, during the pandemic, private cars became the most preferred mode. While walking increased to some extent, it is indicative that the use of bicycles/scooters increased slightly or insignificantly in all of the countries, presumably due to inadequate infrastructure. Even though the use of private motor vehicles is very widespread, a significant number of people depend on public transport to get to work/school. A small percentage of people do not depend on public transport but prefer it for environmental reasons. A significant number of people (ranging from a third in Albania, North Macedonia and Kosovo to around a half in Bosnia and Herzegovina and Serbia) do not plan to use public transport as frequently as during the pre-pandemic period. A very small number plans to completely stop using public transport after the pandemic.

6. The changes in mobility behaviour patterns have negatively affected the business operations of public transport operators in all of the analysed cities and will almost certainly continue to negatively affect them. The operators have reported reduced revenues (from 40-60% in Tirana to as much as 80% in Sarajevo, in some cases affecting the earnings of their employees). Operators were mostly unable to make any additional investments during the pandemic. The majority had problems with vehicle failures/breakdowns, and most were also unable to secure the

[19] European Court of Auditors, 2020, Special Report: Sustainable Urban Mobility in the EU

necessary spare parts for the proper functioning and safety of their vehicle fleet during the pandemic. Despite this, most operators reported that they received insufficient assistance and support from local authorities to mitigate the losses experienced during the pandemic, particularly taking into account the fact that the prices for public transport services did not change in any of the countries.

7. Infrastructure in place to ensure traffic mobility safety for vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians, etc.) has found to be insufficiently adequate, and no specific actions were taken to protect the H&S of vulnerable people during the pandemic in any of the cities. Those without access to alternative types of transportation had to use public transport even though these capacities were reduced and epidemiological measures were often not respected. Previous research conducted in Serbia – but applicable to all countries due to their shared characteristics – revealed that workers with disabilities, rural households, women (without access to cars) and commuting workers were the categories that were most impacted by the shutdown or reduced capacities of the public transport network. The suspension of public transport services and consequently restricted access to work/sources of income, risk of poverty and limited access to healthcare was one of the immediate causes of negative outcomes of the C19 pandemic on a number of vulnerable categories of people.

8. Communication with the public on H&S issues in public transport and receiving citizens' grievances about public transport during the pandemic is another issue of concern. Other than the regular communication of public transport operators in all cities with their customers on expected changes in timetables and the introduced epidemiological measures as well as some NGO campaigns, there was limited communication between government authorities and the general public or specific vulnerable groups.

9. With regard to national studies/research in the field of impacts of the pandemic on transport of passengers, traffic safety or public health, it is evident that, with the exception of several small-scale analyses in some of the countries mainly developed by the NGO sector, there has not been much research conducted in this field in the region. In Albania and North Macedonia, the only relevant research was undertaken by NGOs to assess changes in mobility behaviour patterns during the pandemic and the level of satisfaction of citizens on the quality of public transport. In Bosnia and Herzegovina, the Sarajevo Canton Ministry of Traffic collected data on public transport during the pandemic but did not specifically address the impacts of the pandemic. There has been no research conducted in Kosovo. Serbia is the only country where several analyses were undertaken to assess the socio-economic impacts of the pandemic on vulnerable groups.

Consequently, the impacts of the pandemic on public transport operations have not been fully researched in any of the countries. Furthermore, data on traffic safety are not collected to a sufficient extent in any of the countries, and the monitoring of such data is not carried out at a satisfactory level. The collected traffic data are often not disaggregated by types of accidents and do not take into account other forms of mobility such as cycling. Therefore, there are no specific data and indicators for accurately determining the impact of the pandemic on traffic safety.

4.2 RECOMMENDATIONS

1. It is apparent that considerable work needs to be done to offset the impacts of the pandemic on the public transport systems in all of the countries in terms of reducing the H&S risks to vulnerable passengers and road users. The first task at hand will be working on restoring trust and confidence in the safety of public transport services. The return to the pre-pandemic situation will depend mostly on actions in the field of H&S.
Even though epidemiological safety measures were introduced in public transport immediately in all of the analysed cities, the enforcement of these measures has shown to be weak, causing concerns about public transport hygiene among passengers. While some avoided public transport altogether and opted for private vehicles, those who had no alternative mobility options were forced to use public transport despite their concerns. Those affected the most by this situation were undoubtedly vulnerable groups of road users. In addition, the decision to suspend public transport services for several months at a time at the beginning of the pandemic directly and negatively impacted vulnerable groups – not only passengers depending on public transport but also the employees of public transport operators who were financially impacted by the shutdown or decrease of public transport services.

Nevertheless, public transport remains one of the key modes of transport in all of the analysed cities. People with no access to cars and people with low-income jobs especially depend on using public transport. Public transport services must be continuously provided at sufficient levels of frequency and capacity. It is vital that public transport operators focus on H&S issues and on making public transport a safer way of travelling in times of social distancing. There are many possibilities to be considered in ensuring a higher level of H&S – engaging more control personnel in public transport vehicles to monitor compliance with the H&S measures, using technology to control vehicles in-real time, introducing boarding restrictions, installation of partitions in buses and trams so passengers feel safer, regular staff health checks, etc. The objective should be to make both the staff and the passengers who return to regular use of public transport feel safe.

2. Road safety authorities, in collaboration with public transport operators, public health bodies but also the NGO sector which can be a valuable link to citizens, should develop clear and specific strategies on the way forward in this pandemic but taking into consideration the possibility of any future local outbreaks as well. The development of such strategies would allow national/city governments to have in place well-devised plans and policies instead of relying on ad-hoc solutions. Such strategies should include details on how (i) public transport will be regulated and organised, including all service aspects such as frequencies, changes in timetables, service variants etc.; (ii) how disruptions in business operations of operators can be offset through financial and other assistance from the authorities; (iii) how communication with the public can be improved and how public perceptions can be managed properly (which is particularly important to regain the trust of passengers) – this is where cooperation with the NGO sector can be prove to be highly beneficial; (iv) how the imposed H&S measures can be better enforced; (v) how reliable traffic safety data can be collected and monitored – it is necessary to conduct proper monitoring of data with an analysis of the elements and causes in all types of transport and mobility (motor vehicles, bicycles, etc.). Special attention in traffic safety should be paid to the safety of those using non-motorised means of transport (cyclists and pedestrians) and vulnerable road users such as people with disabilities.

3. In the short-term, financial adversity caused by the C19 pandemic poses an immediate threat to many public transport providers. The public transport sector is in dire need of financial recovery. Strategies must urgently be devised at either national level or city level to offer assistance to this sector. The pandemic has led to massive losses for public transport operators, and they will continue to be exposed to losses or reduced revenues as a result of the imposed H&S measures. It is likely that demand for travel will continue to be reduced and that people will travel less by public transport in the foreseeable future. Therefore, additional actions are necessary to revive the sector and authorities will need to support operators with the resources needed to continue their business operations and to implement the imposed measures. Public transport systems will need to be managed with consideration of public perceptions of H&S risks associated with public transport.
In the medium and long-term, the public transport sector in these countries will require significant planning efforts and investments in:

- expanding the availability of public transport services to cover all urban and suburban settlements depending on the specificities of each urban centre, and increasing multimodal and shared transport options which are currently lacking;

- service frequency and optimisation management to enable timetable planning and introduce algorithm-based optimisation (monitoring traffic density with cameras and traffic counters) and other new technologies (such as the introduction of online ticket sales and contactless readers) which would both enhance the level of services provided but also avoid crowding under social distancing requirements;

- reallocating spatial resources by marking dedicated public transport vehicle (e.g. bus) lanes to enable more efficient travel and avoid congestions; and

- expanding vehicle fleets by purchasing a sufficient number of safe and environmentally friendly vehicles.

In devising specific actions, it is recommended to national and local governments as well as public transport operators to utilise the publication "Supporting healthy urban transport and mobility in the context of C19. Geneva: World Health Organisation (2020)" – mentioned under section 2.4 of this Study – as it contains other actions that can also be considered based on country/city context, such as providing parking facilities for private and shared bicycles to facilitate commuters' use of multiple modes of transport and cyclists' access to public transport.

National authorities could seek the assistance of international finance institutions such as EBRD in financing a number of these interventions such as the introduction of new technologies and expanding vehicle fleets.

4. Long-term measures that need to be considered are investments in sustainable urban mobility in general. The relevant authorities in all of the analysed cities (also with the help of international finance institutions such as EBRD) could work on ensuring the essential conditions to reshape mobility behaviours. Policies and urban development plans are needed to define solutions for non-motorised mobility. Investments in diversification of transport will increase the adaptability and resilience of transport systems to face any events of a similar nature in the future. This would imply (i) increasing the safety of non-motorised mobility and infrastructure, and its integration into the urban mobility system – in particular, investing in new and improving the existing cycling paths and pedestrian sidewalks and adopting the necessary legal regulations (to regulate, for example, the use of scooters); (ii) ensuring acceptable, accessible and affordable transport with low carbon emissions, low noise and vibration; (iii) providing easy and adequate access to all modes of transport and non-motorised mobility; (iv) providing accessible mobility to socially vulnerable populations and people with disabilities; (v) providing economically viable and affordable mobility costs for all; and (vi) raising awareness on alternative modes of transport and movement.

It should be taken into account that the European Commission presented its Sustainable and Smart Mobility Strategy in 2020, and its objectives include making connected and automated multimodal mobility a reality – for instance by making it possible for passengers to buy tickets for multimodal journeys and freight to seamlessly switch between transport modes; boosting the uptake of zero-emission vehicles; and making urban mobility healthy and sustainable – for instance by developing extra cycling infrastructure over the next 10 years. It recognises that improved public transport links will be essential to guarantee unhindered access to mobility for all.

5. With regard to management of road infrastructure safety, the national road safety authorities should pay more attention to EU directives in road safety, and perform road safety audits (RSA) and road safety inspections (RSI) to identify the most common safety deficiencies and evaluate options to expand pedestrian and cycling facilities, improve traffic signalisation and dedicate special lanes for public vehicles and bikes/scooters. Assistance from international finance institutions such as the EBRD could be sought.

6. EBRD and other investors could also consider non-financial support to the sector:

- At operational level, within EBRD's due diligence process for public transport projects with regard to compliance with its E&S standards, EBRD could place a higher level of focus on reviewing health and safety issues for vulnerable groups of road users under Performance Requirement 4, particularly with regard to the pandemic-related restrictions in provision of public transport services. At project level, capacity building for public transport operators within the context of projects financed by EBRD could also be expanded to include training programs on a set of operational issues (models on accessing a wider range of financial resources; business planning and operations; awareness raising on the benefits of public transport; etc.). In addition, existing or new private SMEs offering public transport services could benefit from advisory services offered by EBRD.

- Capacity building within the EBRD Green Cities program: all of the cities covered by this Study are part of the EBRD Green Cities program launched with the aim of building a better and more sustainable future for cities and their residents. While Tirana, Sarajevo, Banja Luka, Skopje and Belgrade have already developed Green City Action Plans (GCAPs), Prishtina and Novi Sad have committed to developing GCAPs which will identify interventions to address public transport interventions among others. All of the publicised GCAPs emphasise the challenges of insufficiently developed public transport infrastructure services and infrastructure as well as an increase in use of private vehicles with a decline in use of public transport services. These plans therefore

identify ambitious goals and clear measures to tackle the challenges such as increasing the capacities of key stakeholders, data collection, strengthening cross-sector collaboration and awareness raising to encourage mobility. However, having in mind that governments and stakeholders often have limited capacity and expertise to drive change in the sector, and the often slow pace of implementation of the identified measures, the capacity-building component of the Green Cities program could be utilised to provide support by EBRD with the aim of ensuring that the measures identified in GCAPs are better implemented and monitored. This would imply knowledge-sharing with policymakers and technical staff within city authorities on sustainable urban mobility planning and implementation with a focus on health and safety issues in public transport, based on the recommendations provided in this Study. National/sub-national clients could be offered capacity building initiatives through, for example, Bank-led trainings.

- Policy reform services could be considered in the form of policy assistance to support regulatory initiatives for the development of policies and legislation in the public transport sector, as an essential basis for all of the recommendations given above (items 1-5), particularly the recommendation referring to long-term measures. Such policies are needed to cover both the emerging types of transport (such as e-mobility which is still not legally regulated) but also other issues such as public transport coverage, data collection and management, health and safety considerations in public transport, involvement of the private sector, etc.

5 ANNEXES

5.1 SURVEY QUESTIONNAIRES

5.1.1 Survey Questionnaire for Public Transport Operators

The study "Impact on the Use of Public Transport Due to the C19 Pandemic in the Western Balkans" is currently being developed by the consulting company ENOVA. It is financed by the European Bank for Reconstruction and Development (EBRD). We kindly ask you to complete the survey for public transport operators so we can jointly contribute to a better understanding of the impact of the pandemic on the health and safety of public transport workers and passengers, and to develop guidelines for improving this sector. The results of the survey will be available to the public. Thank you for your time!

>>>> AVAILABILITY OF PUBLIC TRANSPORT SERVICES <<<<

1. The city where you operate public transport?

_____ *(please write)*

2. The type of public transport you operate?

_____ *(please write)*

3. Role of the respondent?

a) management
b) administrative staff

4. Do you think that satisfactory public transport services have been provided to citizens during the pandemic?

a) yes
b) no , to a lesser extent
c) no, to a significant extent
d) partially

5. Was there a decrease or increase in the number of lines during the pandemic?

a) no, there was no decrease or increase
b) yes , there has been a decrease (please specify percentage _____)
c) yes, there has been an increase (please specify percentage _____)

6. Has the pandemic made it difficult to maintain the public transport schedules?

a) yes (if yes, to what extent: (i) slightly, (ii) significantly, (iii) completely)
b) no

7. What were the reasons for not maintaining previous schedules (if that is the case)?

a) lack of passengers on the lines
b) lack of functioning vehicles
c) lack of driving staff
d) introduction of restrictive measures (lockdown, curfew, etc.)

>>>> HEALTH AND SAFETY <<<<

8. Have you had staff infected with the coronavirus?

a) yes (please specify percentage _____)
b) no
c) we do not keep records

9. Which staff were most infected with the coronavirus?

a) management
b) drivers and ticket inspectors
c) administrative staff
d) we do not keep records

10. How would you rate the measures related to the protection of health and safety in public transport in your city?

a) the measures are completely unsatisfactory
b) the measures are partially satisfactory
c) the measures are completely satisfactory

11. Are all prescribed protection measures applied in your public transport vehicles?

a) yes
b) partially
c) no

12. Have you ever been sanctioned by the competent authorities for unsatisfactory implementation of prescribed measures since the beginning of the pandemic?

a) yes
b) no

13. What were the greatest challenges in the implementation of measures for the protection of drivers and passengers in public transport vehicles?

a) we have not encountered such challenges
b) lack of control staff
c) lack of passengers' discipline
d) lack of financial and material resources
e) lack of drivers' responsibility
f) other _____

14. Do you think that additional measures are needed to protect the health of your staff and passengers during the pandemic?

a) yes
b) no
c) I do not know

15. Were your vehicles involved in fewer traffic accidents during the pandemic?

a) yes (please specify percentage _____)
b) no
c) we do not have adequate data

16. In your opinion, would online ticket sales, contactless readers and vehicle modernisation improve the use of public transport in your city?

a) yes
b) no
c) I do not know

17. How would you rate the possibility of access of vulnerable groups (people with disabilities, the elderly, the sick, pregnant women, mothers with small children, etc.) to public transport?

a) excellent
b) very good
c) good
d) poor

18. Have specific actions been taken to protect the health of vulnerable groups (mentioned in the previous question) during the pandemic?

a) yes
b) no

19. Did your company communicate with your customers on health and safety issues in public transport (e.g. regular disinfection of vehicles, social distancing requirements, etc.) during the pandemic?

a) yes, regularly
b) yes, but not sufficiently
c) no

>>>> IMPACTS OF THE PANDEMIC ON BUSINESS OPERATIONS <<<<

20. Have your company experienced a decrease in revenues during the pandemic?

a) yes (please specify percentage compared to the pre-pandemic period _____)
b) no

21. Has there been a reduction in earnings of employees during the pandemic?

a) yes (please specify percentage compared to the pre-pandemic period _____)
b) no

22. If there has been a reduction in earnings of employees, to what extent did this affect the provision of transport services?

a) not at all
b) slightly
c) significantly
d) very significantly

23. Were there additional investments made in your company during the pandemic and in which sectors?

a) there were no additional investments
b) vehicles
c) employment
d) new technologies
e) other _____

24. Did you have problems with vehicle failures/breakdowns during the pandemic?

a) yes, to a significant extent
b) yes, to a lesser extent
c) no

25. Were you able to secure the necessary spare parts for the proper functioning and safety of your vehicle fleet during the pandemic?

a) yes
b) no, we had significant difficulties
c) no, we had minor difficulties

26. Did the prices of transport services change during the pandemic?

a) yes, the price has increased (please specify percentage _____)
b) yes, the price has decreased (please specify percentage _____)
c) no

27. Did the number of public transport users decrease during the pandemic?

a) yes (please specify percentage _____)
b) no
c) we do not have adequate data

28. Do you think there was an increase in illegal public transport (taxi and van transport) during the pandemic?

a) yes (please specify percentage _____)
b) no (please specify percentage _____)
c) I do not know

29. Which sectors/areas/jobs need to be developed to reduce the impact of the pandemic on public transport?

a) infrastructure
b) personnel policy
c) vehicle fleet
d) new technologies
e) other _____

30. Is there adequate financial and other support in your business area for the development of and investment in "clean" technologies in public transport?

a) yes
b) no
c) insufficiently

31. Do you have any other comments you would like to share with us?

_____

5.1.2 Survey Questionnaire for NGOs

The study "Impact on the Use of Public Transport Due to the C19 Pandemic in the Western Balkans" is currently being developed by the consulting company ENOVA. It is financed by the European Bank for Reconstruction and Development (EBRD). We kindly ask you to complete the survey for public transport operators so we can jointly contribute to a better understanding of risks associated with roads, traffic and public health for all passengers and other road users. The results of the survey will be available to the public. Thank you for your time!

1. Role of the respondent in the NGO?

a) management
b) researcher
c) administrative staff
d) other _____ (please specify the type of your employment)

2. Has your organisation conducted any research in the field of impacts of the pandemic on transport of passengers, traffic safety or public health?

a) no
b) yes, but the results are (still) not publicly available
c) yes, the results are publicly available at _____ (please indicate where the study can be accessed)

3. During the pandemic, has your organisation communicated with the public on issues of health and safety in transport?

a) yes, regularly
b) yes, but insufficiently
c) no

4. Did you receive or were made aware of any citizens' grievances about public transport during the pandemic?

a) yes
b) no

* if yes, please more information on the concerns

_____

5. Do you think that data on traffic safety and public health are collected to a sufficient extent and that their monitoring is carried out at a satisfactory level?

a) yes, completely
b) partially
c) no, not at all

6. Do you have information in your database about (please circle):

a) traffic accidents and casualties among traffic participants in general
b) accidents involving cyclists
c) accidents involving public transport vehicles
d) accidents involving taxi vehicles

* Please provide us with such data if publicly available

7. Do you believe that the pandemic has changed led to changes in mobility in your city in terms of some of the following behaviour patterns? (circle the answers you think are correct)

a) no changes
b) increased walking
c) increased use of bicycles, scooters, etc.
d) increased use of public transport vehicles
e) increased use of private cars
f) other _____ (please indicate the observed pattern of behaviour)

8. Do you think that there has been a decrease in the number of passengers using public transport during the pandemic?

a) yes
b) no
c) I do not know

9. Do you think that the pandemic has led to deterioration in traffic safety and a greater risk to public health during the pandemic?

a) yes
b) no
c) I do not know

10. If you answered "yes" to the previous question, what do you think is the reason for such deterioration?

a) increased use of private cars compared to the use of public transport
b) increased walking, use of bicycles, scooters, etc. compared to the use of public transport
c) increased number of passengers using public transport
d) other _____ (please state other reasons for deterioration)

11. Do you believe that mobility behaviour changes will lead to greater air pollution?

a) yes
b) no
c) partially
d) I do not know

12. Have the epidemiological measures imposed during the pandemic contributed to curbing the spread of the virus among public transport users?

a) yes
b) no
c) I do not know

13. What additional health and safety measures would be needed to keep public transport passengers safe (circle the answers you think are correct)?

a) a larger number of vehicles
b) greater social distancing in vehicles
c) greater control
d) installation of partitions
e) better communication with the public
f) _____ (please state the proposed measures)

14. Do you think that the infrastructure in place for mobility of vulnerable persons (people with mobility challenges, the elderly, the sick, cyclists, pedestrians ...) in traffic ensures their mobility safety?

a) yes
b) partially
c) no

15. Do you think that adequate actions have been taken to protect the health and safety of vulnerable people during the pandemic?

a) yes
b) no
c) I do not know

16. How would you rate the interest of the citizens in your city in using sustainable modes of transport (bicycles, electric scooters, electric vehicles, etc.)?

a) very interested
b) partially interested
c) not interested

17. Is the infrastructure for sustainable modes of transport in your city sufficiently developed to ensure safe transport?

a) yes
b) partially
c) no
d) I do not know

18. Do you think that there will be an increase in the use of sustainable modes of transport after the pandemic?

a) yes
b) no
c) I do not know

19. If there is an increase in the use of sustainable modes of transport, do you consider the following statements to be true: (please circle the statements that you consider correct)

a) the increase will have an impact on the safety of pedestrian traffic
b) the increase will not have an impact on the safety of pedestrian traffic
c) at the meeting points of different modes of transport, the safety of cyclists and users of electric vehicles will be decreased
d) at the meeting points of different modes of transport, the safety of cyclists and users of electric vehicles will not be decreased

20. Can the pandemic lead to positive trends in the use of sustainable modes of transport?

a) yes
b) no
c) partially
d) I do not know

21. Do you have any other comments you would like to share with us?

5.1.3 Survey Questionnaire for Citizens (Public Transport Users)

This is a survey of citizens for the needs of developing the study " The Impact of the C19 Pandemic on the Use of Public Transport in the Western Balkans" by the consulting company ENOVA, financed by the European Bank for Reconstruction and Development (EBRD). We kindly ask you to complete the survey for so we can jointly contribute to a better understanding of the impacts of the pandemic on public transport and providing guidance for improved quality and availability of public transport services. The results of the survey will be available to the public.

The survey is completely anonymous, and completing the survey is voluntary. Thank you for your time!

>>>> QUESTIONS ABOUT THE RESPONDENT <<<<

1. Your sex?
a) male
b) female

2. How old are you?
a) 18-35
b) 36-55
c) 56 or older

3. In which city do you live?
_____ (please write)

4. Where is your house located?
a) In the city centre
b) Outside the city centre
c) Outskirts of the city
d) Village/settlement outside the urban zone

5. Your employment status?
a) Employed
b) Unemployed
c) Student
d) Retired

6. Which statement best describes your financial situation?
a) I do not have enough income even for basic needs
b) I have enough income only for basic needs
c) I have a high level of income

7. Do you consider yourself to fall into one of the vulnerable categories? (possibility of multiple answers)
a) no
b) Yes, person with mobility difficulties
c) Yes, chronically ill
d) Yes, mother with small children
e) Other _____ (please specify the category)

8. Do you have access to a passenger car?
a) yes
b) no

9. Do you have access to other types of transportation means (bike, scooter, etc.) that you use to travel in the city?
a) yes
b) no

>>>> QUESTIONS ON THE USE OF PUBLIC TRANSPORT BEFORE AND DURING THE PANDEMIC <<<<

10. How often did you use public transport before the pandemic?
a) often
b) rarely
c) never

11. How often have you been using public transport during the pandemic ?
a) often
b) rarely
c) never

12. What type of transport did you use the most before the pandemic?
a) public transport
b) my own car
b) taxi
c) bicycle or scooter
d) I did not use any transport, I walked
e) other _____ (please write)

13. What type of transportation do you use the most during the pandemic?
a) public transport
b) my own car
b) taxi
c) bicycle or scooter
d) I don't use any transport, I walk
e) other _____ (please write)

14. Do you depend on public transport to get to work/school, etc.?
a) yes
b) no, because I have access to other mobility options (car, etc.)
c) no, but I prefer public transport for environmental reasons

15. What is the main reason for your mobility/travel during the pandemic?
a) work
b) education
c) shopping
d) health
e) other _____ (please write)

16. Do you think that public transport is more regular during the pandemic compared to the period before?
a) yes
b) no
c) I am not sure

17. Do you think that the number of public transport vehicles increased during the pandemic?
a) yes
b) no
c) I do not know

18. Did you use illegal public transport (taxi and van transport) before the pandemic?
a) yes
b) no
c) sometimes
d) I do not know (who is legal/illegal)

19. Have you used illegal public transport (taxi and van transport) during the pandemic?
a) yes
b) no
c) sometimes
d) I do not know (who is legal/illegal)

20. Are you generally interested in using non-motorised transport more often (walking, bicycles, scooters, etc.)?

a) yes
b) yes (if adequate and safe infrastructure is built)
c) no
d) I am not sure

21. How important is environmental protection for you in selecting modes of transport?

a) not at all
b) very little
c) important
d) very important

22. Will you use public transport after the pandemic?

a) yes, same as before
b) yes, but less than before
c) no, I did not use it before the pandemic
d) no, I will completely stop using public transport
e) I am not sure yet

>>>> QUESTIONS ON PERCEPTION OF SAFETY IN PUBLIC TRANSPORT <<<<

23. Do you feel safe in public transport given the pandemic situation?

a) yes
b) partially
c) no

24. How often do you notice violations of epidemiological measures in public transport?

a) never
b) rarely
c) often
d) I do not know

25. Do you think that public transport staff is adequately protected from potential infection in their work?

a) yes
b) no
c) I do not know

26. Do you consider that public transport vehicles are regularly and thoroughly disinfected for the purpose of protection against infection?

a) yes
b) no
c) I do not know

27. Do you think that measures to protect passengers in public transport need to be improved?

a) yes
b) no
c) I do not know

28. Do you believe that adequate measures have been undertaken during the pandemic to protect vulnerable people (people with mobility difficulties, the elderly, the sick, mothers with small children, ...) in public transport?

a) yes
b) no
c) I do not know

29. What problems have you encountered when using public transport during the pandemic? (possibility of multiple answers)

a) I have not used public transport during the pandemic
b) I have not have had any problems
c) social distancing is not respected
d) too many passengers in vehicles
e) regular disinfection of vehicles is not performed
f) public transport is not sufficiently regular
g) fewer public transport vehicles
h) other _____ (please write)

30. Are you generally satisfied with how public transport has responded to the challenges of the pandemic?

a) yes
b) no
c) partially
d) I do not know

31. Are you satisfied with the level of information you received about public transport during the pandemic?

a) yes
b) no
c) partially

5.1.4 Questionnaires for Interviews

Questions for organisations in the field of public transport	1. Has your institution conducted research regarding the impact of the C19 pandemic on passenger transport, traffic safety or public health (if yes, are these studies publicly available)? 2. Which epidemiological measures have been introduced in public transport in your city? 3. Do you think that the safety situation in public transport vehicles has deteriorated during the pandemic? 4. Has the pandemic caused decreased use of public transport, and thus directly affected sustainable development and urban mobility? 5. How do you think has the pandemic affected public transport operators? 6. Has the pandemic led to increased use of alternative modes of transport compared to public transport and which modes (private cars, walking, bicycles, etc.)? 7. Do you believe that the pandemic has led to an increase in illegal public transport (taxi and van transport) and to what extent? 8. What do you believe will be the best response to the post-pandemic challenges in terms of public transport? 9. Do you think that the impact of the pandemic will change the habits and behaviour of passengers who use public transport and in what way? 10. In your opinion, what are the key consequences that the pandemic will have on public transport in the future? 11. What are your predictions of the impact of the pandemic on the further development of public transport and sustainable modes of transport? 12. What will be the long-term financial impact of the pandemic on public transport operators? 13. Do you have any other comments you would like to share with us?
Questions for organisations in the field of traffic safety	1. Has your institution conducted research regarding the impact of the C19 pandemic on passenger transport, traffic safety or public health (if yes, are these studies publicly available)? 2. How would you generally assess traffic safety during the pandemic? 3. Has the number of road accidents increased or decreased during the pandemic? 4. What type of traffic accidents (vehicle collisions, vehicle-pedestrian collisions, road departures etc.) were dominant during the pandemic? 5. In your opinion, how has the change (increase or decrease) in the number of public transport vehicles during the pandemic affected traffic safety? 6. Do you think that the pandemic has led to traffic reduction and thus directly affected safety? 7. Have the authorities in your city taken any actions to promote cycling and walking, or similar activities? 8. Do you believe that vulnerable people (people with mobility difficulties, the elderly, the sick, mothers with small children, pregnant women, ...) have been ensured adequate mobility safety during the pandemic? 9. Do you have any other comments you would like to share with us?
Questions for public health organisations	1. Has your institution conducted research regarding the impact of the C19 pandemic on passenger transport, traffic safety or public health (if yes, are these studies publicly available)? 2. How have mobility restrictions imposed by the authorities affected people's health? 3. Has the increase in use of individual vehicles affected air pollution, i.e. has the air quality index worsened during the pandemic at air quality measuring points in your city compared to the same period in 2019? 4. Do you think that public transport operators succeeded in offering adequate and safe public transport during the pandemic? 5. Do you believe that vulnerable people (people with mobility difficulties, the elderly, the sick, mothers with small children, pregnant women, ...) have been ensured adequate safety during the use of public transport space and vehicles? 6. In your opinion, what is the impact of the pandemic on the psychophysical characteristics of drivers and their behaviour in traffic? 7. Do you have any other comments you would like to share with us?

ALBANIA

5.2 Survey of Public Transport Users – Detailed Results for Albania

Summary of key survey results

1. The majority of respondents belong to the younger age group, i.e., between 18-35 years. Slightly more than half of the surveyed sample are students, while the second most represented group is the working population.

2. The vast majority of respondents consider that they do not fall into any vulnerability category. A very small percentage are mothers with small children, have mobility difficulties, are chronically ill or have some type of other unlisted category of vulnerability.

3. Before the pandemic, around 90% of the respondents used public transport. Significant changes, however, occurred during the pandemic – the percentage of frequent users of public transport dropped by almost three times, whereas the percentage of those who now do not use public transport at all increased to more than a third of respondents.

4. Before the pandemic, public transport was the most frequently used type of transport (for more than half of respondents). However, during the pandemic, private cars were the most preferred mode, followed by walking, whereas was public transport fell to the third place. The use of bicycles/scooters increased slightly.

5. The two main reasons for movement/travel during the pandemic for respondents were work and education. Around half of the respondents depend on public transport to get to work/school, whereas the other half has access to other modes of transport. A small percentage of respondents do not depend on public transport but prefer it for environmental reasons.

6. Around half of the respondents stated that they did not use illegal transport before the pandemic but the other half did use it at least sometimes or stated that they were not aware who was a legal or illegal carrier.

7. The majority of respondents are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc.), but half of them only under the condition that adequate and secure infrastructure is built. For most respondents, environmental protection is “very important” or “important”.

8. Only a third of respondents will continue to use public transport the same way even after the pandemic. The others have stated that they will use it less or are not sure yet. A very small number plans to completely stop using public transport after the pandemic.

9. The majority of respondents do not feel safe in public transport during the pandemic as they have often noticed violations of epidemiological measures. More than half believe that no measures were taken to protect vulnerable people in public transport during the pandemic. The vast majority believes that passenger protection measures in public transport need to be improved.

10. Respondents are generally dissatisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic.v

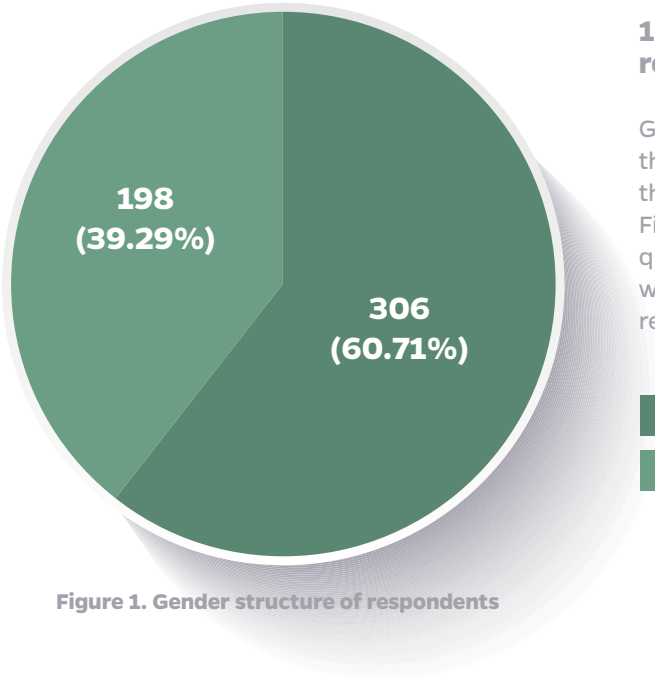


Figure 1. Gender structure of respondents

1. Socio-economic characteristics of the respondents

Gender. 198 men and 306 women participated in the survey. Therefore, women accounted for more than half (60.71%) of the sample size, as shown in Figure 1. Note: The number of respondents for each question may differ due to the fact that respondents were allowed to skip questions and therefore not all respondents answered each question.

Male
Female

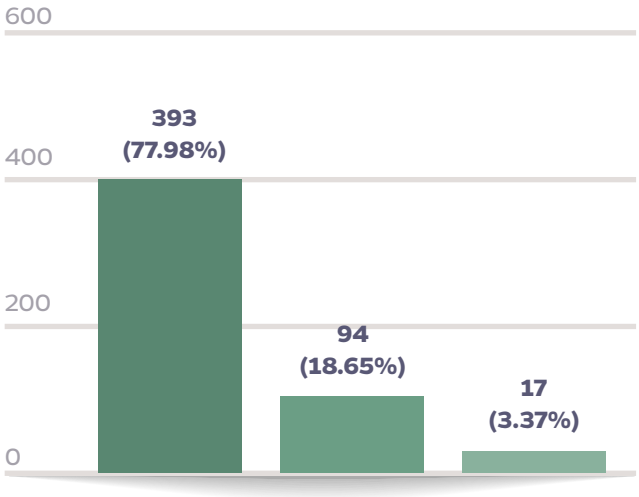


Figure 2. Age structure of respondents

Age groups. The majority of respondents (77.98%) belong to the younger age group, i.e. between 18-35 years, followed by the middle-aged group, i.e. between 36-55 years (18.65%), while the least number of respondents fall under the elderly age group, i.e. 56 years and older (3.37%), as shown in Figure 2.

18-35
36-55
56 and older

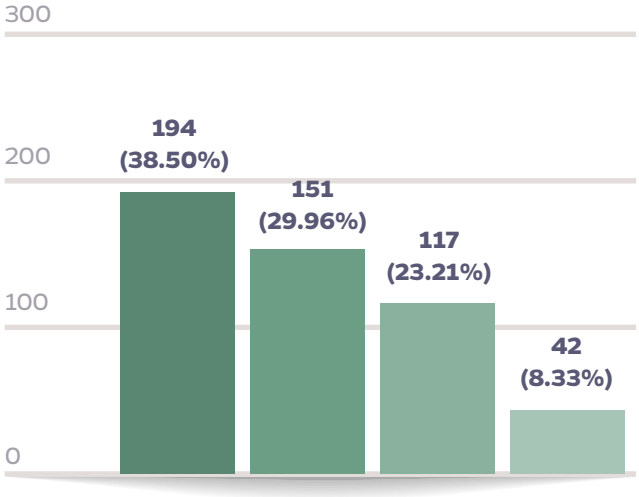


Figure 3. Location of respondents' residence

Distribution of respondents by place/city of residence. More than two thirds of respondents (76.69%) are from Tirana, which is also the capital and most populous city in the country, followed by respondents from Elbasan (3.17%) and Cerrik (2.38%). Other cities were listed sporadically and in a significantly lower percentage representation.

As shown in Figure 3, more than one third of the respondents (38.50%) live in the inner-city centre, while slightly less than one third of the respondents (29.96%) live in the outer city centre, and almost every fourth respondent (23.21%) lives on the outskirts of the city. The least number of respondents (8.33%) live in villages/settlements outside the urban zone, which may indicate that people living in remote areas use other forms of transport instead of public transport.

Inner city center
Outer city center
Outskirts of the city
Village/settlement outside the urban zone

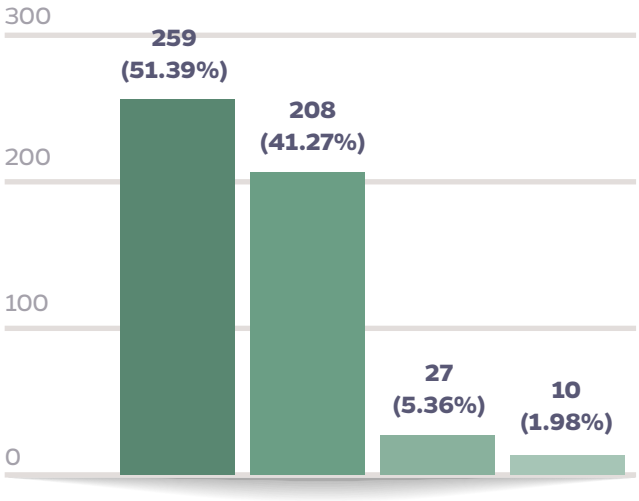


Figure 4. Respondents' employment status

Employment status. Slightly more than half of the surveyed sample (51.39%) are students, while the second most represented group is the working population (41.27%). Retired persons have the lowest representation in the sample (1.98%), while there are slightly more unemployed (5.36%), as shown in Figure 4. The presented answers in combination with the previous question about the location of the respondents indicates that public transport is used more often by students and workers on the way from home to college/work and vice versa, while a very small number of respondents use public transport for other purposes.

Student
Unemployed
Employed
Pensioner

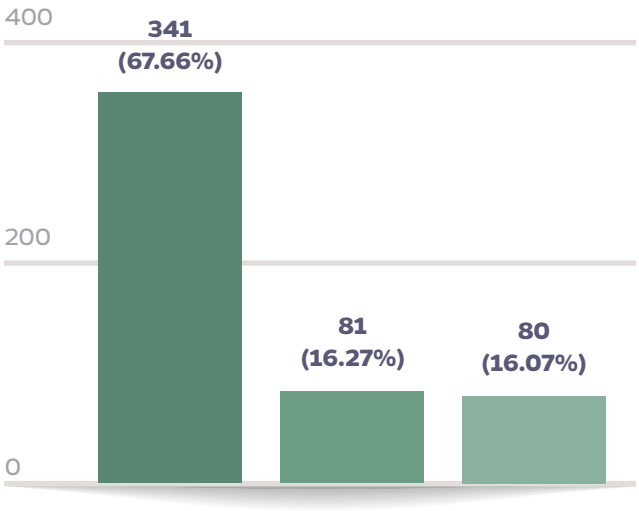


Figure 5. Financial situation of respondents

Financial status. Figure 5 shows that more than two thirds of respondents (67.66%) have sufficient income for their basic needs, followed by those who have a high level of income (16.27%) and those that do not have enough income even for basic needs (16.07%). Comparing these findings with the previous question on the employment status of respondents, it could be assumed that the large number of students who completed the survey are those unlikely to have permanent sources of income, whereas the slightly less number of workers responded that they have a high level of income or sufficient income for basic needs.

I have enough income only for basic needs
I have high level of income
I don't have enough income even for basic needs

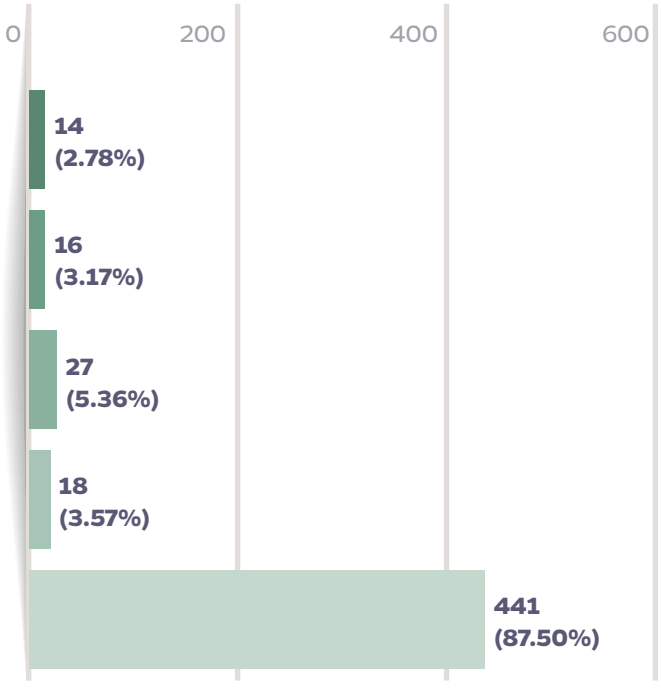


Figure 6. Respondents falling under vulnerable categories

Vulnerable groups. As seen in Figure 6, the vast majority of respondents (87.50%) consider that they do not fall into any vulnerability category. Only 5.36% of respondents are mothers with small children, 3.17% have mobility difficulties, 2.78% are chronically ill, and 3.57% have a type of “other” unlisted category of vulnerability (often not stated).

Yes, chronically ill
Yes, a person with mobility difficulties
Yes, mother with small children
Other
No

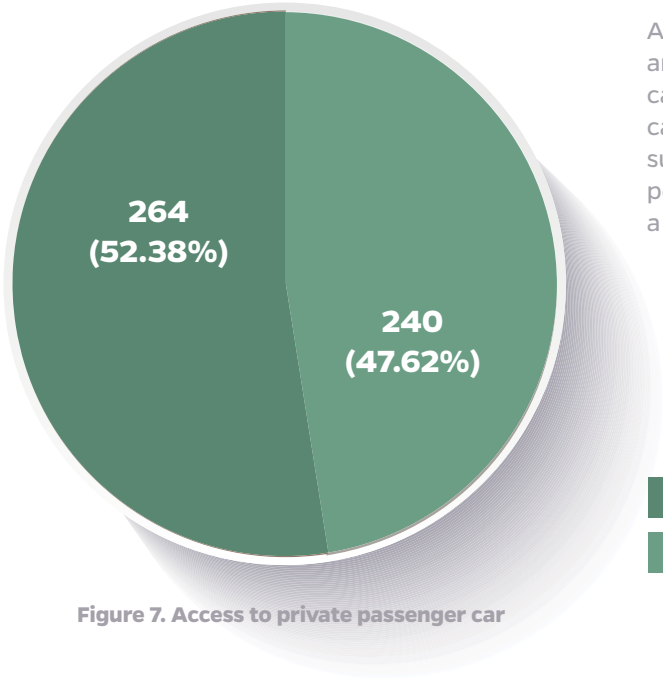


Figure 7. Access to private passenger car

Access to private passenger car. Figure 7 shows that around half of the respondents (52.38%) own private cars, and the other half (47.62%) do not own private cars. The large number of students who completed this survey possibly has the greatest impact on the high percentage of respondents who do not have access to a passenger car.

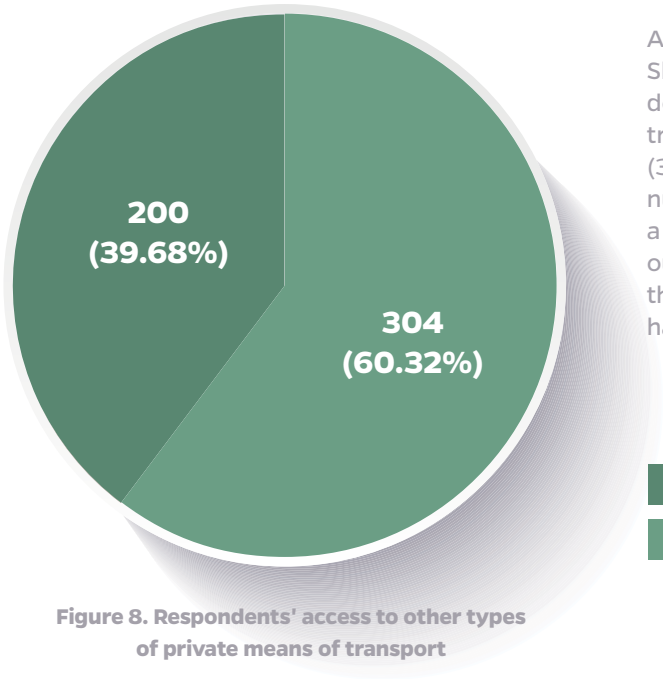


Figure 8. Respondents' access to other types of private means of transport

Access to other types of private means of transport. Slightly less than two thirds of respondents (60.32%) do not have access to other types of private means of transport, while more than one third of respondents (39.68%) have such access (Figure 8). The large number of negative answers can be associated with a relatively high number of respondents living on the outskirts of the city and in villages/settlements outside the urban zone, which together make up more than half of the total number of respondents.

2. Use of public transport before and during the pandemic

Gender. 198 men and 306 women participated in the survey. Therefore, women accounted for more than half (60.71%) of the sample size, as shown in Figure 1. Note: The number of respondents for each question may differ due to the fact that respondents were allowed to skip questions and therefore not all respondents answered each question.

	Frequency of public transport use before the pandemic	Frequency of public transport use during the pandemic
Frequently	55.44%	18.76%
Rarely	34.54%	42.22%
Never	10.02%	39.02%

Table 1: Frequency of public transport use before and during the pandemic

Most used types of transport. Before the pandemic, public transport was the most frequently used type of transport (for 54.16% of respondents). During the pandemic, private cars were the most preferred mode (34.12%), followed by walking (28.57%), whereas public transport fell to the third place (24.31%). The use of bicycles/scooters increased slightly, from 5.97% to 8.32%.

	Most used type of transport before the pandemic	Most used type of transport during the pandemic
Public transport	54.16%	24.31%
Private car	23.03%	34.12%
Taxi	1.49%	3.20%
Bicycle or scooter	5.97%	8.32%
Walking	13.65%	28.57%
Other	1.70%	1.48%

Table 2: Most used types of transport before and during the pandemic

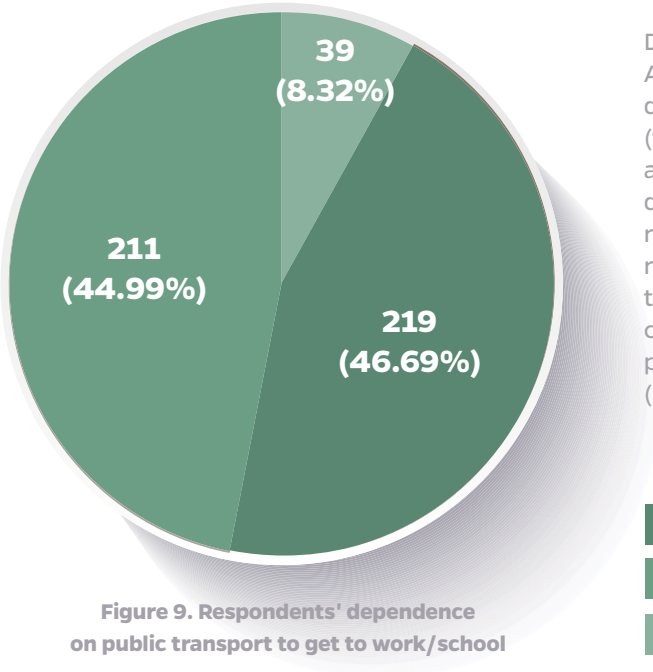


Figure 9. Respondents' dependence on public transport to get to work/school

Dependence on public transport to get to work/school. Almost every other person (46.69%) in the sample depends on public transport to get to work/school (this may be linked to the large number of students and a relatively high proportion of respondents who do not own a private car). On the other hand, a large number of respondents (44.95%) stated that they do not depend on public transport as they have access to other modes of transport (cars, etc.). Only 8.32% of respondents replied that they do not depend on public transport but prefer it for environmental reasons (Figure 9).

I depend on public transport

i don't depend becouse I have access to other types for movement

i don't depent, but I prefer public transport because of the preservation of the environment

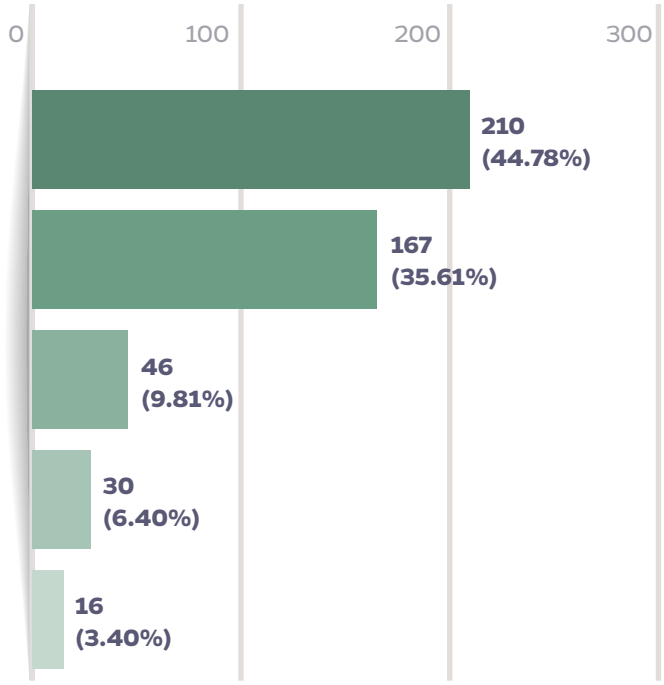


Figure 10. Respondents' main reason for moving/traveling during the pandemic

Reasons for moving/traveling during the pandemic. The two main reasons for movement/travel during the pandemic for respondents were work (44.78%) and education (35.61%) (Figure 10).

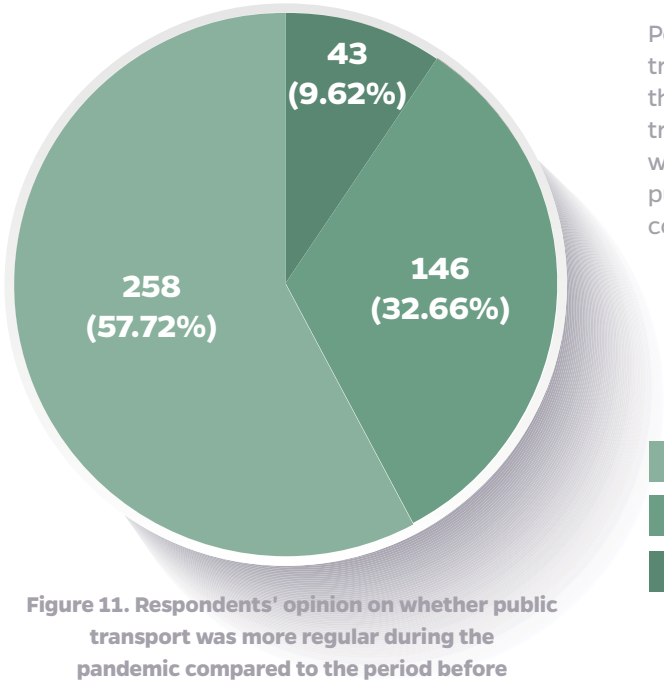


Figure 11. Respondents' opinion on whether public transport was more regular during the pandemic compared to the period before

Perception on the number of vehicles and public transport regularity during the pandemic. More than half of respondents (57.72%) believe that public transport during the pandemic was not regular, whereas 32.66% was not sure. Only 9.62% think that public transport was more regular during the pandemic compared to the period before (Figure 11).

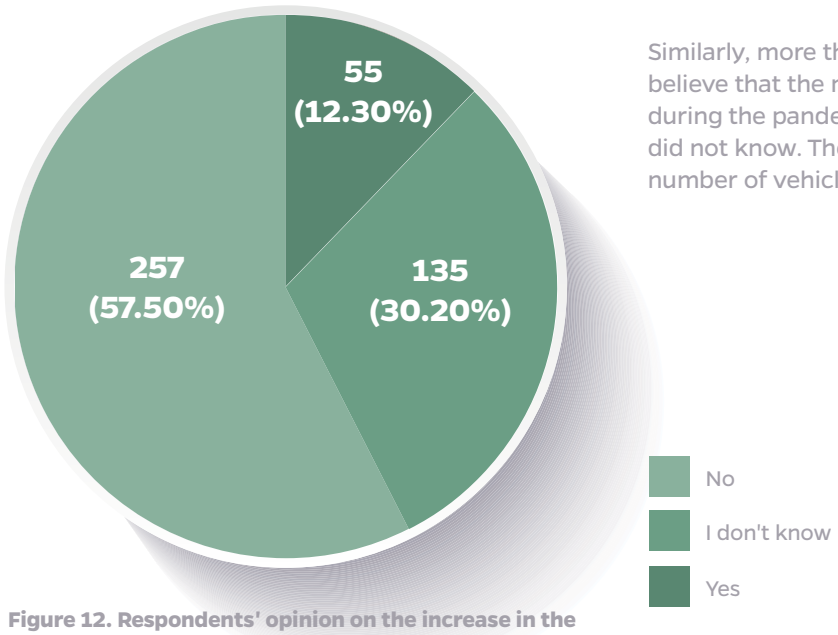


Figure 12. Respondents' opinion on the increase in the number of public transport vehicles during the pandemic

Similarly, more than half of the respondents (57.50%) believe that the number of vehicles did not increase during the pandemic, whereas 30.20% stated that they did not know. The minority (12.30%) believes that the number of vehicles has increased (Figure 12).

Use of illegal transport (taxis and vans). Around half of the respondents (53.24%) stated that they did not use illegal transport before the pandemic but the other half did use it at least sometimes or stated that they were not aware who was a legal or illegal carrier. There was an increase in the number of respondents who did not use illegal transport during the pandemic (59.96%) at the expense of all others (Table 3). The large number of respondents (53.24%) who did not use illegal transport before the pandemic can be related to the very high number of public transport users (54.16%) before the pandemic, and the extremely low number (1.49%) of those who used taxi as the main form of transport before the pandemic.

	Use of illegal transport before the pandemic	Use of illegal transport during the pandemic
Yes	17%	16.11%
No	53.24%	59.96%
Sometimes	16.78%	12.53%
I don't know who is legal/illegal	12.98%	11.40%
Walking	13.65%	28.57%

Table 3: Respondents' use of illegal transport before and during the pandemic

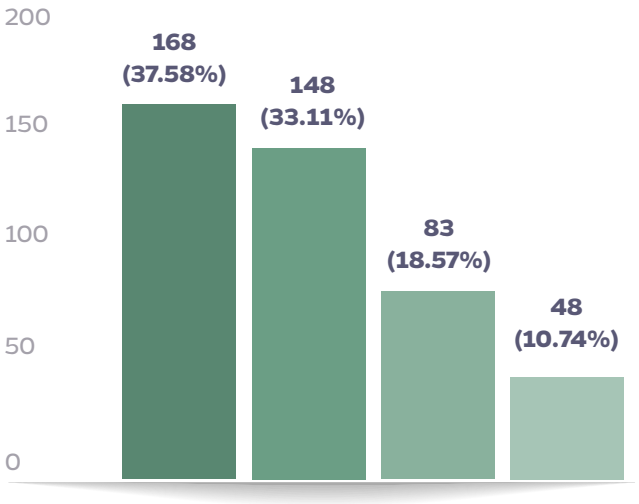


Figure 13. Respondents' interest in more frequent use of non-motorised types of movement

Interest in more frequent use of non-motorised types of mobility options. The majority of respondents (70.69%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc.) (37.58% under the condition that adequate and secure infrastructure is built, and 33.11% generally interested). Only 10.74% of respondents responded that they are not sure (Figure 13).

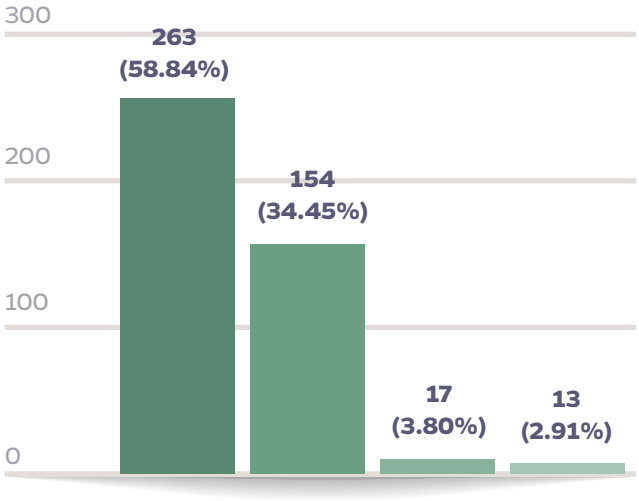


Figure 14. Respondents' answers on the importance of preserving the environment when choosing means of transport

Preservation of the environment. Environmental protection when choosing the means of transport is ranked as “very important” for more than half of the respondents (58.84%) and as “important” for one third of the respondents (34.45%) (Figure 14).

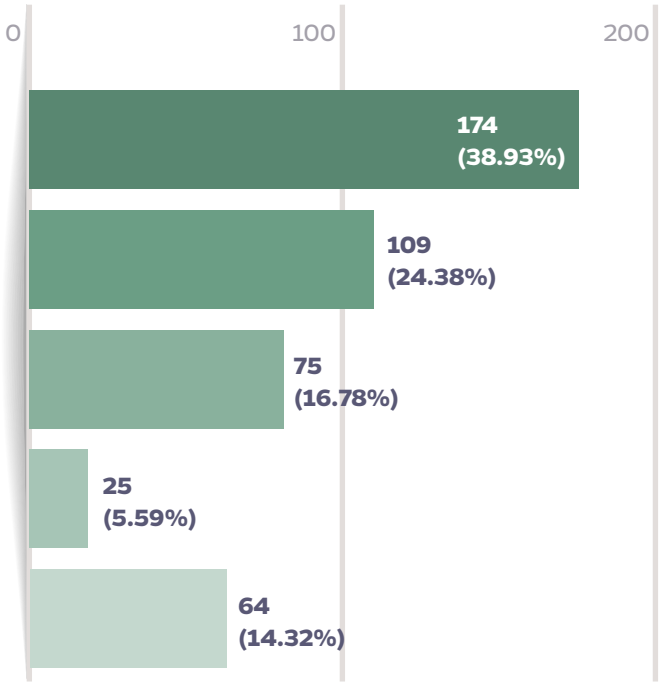


Figure 15. Respondents' opinion on the use of the public transport after pandemic

Use of public transport after the pandemic. Around a third of respondents (38.93%) stated that they will continue using public transport after the pandemic as before, while 24.38% stated that they will use public transport but less than before. Only 5.59% stated that they will not use it anymore (Figure 15).

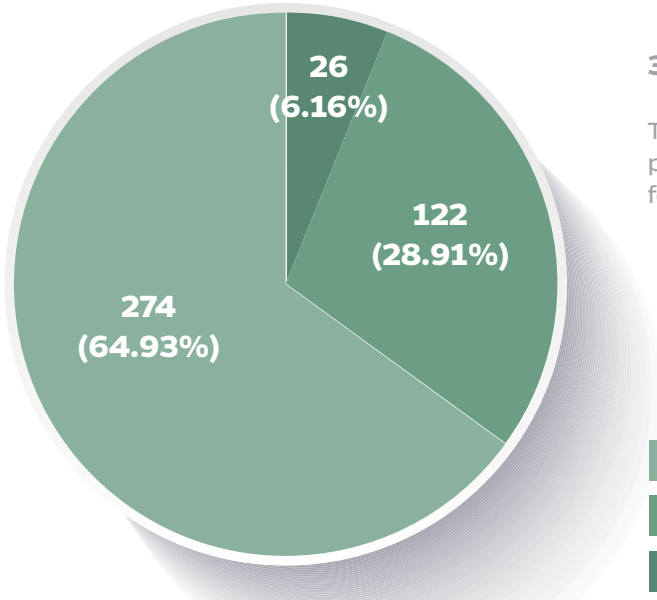


Figure 16. Respondents' answers to the question whether they feel safe in public transport in regard to the pandemic

3. Perceptions of safety in public transport

The majority of respondents (64.93%) do not feel safe in public transport during the pandemic, whereas 28.91% feel partially safe and only 6.16% feel safe (Figure 16).

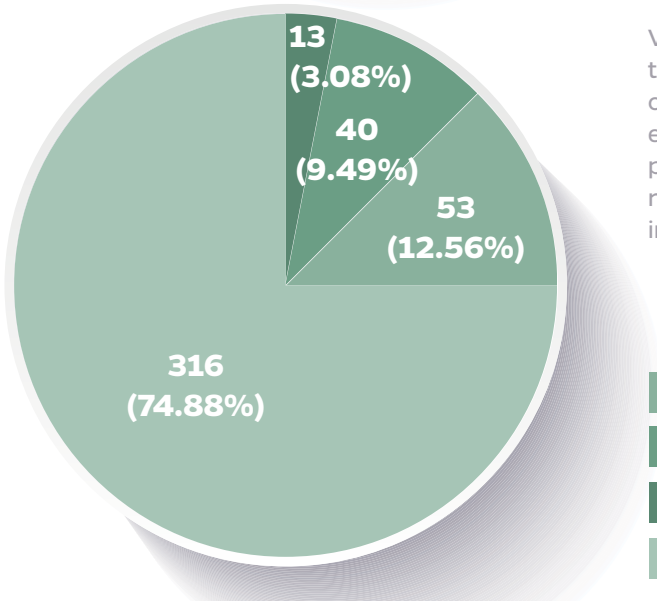


Figure 17. Observation of violations of epidemiological measures in public transport by respondents

Violation of epidemiological measures in public transport. Figure 17 shows the respondents' observations on the frequency of violations of epidemiological measures in transportation during a pandemic. The great majority of respondents (74.88%) noticed frequent violations of epidemiological measures in public transport.

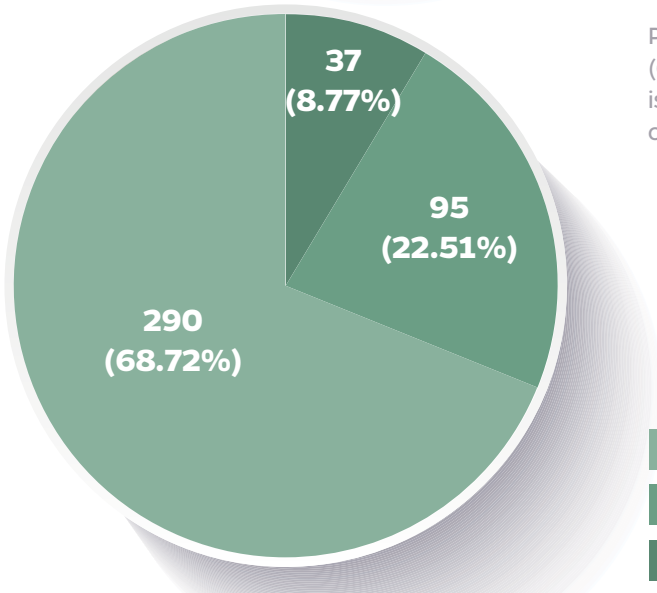


Figure 18. Respondents' opinions on whether the driving staff was adequately protected from potential contamination in the course of their work

Protection of driving staff. More than two thirds (68.72%) of respondents believe that the driving staff is not adequately protected, and only 8.77% believe otherwise (Figure 18).

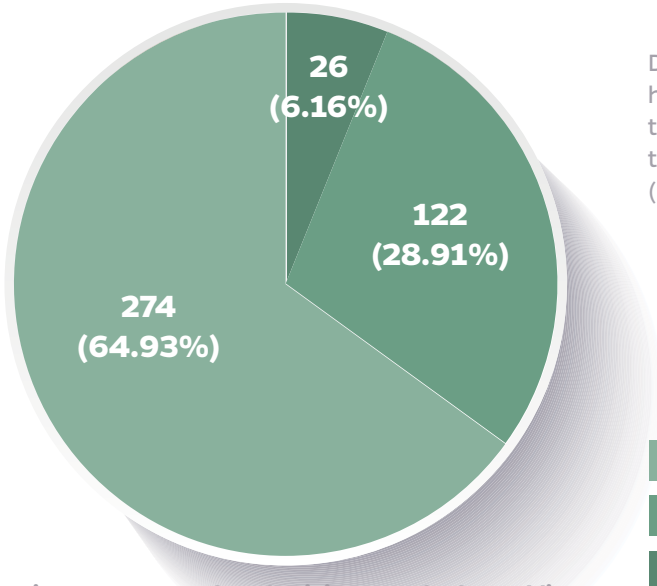


Figure 19. Respondents' opinions on whether public transport vehicles were disinfected regularly and thoroughly for the purpose of protection against infection

Disinfection of public transport vehicles. More than half of the respondents (58.53%) believe that public transport vehicles are not disinfected regularly and thoroughly, and only (10.43%) believe otherwise (Figure 19).

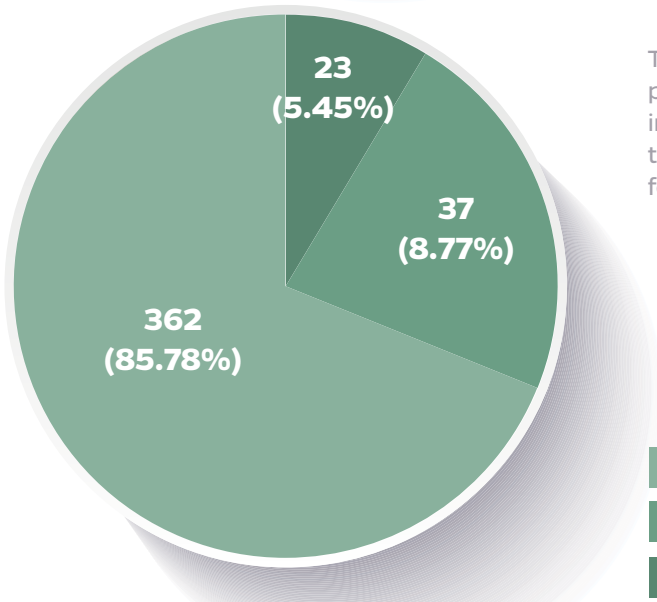


Figure 20. Respondents' opinion on the need to improve passenger protection measures in public transport

The vast majority (85.78%) believes that passenger protection measures in public transport need to be improved. Only 5.45% respondents are satisfied with the current measures and believe that there is no need for improvement (Figure 20).

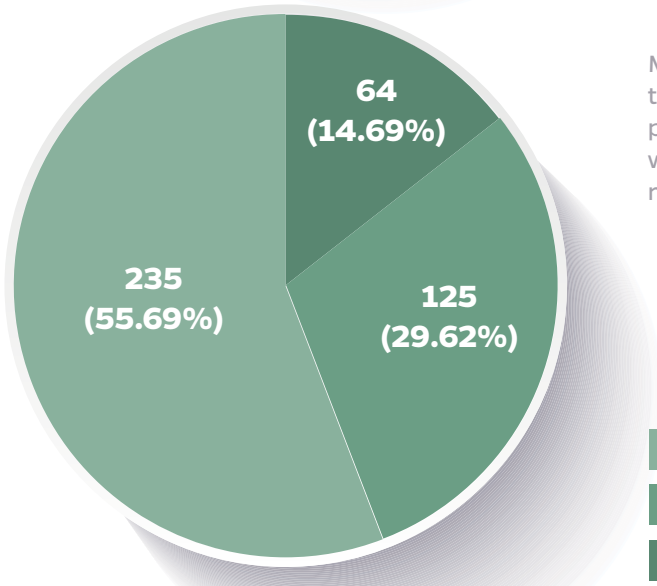


Figure 21. Respondents' opinion on whether adequate measures have been taken to protect vulnerable persons in public transport

More than half of the respondents (55.69%) believe that no measures were taken to protect vulnerable people in public transport during the pandemic, whereas a minority (14.69%) considers that such measures have been taken (Figure 21).

Encountered problems in public transport regarding the pandemic. The respondents selected the following three most common problems encountered in public transportation during the pandemic:

1. social distancing in vehicles was not respected (50.95%),
2. too many passengers in vehicles (42.65%),
3. irregular disinfection of vehicles (29.38%).

Only 6.87% did not experience any issues with public transport (Figure 22). Under the "other" problems category, respondents sporadically included some issues such as rising prices and increase in the number of illegal vehicles (taxis) with extremely high prices.

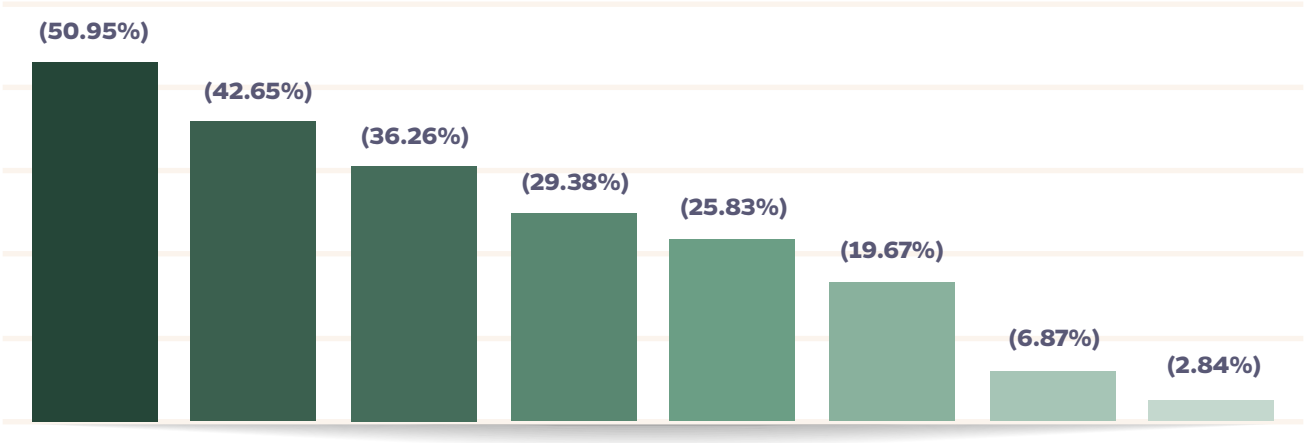


Figure 22. Problems encountered by respondents when using public transportation during the pandemic

The high percentage of respondents experiencing problems with the use of public transport during the pandemic combined with the relatively high percentage of negative statements (in previous answers) regarding regular and thorough disinfection of public transport vehicles and protection of vulnerable people and work staff, indicate that the majority of public transport users are not satisfied with the services offered and believe that improvements are necessary.

Respondents' attitudes regarding the public transport responses to pandemic challenges. Almost half of the respondents (44.31%) expressed dissatisfaction with the response of public transport authorities and operators to the challenges of the pandemic, while one third of the respondents (31.99%) were only partially satisfied. A small number of respondents (7.11%) stated they were satisfied (Figure 23).

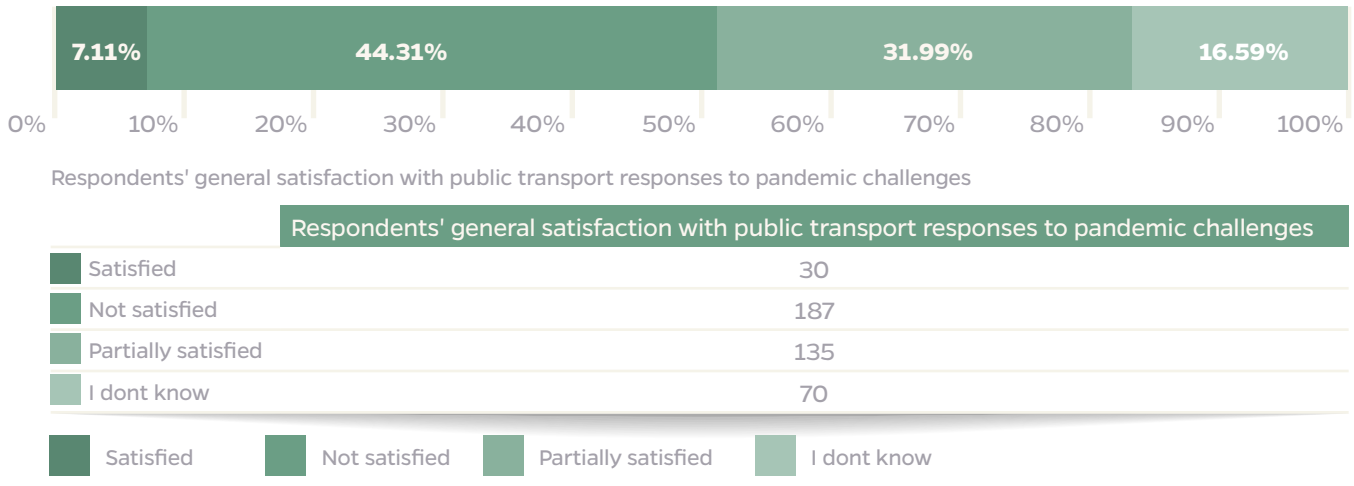


Figure 23. Respondents' satisfaction with the public transport responses to pandemic challenges

Respondents' attitudes regarding the level of information received during the pandemic regarding public transport. Almost half of the respondents (41.71%) were dissatisfied with the level of received information related to public transport during the pandemic (Figure 24). However, almost the same number of respondents (41.23%) were partially satisfied and an additional small number (17.06%) satisfied with the information received – these two groups together exceed half of the surveyed sample and it is possible to conclude that public transport responded better to the challenges of the pandemic in terms of informing the population as opposed to protection measures that were insufficiently implemented/respected. Certainly, the large share of dissatisfied respondents (41.71%) indicates room for improvement in this field as well.

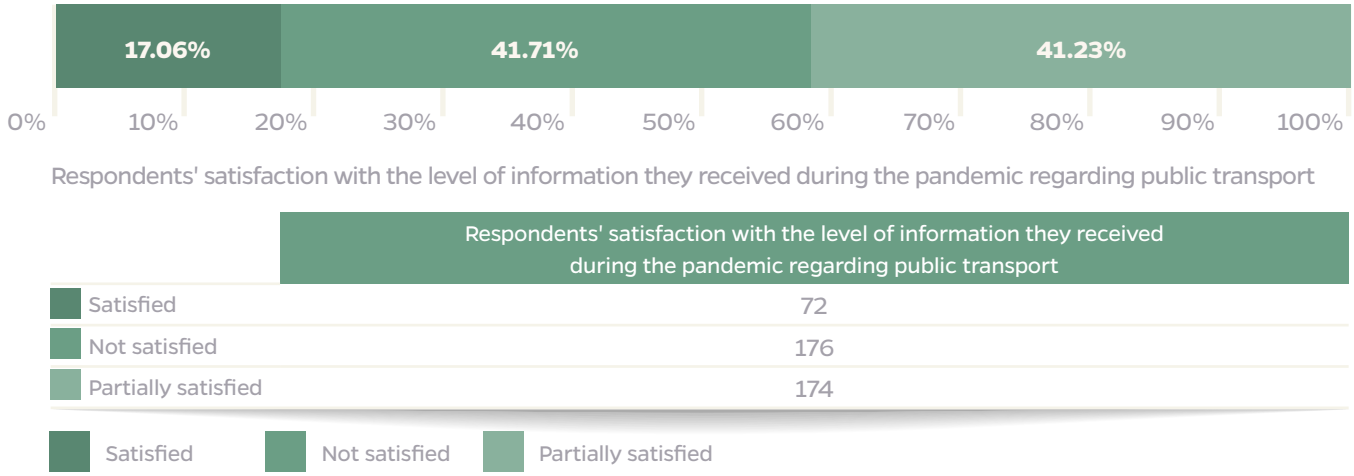


Figure 24. Respondents' satisfaction with the level of information they received during the pandemic regarding public transport

BOSNIA AND HERZEGOVINA

5.3 Survey of Public Transport Users – Detailed Results for Bosnia and Herzegovina

Summary of key survey results

1. The largest number of the respondents are students and workers (belonging to the younger age group, i.e. 18-35 years old), and more than two thirds are women.
2. The main reasons for movement/travel during the pandemic for respondents were work (43.32%) and education (30.25%).
3. The largest number of respondents frequently used public transport before the pandemic (60.22%), and only 6.81% never used public transport. However, the pandemic led to significant changes – the percentage of frequent public transport users dropped by almost four times – to only 16.62%, while the percentage of respondents who did not use public transport during the pandemic increased to almost a third (32.97%) of the sample.
4. In the period before the pandemic, the most preferred type of transport was public transport (56.95%) followed by private cars (30.25%). However, during the pandemic, private cars became the most preferred type of transport (53.95%) while public transport fell to the second place. Walking was the third most preferred type of transport in both periods, with a slight increase during the pandemic (11.99%) compared to the pre-pandemic period (6.81%). In both periods, taxis and bicycles/scooters were used very little.
5. Almost every other respondent does not depend on public transport (47.14%) because they have access to other types of transport, whereas around a third (37.06%) depends on public transport, and 15.80% prefer public transport for environmental reasons.
6. More than two thirds of respondents (68.14%) did not use illegal transport before the pandemic, and this number increased further during the pandemic to 75.07%. Only 6.09% of respondents used illegal transport before the pandemic, while this number decreased slightly during the pandemic (5.26%).
7. The vast majority of respondents (85.59%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (39.61% generally interested and 45.98% under the condition that adequate and secure infrastructure is built). Only 7.76% are not interested. For more than half of the respondents, preservation of the environment when choosing type of transport is “important” (52.08%), while for more than a quarter of the respondents it is “very important” (27.98%). Only 3.60% of respondents consider this issue unimportant.
8. More than half of the respondents (55.56%) do not feel safe in public transport during a pandemic, while more than a third of the respondents (37.89%) feel partially safe. Only 6.55% of them feel safe. In addition, two thirds of respondents (66.10%) noticed frequent violations of epidemiological measures in public transport, while more than half of them (55.56%) believe that the driving staff was not adequately protected during the pandemic. More than half of the respondents (61.25%) believe that regular and thorough disinfection of vehicles was not performed.
9. The vast majority of respondents (84.33%) believe that it is necessary to improve measures for the protection of passengers in public transport. Only 2.83% respondents are satisfied with the current ones.
10. Respondents are generally dissatisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received about public transport during the pandemic. The majority of respondents were either dissatisfied (38.75%) or partially satisfied (33.62%) with the response of public transport authorities and operators to the challenges of the pandemic. Only 4.56% of respondents expressed satisfaction with this issue. Similarly, the majority of respondents were either dissatisfied (51.85%) or partially satisfied (37.04%) with the level of received information related to public transport during the pandemic, and only 11.11% of respondents satisfied with information received. It is possible to conclude that public transport responded better to the challenges of the pandemic in terms of informing the population as opposed to protection measures that were insufficiently implemented/respected.

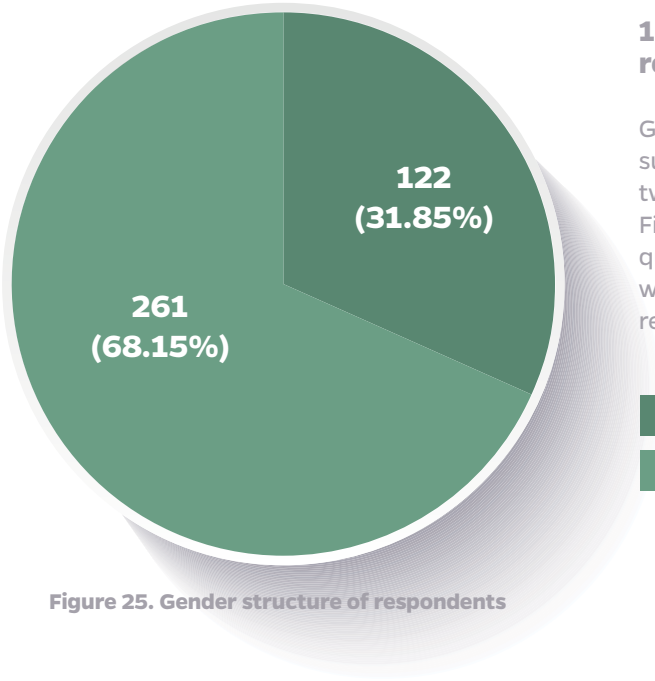


Figure 25. Gender structure of respondents

1. Socio-economic characteristics of the respondents

Gender. 122 men and 261 women participated in the survey. Therefore, women accounted for more than two thirds (68.15%) of the sample size, as shown in Figure 25. Note: The number of respondents for each question may differ due to the fact that respondents were allowed to skip questions and therefore not all respondents answered each question.

Male

Female

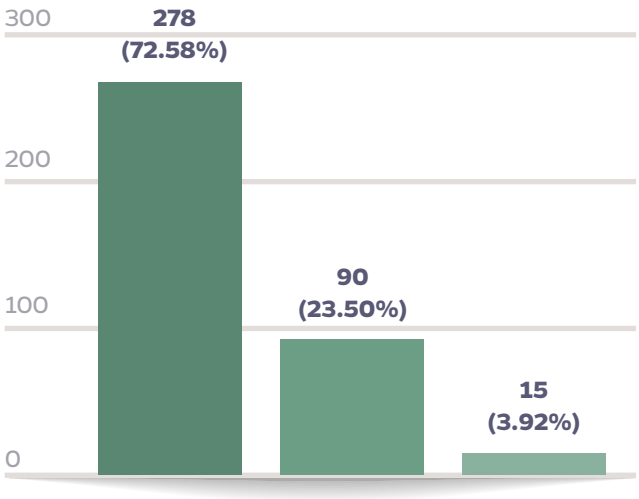


Figure 26. Age structure of respondents

Age groups. The majority of respondents (72.58%) belong to the younger age group, i.e., between 18-35 years, followed by the middle-aged group, i.e., between 36-55 years (23.50%), while the least number of respondents fall under the elderly age group, i.e., 56 years and older (3.92%), as shown in Figure 26.

18-35

36-55

56 and older

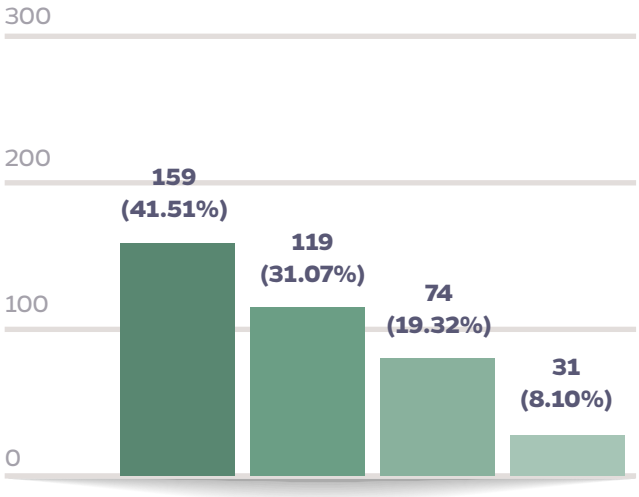


Figure 27. Location of respondents' residence

Distribution of respondents by place/city of residence. More than three quarters of respondents (79.11%) are from Sarajevo, which is also the capital and most populous city in the country, followed by respondents from Tuzla (1.83%) and Visoko (1.31%). Other cities were also listed sporadically and in a significantly lower percentage representation.

As shown in Figure 27, more than one third of the respondents (41.51%) live in the inner-city centre, while slightly less than one third of the respondents (31.07%) live in the outer city centre, and almost every fifth respondent (19.32%) lives on the outskirts of the city. The least number of respondents (8.10%) live in villages/settlements outside the urban zone, which may indicate that people living in remote areas use other forms of transport instead of public transport.

Inner city center

Outer city center

Outskirts of the city

Village/settlement outside the urban zone

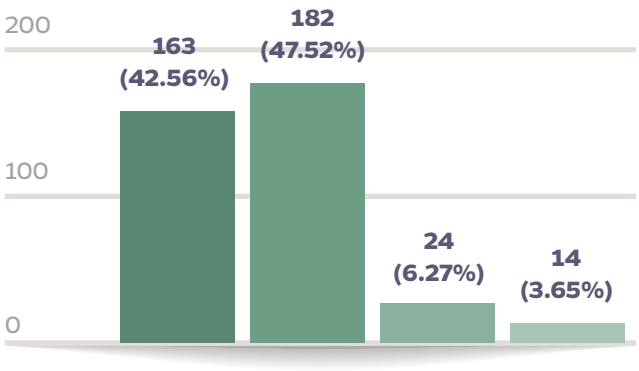


Figure 28. Respondents' employment status

Employment status. Almost half of the surveyed sample (47.52%) are workers, while the second most represented group are students (42.56%), as shown in Figure 28. The presented answers in combination with the previous question about the location of the respondents indicates that public transport is used more often by workers and students on the way from home to college/work and vice versa, while a very small number of respondents use public transport for other purposes.

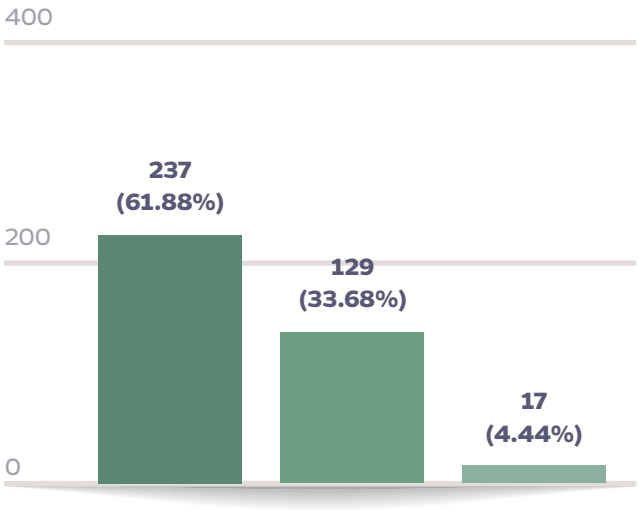


Figure 29. Financial situation of respondents

Financial status. Figure 29 shows that around two thirds of respondents (61.88%) have sufficient income for their basic needs, followed by one third of respondents (33.68%) who have a high level of income. The smallest number of respondents (4.44%) do not have enough income even for basic needs. Comparing these answers with the answers from the previous questions, it is possible to conclude that a large number of employees (47.52%) who completed this survey have the greatest impact on the large number of those who have a sufficient or high level of income.

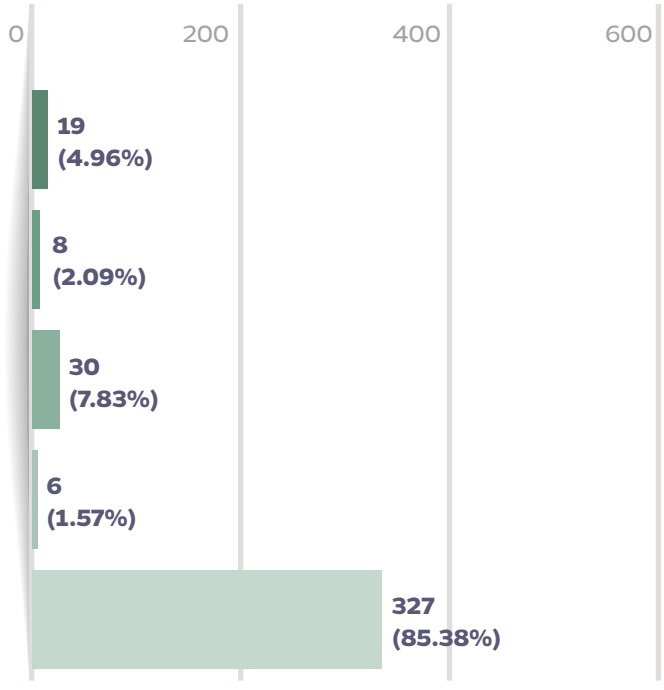


Figure 30. Respondents falling under vulnerable categories

Vulnerable groups. As seen in Figure 30, the vast majority of respondents (85.38%) consider that they do not fall into any vulnerability category. Only 7.83% of respondents are mothers with small children, 4.96% are chronically ill, 2.09% have mobility difficulties, and only 1.57% have a type of “other” unlisted category of vulnerability (often not stated).

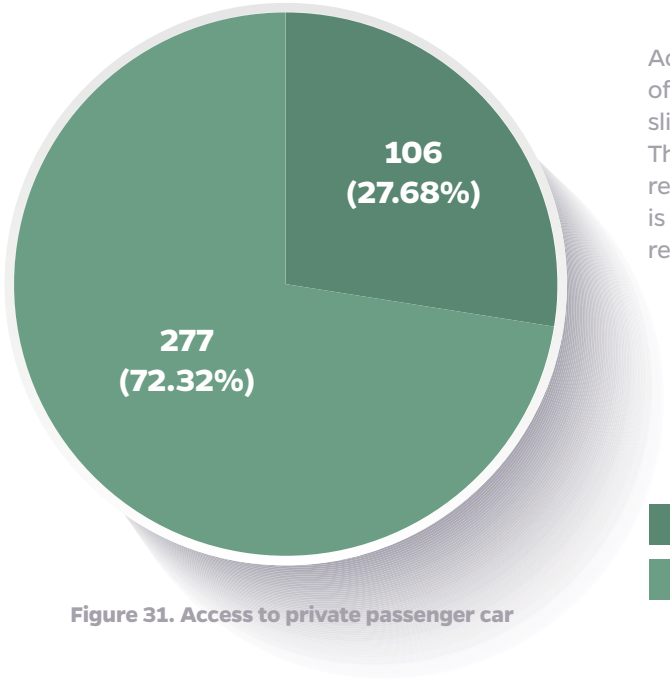


Figure 31. Access to private passenger car

Access to private passenger car. Almost three quarters of respondents (72.32%) own a private car, while slightly more than a quarter (27.68%) do not own one. The relatively high number of employees (47.52%) and respondents who have a high level of income (33.68%) is likely to have an impact on the high percentage of respondents with a private car (Figure 31).

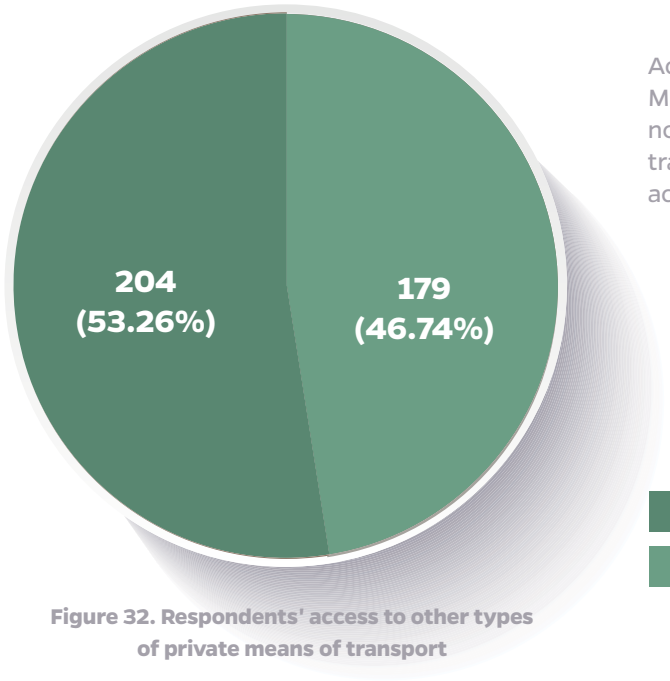


Figure 32. Respondents' access to other types of private means of transport

Access to other types of private means of transport. More than half of the respondents (53.26%) do not have access to other types of private means of transport, while 46.74% of respondents have such access (Figure 32).

2. Use of public transport before and during the pandemic

Frequency of public transport use. Respondents were asked how often they used public transport before the pandemic and during the pandemic. Before the pandemic, the majority of respondents (60.22%) "frequently" used public transport, one third of respondents (32.97%) "rarely" used and only 6.81% "never" used it. Significant changes, however, occurred during the pandemic – the percentage of frequent users of public transport dropped by almost four times – to only 16.62%, while on the other hand the number of respondents who did not use public transport during the pandemic increased to 32.97%.

	Frequency of public transport use before the pandemic	Frequency of public transport use during the pandemic
Frequently	60.22%	16.62%
Rarely	32.97%	50.41%
Never	6.81%	32.97%

Table 3: Frequency of public transport use before and during the pandemic

Most used types of transport. Before the pandemic, public transport was the most frequently used type of transport (for 56.95% of respondents). During the pandemic, private cars were the most preferred mode (53.95%), followed by public transport (22.89%) and walking (11.99%). The use of taxis slightly increased by 2.54%, and the use of bicycle or scooters increased only slightly by 3.27% during the pandemic.

	Most used type of transport before the pandemic	Most used type of transport during the pandemic
Public transport	56.95%	22.89%
Private car	30.25%	53.95%
Taxi	3.54%	5.99%
Bicycle or scooter	1.63%	4.90%
Walking	6.81%	11.99%
Other	0.82%	0.28%

Table 4: Most used types of transport before and during the pandemic

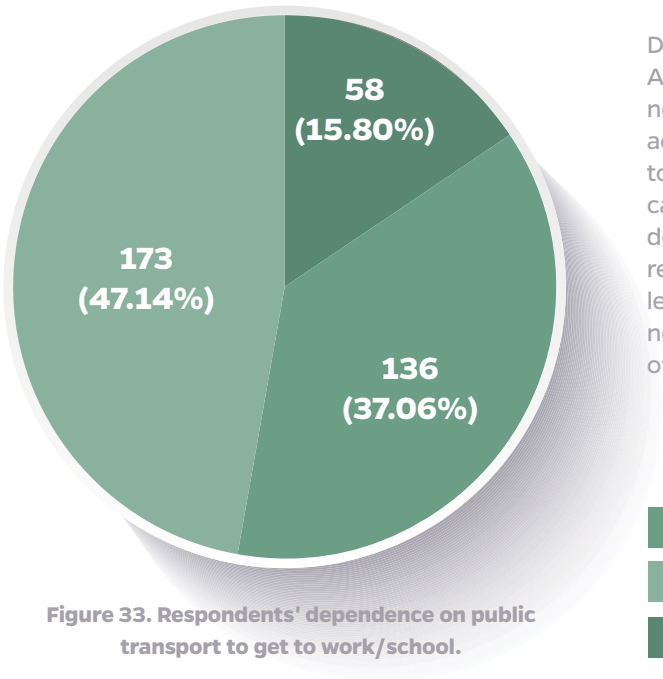


Figure 33. Respondents' dependence on public transport to get to work/school.

Dependence on public transport to get to work/school. Almost every other person (47.14%) in the sample does not depend on public transport because they have access to other types for movement (this may be linked to the large number of workers who mostly own private cars). Slightly more than a one third of respondents depend on public transport, which can be linked to the relatively high percentage of students (42.56%). The least represented group of respondents (15.80%) does not depend on public transport, but prefers it because of the preservation of the environment (Figure 33).

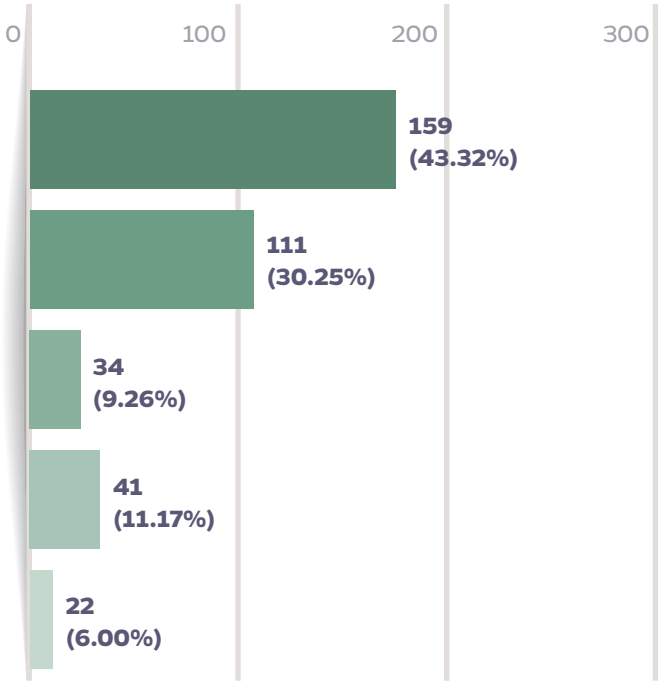


Figure 34. Respondents' main reason for moving/traveling during the pandemic

Reasons for moving/traveling during the pandemic. The two main reasons for movement/travel during the pandemic for respondents was work (43.32%), followed by education (30.25%) (Figure 34).

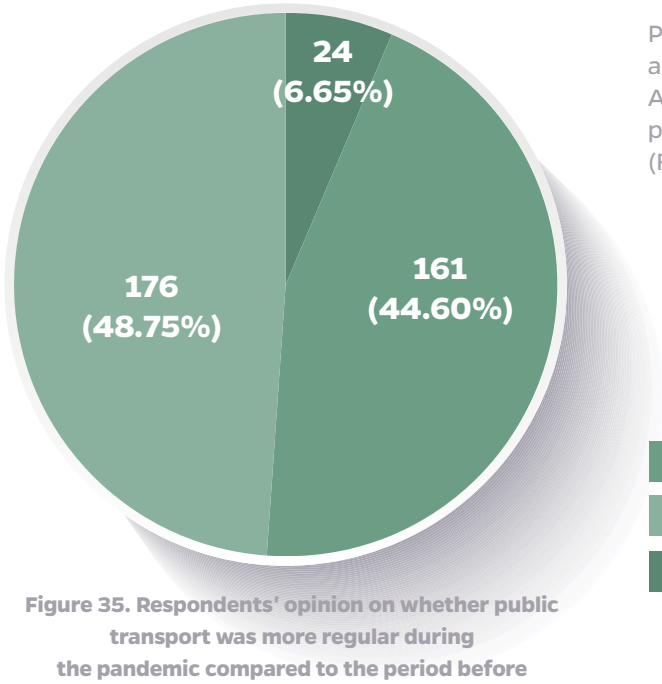


Figure 35. Respondents' opinion on whether public transport was more regular during the pandemic compared to the period before

Perception on the number of public transport vehicles and public transport regularity during the pandemic. Almost half of respondents (44.60%) believe that public transport during the pandemic was not regular (Figure 35).

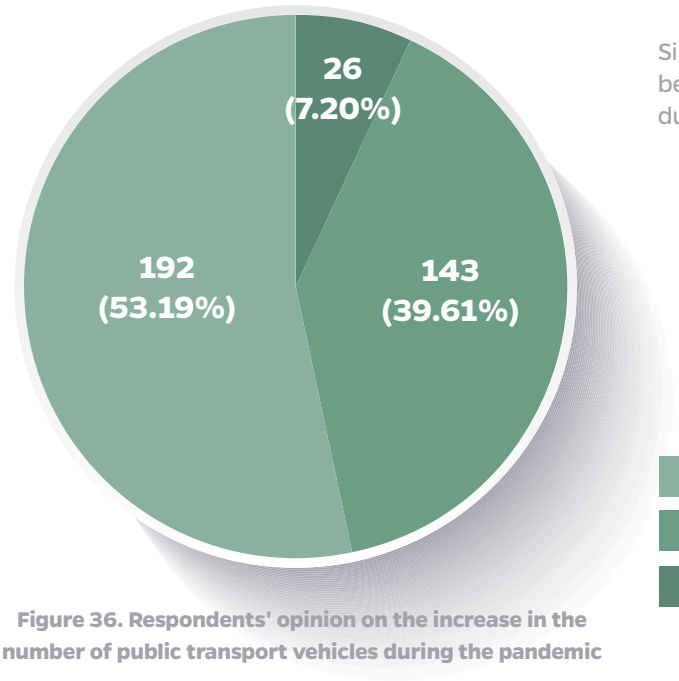


Figure 36. Respondents' opinion on the increase in the number of public transport vehicles during the pandemic

Similarly, more than half of the respondents (53.19%) believe that the number of vehicles did not increase during the pandemic (Figure 36).

Use of illegal transport (taxis and vans). More than two thirds of respondents (68.14%) stated that they did not use illegal transport before the pandemic, followed by those who do not know who is legal/illegal (15.51%). Only 6.09% of respondents used illegal transport before the pandemic. During the pandemic, there was an increase in the number of respondents who did not use illegal transport (75.07%) at the expense of all others (Table 6). The large number of respondents who did not use illegal transport before, and especially during the pandemic, may be directly related to the large number of respondents who own private cars and the large number of those who used private cars as the main type of transport during the pandemic. In addition, very few respondents used taxis as the main form of transport before (3.54%) and during the pandemic (5.99%).

	Use of illegal transport before the pandemic	Use of illegal transport during the pandemic
Yes	6.09%	5.26%
No	68.14%	75.07%
Sometimes	10.26%	6.10%
I don't know who is legal/illegal	15.51%	13.57%

Table 6: Respondents' use of illegal transport before and during the pandemic

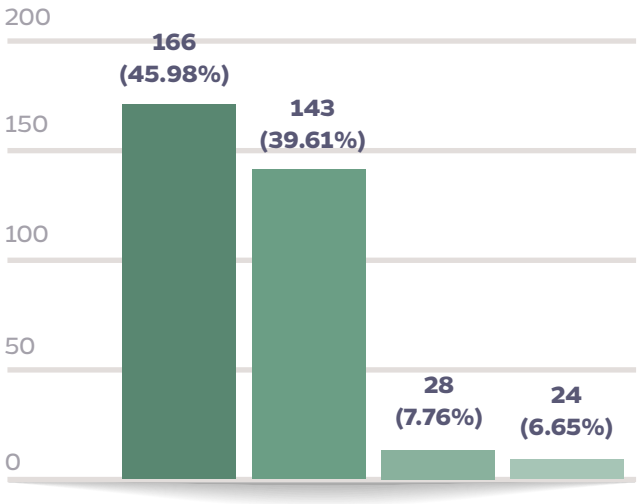


Figure 37. Respondents' interest in more frequent use of non-motorised types of movement

Interest in more frequent use of non-motorised types of mobility options. The vast majority of respondents (85.59%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc.) (45.98% under the condition that adequate and secure infrastructure is built, and 39.61% generally interested). Only 6.65% of respondents responded that they are not certain (Figure 37).

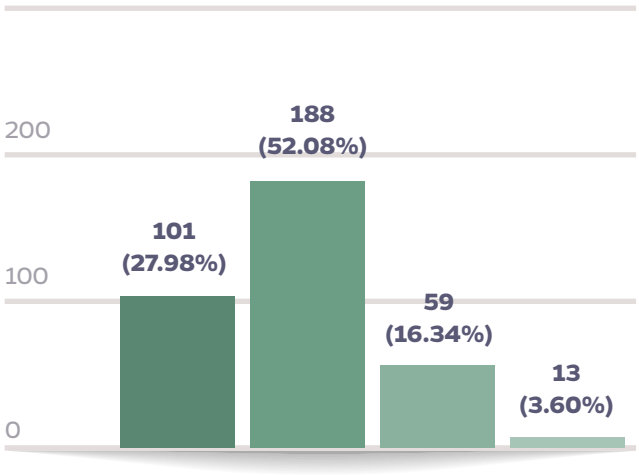


Figure 38. Respondents' answers on the importance of preserving the environment when choosing means of transport

Preservation of the environment. Environmental protection when choosing the means of transport is ranked as "important" for more than half of the respondents (52.08%) and as "very important" for more than one quarter of the respondents (27.98%) (Figure 38).

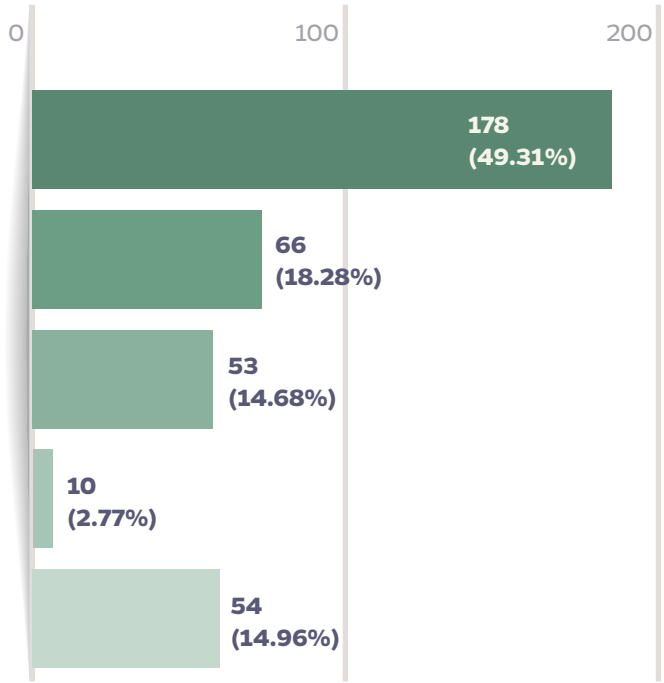


Figure 39. Respondents' opinion on the use of the public transport after pandemic

Use of public transport after the pandemic. Half of the respondents (49.31%) stated that they will continue using public transport after the pandemic as before, while 18.28% stated that they will use public transport but less than before. Only 2.77% stated that they will not use it anymore (Figure 39).

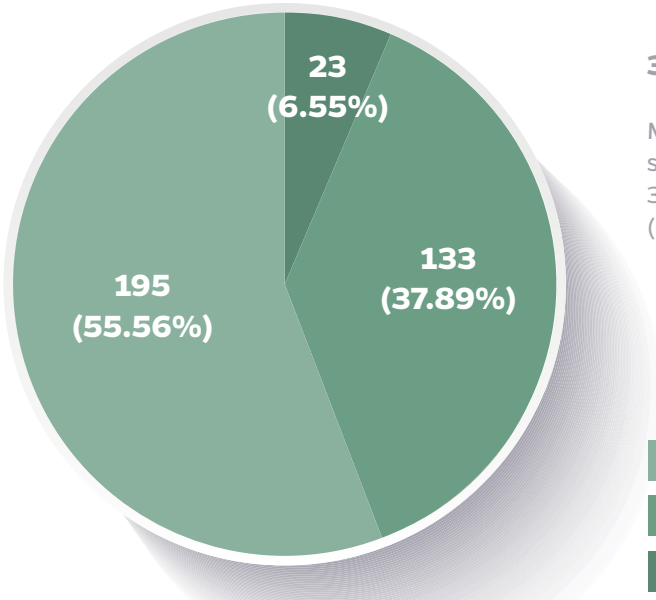


Figure 40. Respondents' answers to the question whether they feel safe in public transport in regard to the pandemic

3. Perceptions of safety in public transport

More than half of respondents (55.56%) do not feel safe in public transport during the pandemic, whereas 37.89% feel partially safe and only 6.55% feel safe (Figure 40).

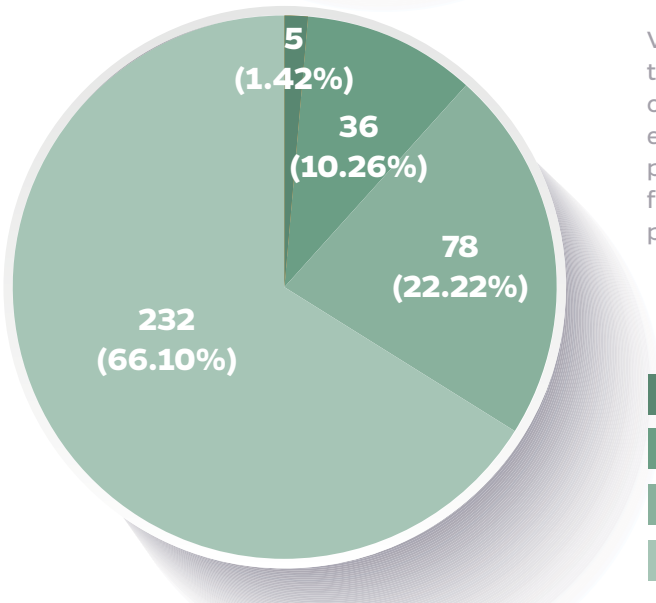


Figure 41. Observation of violations of epidemiological measures in public transport by respondents

Violation of epidemiological measures in public transport. Figure 41 shows the respondents' observations on the frequency of violations of epidemiological measures in transportation during the pandemic. Two thirds of respondents (66.10%) noticed frequent violations of epidemiological measures in public transport.

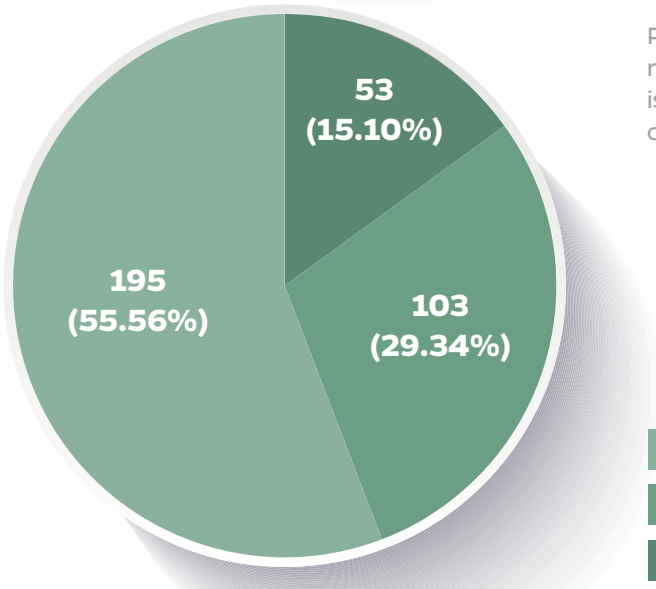


Figure 42. Respondents' opinions on whether the driving staff was adequately protected from potential contamination in the course of their work

Protection of driving staff. More than half of respondents (55.56%) believe that the driving staff is not adequately protected, and only 15.10% believe otherwise (Figure 42).

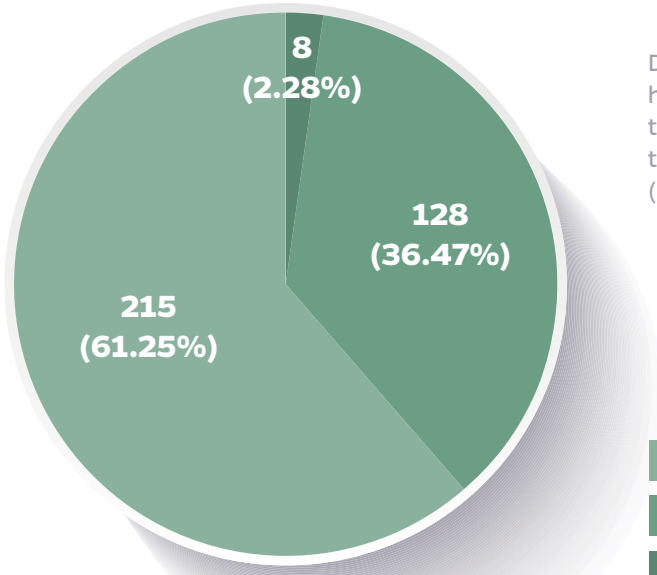


Figure 43. Respondents' opinions on whether public transport vehicles were disinfected regularly and thoroughly for the purpose of protection against infection

Disinfection of public transport vehicles. More than half of the respondents (61.25%) believe that public transport vehicles are not disinfected regularly and thoroughly, and only (2.28%) believe otherwise (Figure 43).

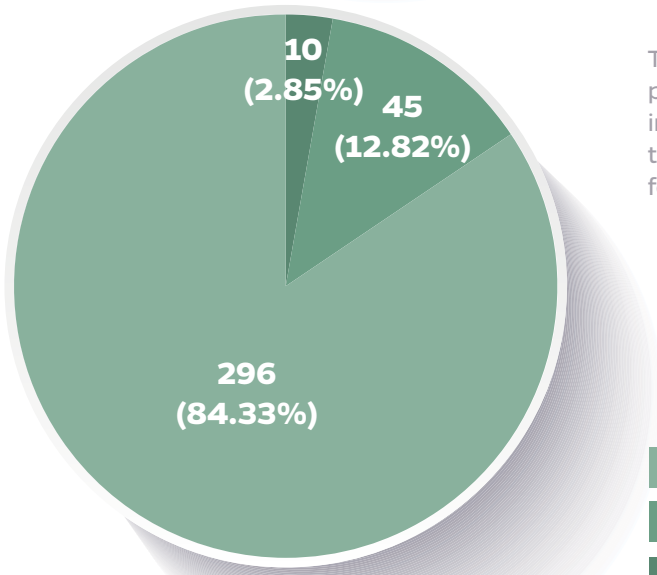


Figure 44. Respondents' opinion on the need to improve passenger protection measures in public transport

The vast majority (84.33%) believes that passenger protection measures in public transport need to be improved. Only 2.85% respondents are satisfied with the current measures and believe that there is no need for improvement (Figure 44).

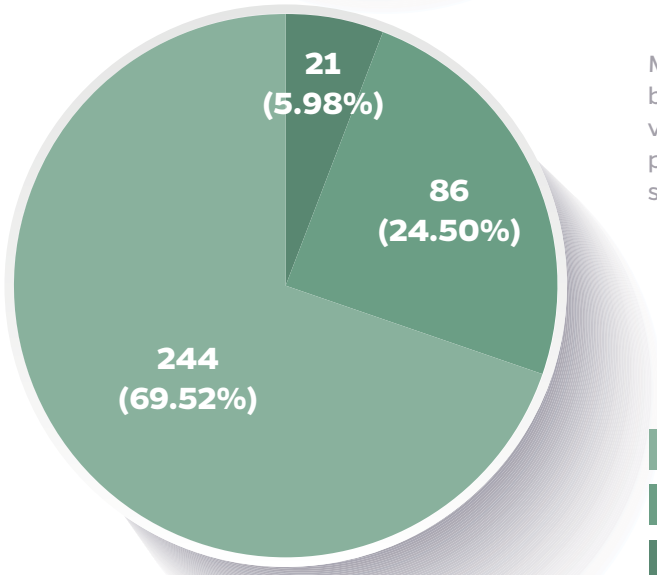


Figure 45. Respondents' opinion on whether adequate measures have been taken to protect vulnerable persons in public transport

More than two thirds of the respondents (69.52%) believe that no measures were taken to protect vulnerable people in public transport during the pandemic, whereas a minority (5.98%) considers that such measures were taken (Figure 45).

Encountered problems in public transport regarding the pandemic. The respondents selected the following three most common problems encountered in public transportation during the pandemic:

1. too many passengers in vehicles (60.68%),
2. social distancing in vehicles was not respected (53.28%),
3. irregular disinfection of vehicles (41.60%).

Only 4.84% did not experience any issues with public transport (Figure 46). Under the "other" problems category, respondents sporadically included some issues such as fights and riots in transport, not wearing protective masks, etc.

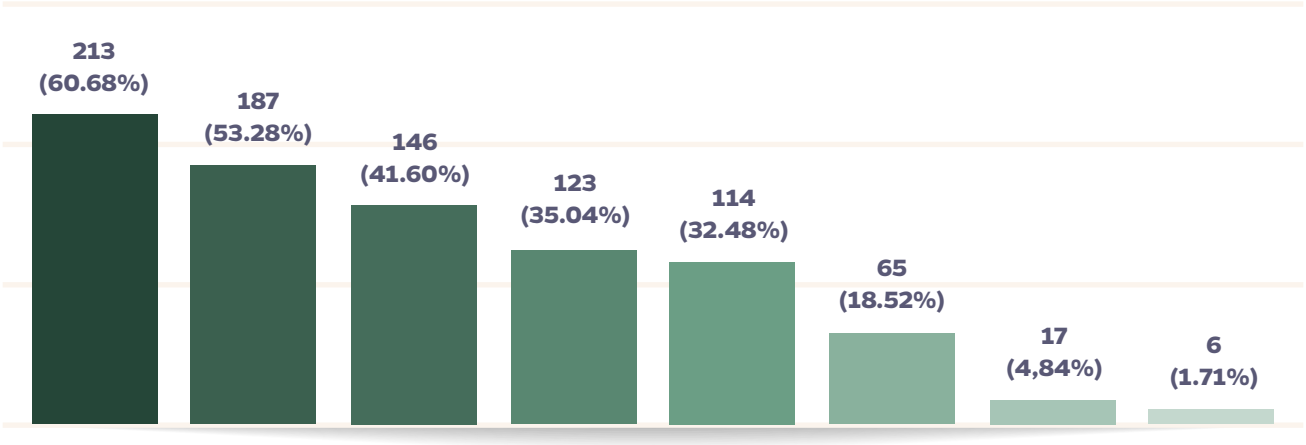
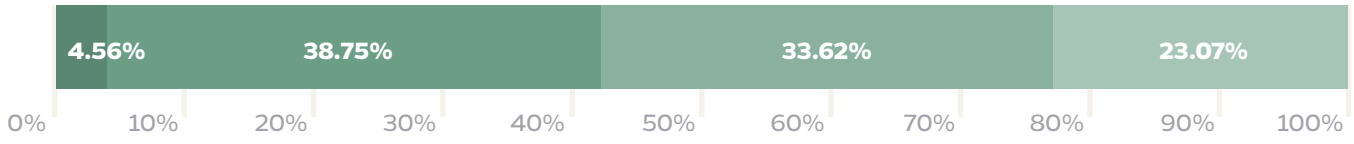


Figure 22. Problems encountered by respondents when using public transportation during the pandemic

The high percentage of respondents experiencing problems with the use of public transport during the pandemic combined with the relatively high percentage of negative statements (in previous answers) regarding regular and thorough disinfection of public transport vehicles and protection of vulnerable people and work staff, indicate that the majority of public transport users are not satisfied with the services offered and believe that improvements are necessary.

Respondents' attitudes regarding the public transport responses to pandemic challenges. More than one third of respondents (38.75%) expressed dissatisfaction with the response of public transport authorities and operators to the challenges of the pandemic, while one third of the respondents (33.62%) were only partially satisfied. Only a small number of respondents (4.56%) stated they were satisfied (Figure 47).



Respondents' general satisfaction with public transport responses to pandemic challenges

	Respondents' general satisfaction with public transport responses to pandemic challenges
Satisfied	16
Not satisfied	136
Partially satisfied	118
I dont know	81

Figure 47. Respondents' satisfaction with the public transport responses to pandemic challenges

Respondents' attitudes regarding the level of information received during the pandemic regarding public transport. More than half of the respondents (51.85%) were dissatisfied with the level of received information related to public transport during the pandemic, and more than one third of respondents (37.04%) partially satisfied. Only a small number of people (11.11%) were satisfied with the information received (Figure 48).

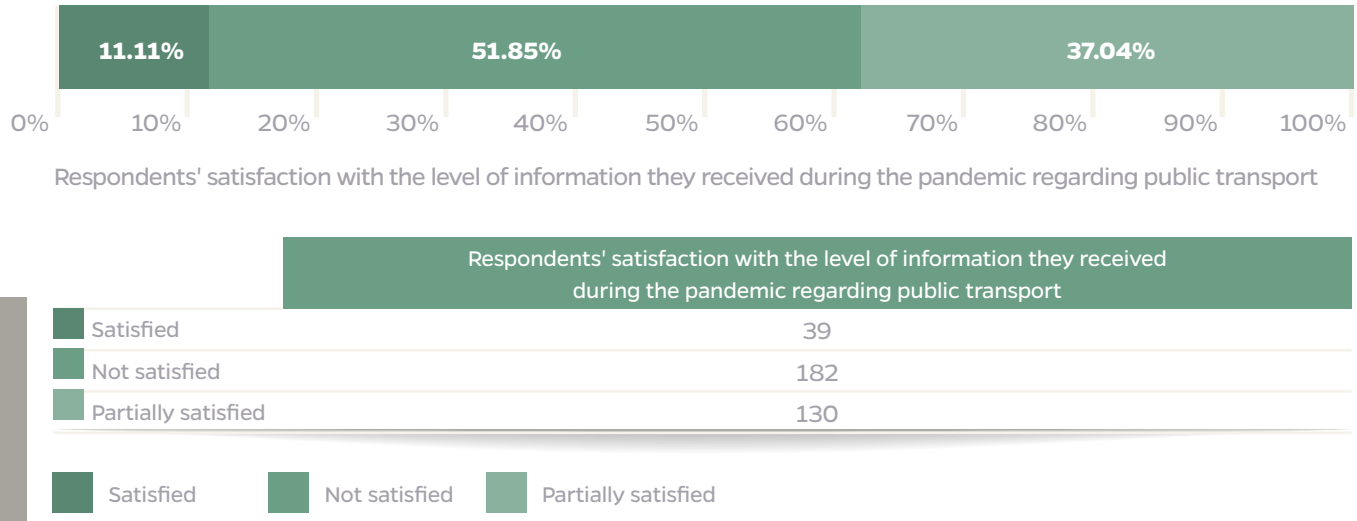


Figure 48. Respondents' satisfaction with the level of information they received during the pandemic regarding public transport

KOSOVO

5.4 Survey of Public Transport Users – Detailed Results for Kosovo

Summary of key survey results

1. The largest number of the respondents are employed persons (young age group, i.e., between 18-35 years), and more than half are women.
2. The main reason for movement/travel during the pandemic for respondents was work (75.11%).
3. The largest number of respondents frequently used public transport before the pandemic (56.56%), followed by respondents who rarely used it (37.56%). However, the pandemic led to significant changes – the percentage of frequent public transport users decreased by 24.89% (to 31.67%), while on the other hand the percentage of respondents who did not use public transport during the pandemic exceeded one quarter of the sample and increased from 5.88% to 26.24%.
4. Before the pandemic, public transport was the most frequently used type of transport (49.77%), followed by private cars (29.86%). However, during the pandemic, private cars became the most preferred type of transport, and public transport fell to the second place (reduced by 17.64% compared to the pre-pandemic period). While people preferring walking increased to some extent (from 7.69% to 10.41%), those using taxis decreased insignificantly (from 9.05% to 8.14%). It is noteworthy that very few people used bicycles or scooters before (1.36%) or during (2.26%) the pandemic.
5. Almost half of respondents (48.87%) do not depend on public transport which is directly related to the fact that majority of respondents (71.12%) own private cars. However, more than one third of respondents depend on public transport (35.29%), while 15.84% of respondents do not depend on, but prefer public transport because of the preservation of the environment.
6. More than one third of respondents (39.81%) stated that they did not use illegal transport before the pandemic, which increased to 60.19% during the pandemic. However, it is worrying that more than one third of the respondents (35.07%) used illegal transport before the pandemic, and almost a quarter of them (23.07%) continued to use it during the pandemic.
7. Almost two thirds of respondents (62.56%) stated that they will continue to use public transport after the pandemic as before, followed by 13.27% of respondents who are not yet sure. A very small number plans to completely stop using public transport after the pandemic (2.37%).
8. For majority of people, environmental protection when choosing the means of transport is very important (54.50%) or important (38.56%). In addition, the vast majority of respondents (76.28%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (45.95% under the condition that adequate and secure infrastructure is built and 30.33% generally interested). Only 15.64% are not interested.
9. Less than a third of public transport users (24.75%) feels safe in public transport during the pandemic. While around a half of respondents (51.49%) feel partially safe, 23.76% do not feel safe at all. Almost half of respondents (43.07%) noticed frequent violations of epidemiological measures in public transport. Only a minority among respondents (22.77%) thinks that public transport vehicles are not disinfected regularly and thoroughly. The rest are either unsure (49.01%) or believe adequate disinfection is carried out (28.22%). More than a third (42.57%) believes that drivers are not adequately protected.
10. The vast majority (72.77%) believes that passenger protection measures in public transport need to be improved. Only 10.40% respondents are satisfied with the current measures and believe that there is no need for improvement.
11. Respondents are generally satisfied with both the way public transport authorities responded to the challenges of the pandemic and the level of information they received about public transport during the pandemic. Three quarters of respondents (74.26%) expressed satisfaction with the response of public transport authorities and operators to the challenges of the pandemic (38.12% partially satisfied and 36.14% generally satisfied). Only 11.88% respondents expressed dissatisfaction. Almost half of respondents (44.06%) were satisfied with the level of received information related to public transport during the pandemic while more than one third of respondents (37.62%) were partially satisfied.

1. Socio-economic characteristics of the respondents

Gender. 97 men and 135 women participated in the survey. Therefore, women accounted for more than half (58.19%) of the sample size, as shown in Figure 49. Note: The number of respondents for each question may differ due to the fact that respondents were allowed to skip questions and therefore not all respondents answered each question.

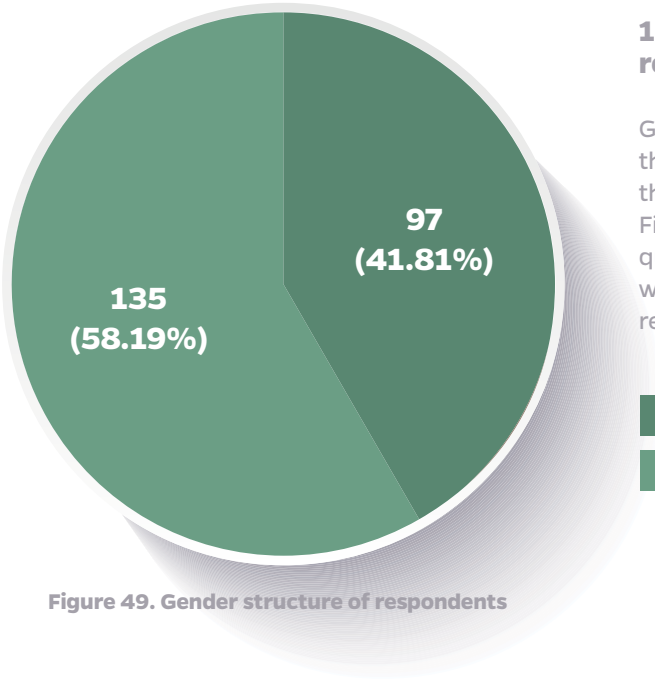


Figure 49. Gender structure of respondents

Age groups. More than half of the respondents (57.76%) belong to the younger age group, i.e. between 18-35 years, followed by the middle age group which made up more than a third of respondents (40.95%). The least represented age group is the older age group, i.e. 56 years and older (1.29%), as shown in Figure 50.

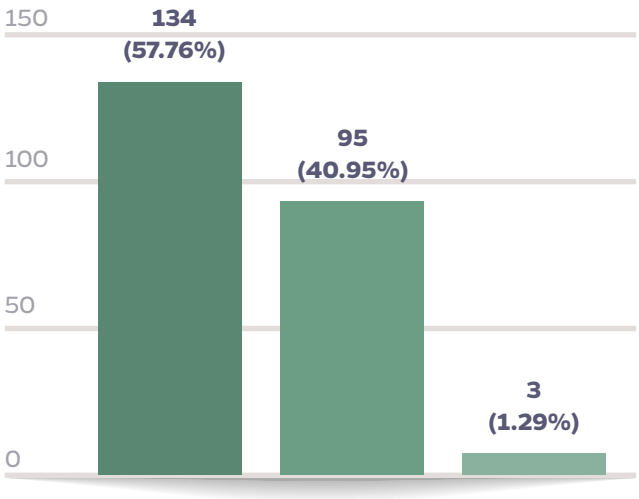


Figure 50. Age structure of respondents

Distribution of respondents by place/city of residence. The vast majority of respondents (82.76%) are from Prishtina, which is also the capital and most populous city in the country, followed by respondents from Kosovo polje (6.46%) and Prizren (1.29%). Other cities were listed sporadically and in a significantly lower percentage representation.

More than one third of respondents (40.52%) live in the inner city centre, while slightly more than one third of respondents (34.05%) live in outer city centre (Figure 51). A slightly smaller number of respondents live on the outskirts of the city (18.97%), followed by the smallest number of respondents (6.47%) living in the village/settlement outside the urban zone.

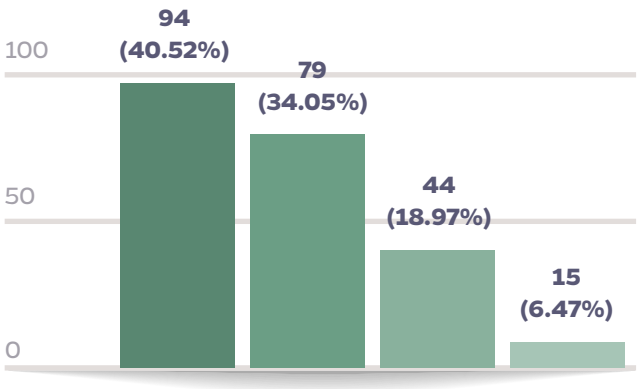


Figure 51. Location of respondents' residence

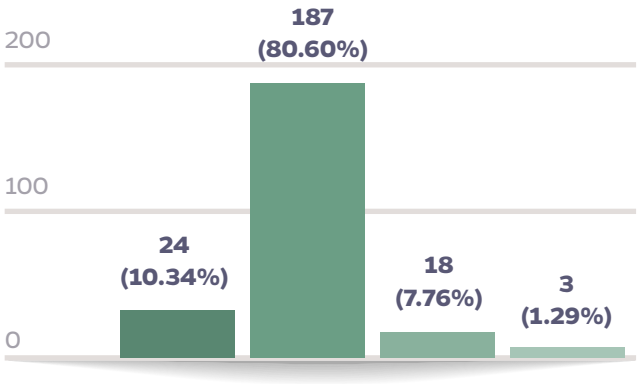


Figure 52. Respondents' employment status

Employment status. As shown in Figure 52, the vast majority of respondents (80.60%) are employees, followed by students (10.34%). The least represented group are retired persons (1.29%). The presented results in combination with the previous answers indicate that public transport is mostly used by employees on their way to work, while a smaller number of respondents use public transport to commute to college and for other purposes.

Student
Unemployed
Employed
Pensioner

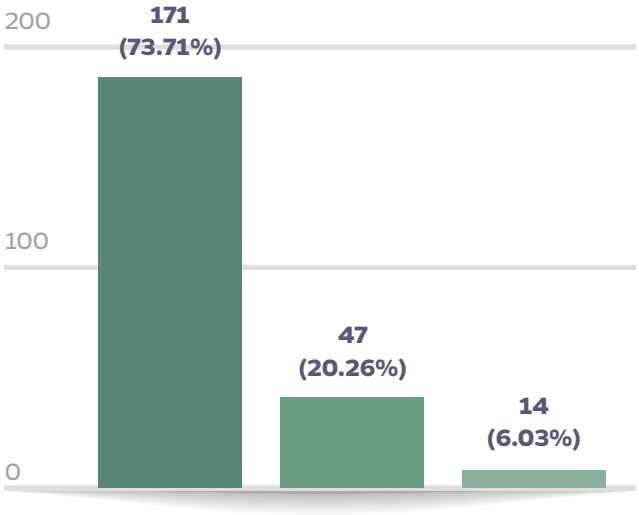


Figure 53. Financial situation of respondents

Financial status. Almost three quarters of respondents (73.71%) have sufficient income only for basic needs, while every fifth respondent (20.26%) has a high level of income. A small number of respondents (6.03%) do not have enough income even for basic needs (Figure 53). Comparing these results with the answers from the previous question related to employment status, it can be concluded that the high share of respondents who have a sufficient or high level of income is linked to the high share of employees who completed this survey, while the low share of students and unemployed people is associated with the low proportion of respondents who do not have sufficient income even for basic needs.

I have enough income only for basic needs
I have high level of income
I don't have enough income even for basic needs

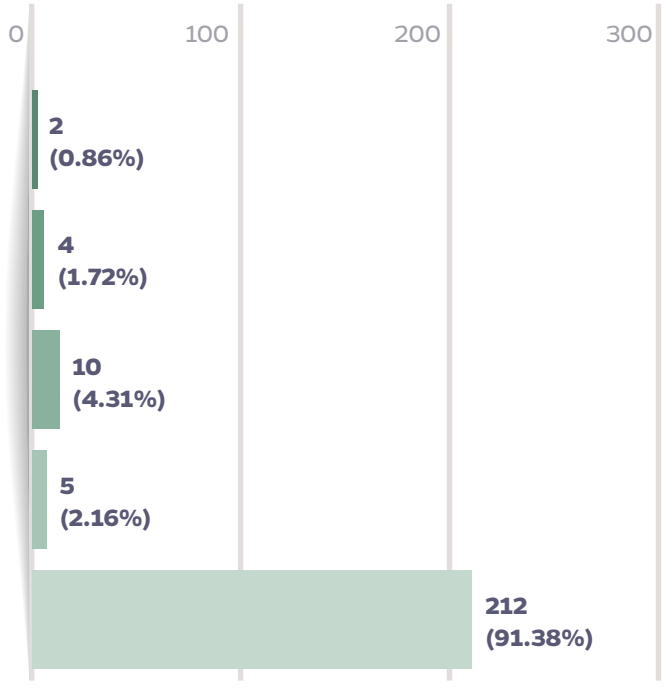


Figure 54. Respondents falling under vulnerable categories

Vulnerable groups. The vast majority of respondents (91.38%) believe that they do not belong to any vulnerable group. The vulnerable group with the most respondents is the group of mothers with small children (4.31%), followed by also a small number of persons with mobility difficulties (1.72%), as shown in Figure 54.

Yes, chronically ill
Yes, a person with mobility difficulties
Yes, mother with small children
Other
No

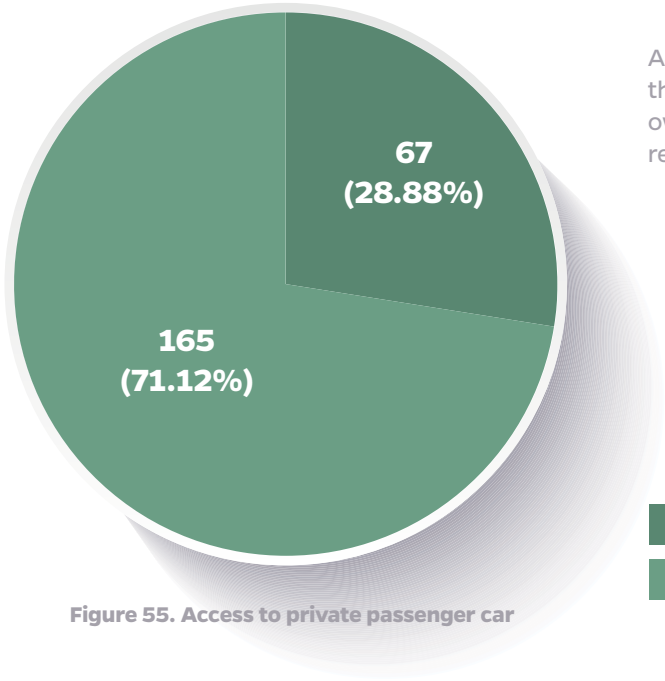


Figure 55. Access to private passenger car

Access to private passenger car. Figure 55 shows that almost three quarters (71.12%) of respondents own private cars, while more than one quarter of respondents (28.88%) do not own them.

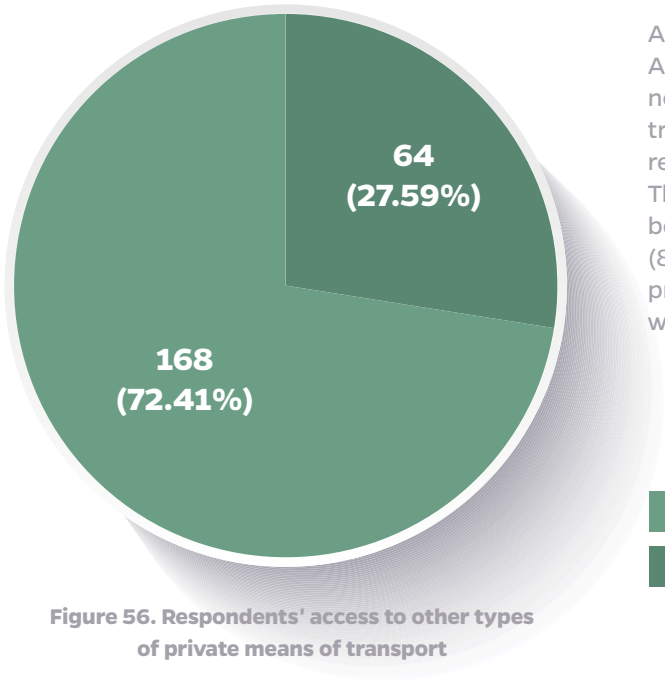


Figure 56. Respondents' access to other types of private means of transport

Access to other types of private means of transport. Around three quarters of respondents (72.41%) do not have access to other types of private means of transport, while slightly more than one quarter of respondents (27.59%) have such access (Figure 56). The large number of negative responses can probably be conditioned by the high percentage of employees (80.60%) who live in the inner or outer city centre and probably use private cars as a form of transport to work.

2. Use of public transport before and during the pandemic

Frequency of public transport use. Respondents were asked how often they used public transport before the pandemic and during the pandemic. The largest number of respondents frequently used public transport before the pandemic (56.56%), followed by respondents who rarely used it (37.56%). Only 5.88% had never used public transportation before the pandemic. Significant changes were recorded during the pandemic – the percentage of frequent public transport users decreased by 24.89% to 31.67%. On the other hand, the percentage of respondents who did not use public transport during the pandemic exceeded one quarter of the sample (26.24%).

	Frequency of public transport use before the pandemic	Frequency of public transport use during the pandemic
Frequently	56.56%	31.67%
Rarely	37.56%	42.08%
Never	5.88%	26.24%

Table 7: Frequency of public transport use before and during the pandemic

Most used types of transport. Before the pandemic, public transport was the most frequently used type of transport (49.77%), followed by private cars (29.86%). However, during the pandemic, private cars were the most preferred type of transport (45.25%), while the second most preferred type was public transport (32.13%) – which means that the number of public transport users during the pandemic decreased by 17.64% compared to the period before. Walking as a type of transport increased from 7.69% before the pandemic to 10.41% during the pandemic, while taxi use decreased slightly (from 9.05% before the pandemic to 8.14% during the pandemic). It is noteworthy that very few people used bicycles or scooters before (1.36%) or during (2.26%) the pandemic.

	Most used type of transport before the pandemic	Most used type of transport during the pandemic
Public transport	49.77%	32.13%
Private car	29.86%	45.25%
Taxi	9.05%	8.14%
Bicycle or scooter	1.36%	2.26%
Walking	7.69%	10.41%
Other	2.27%	1.81%

Table 8: Most used types of transport before and during the pandemic

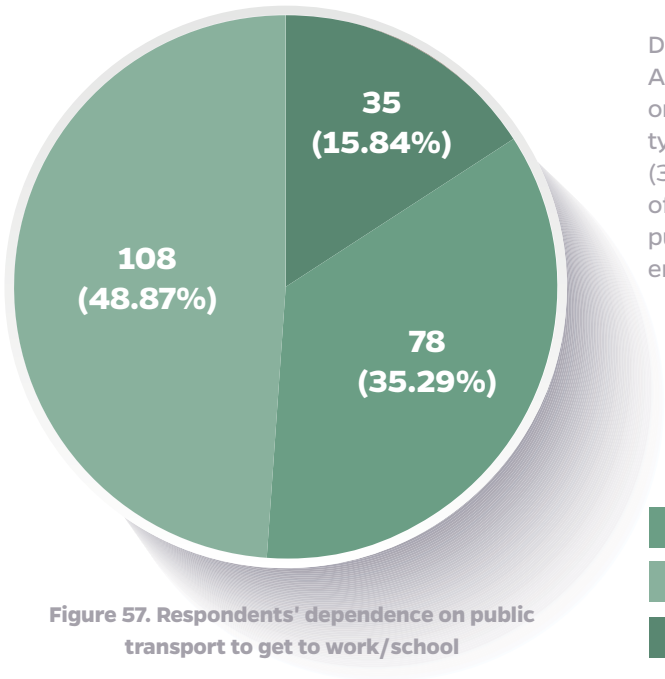


Figure 57. Respondents' dependence on public transport to get to work/school

Dependence on public transport to get to work/school. Almost half of respondents (48.87%) do not depend on public transport because they have access to other types of mobility. More than one third of respondents (35.29%) depend on public transport while 15.84% of respondents do not depend on it, but prefer public transport because of the preservation of the environment (Figure 57).

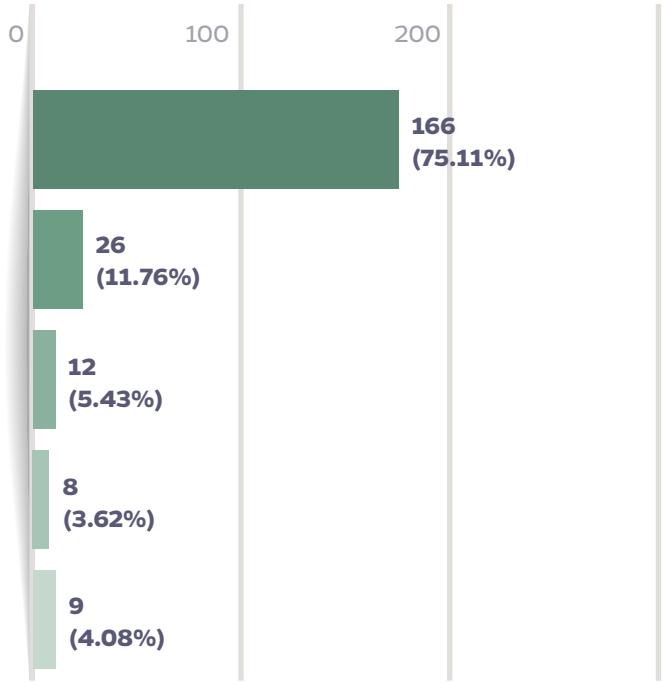


Figure 58. Respondents' main reason for moving/traveling during the pandemic

Reasons for moving/traveling during the pandemic. The main reason for movement/travel during the pandemic for respondents was work (75.11%). Other reasons were mentioned in significantly lower percentages, among which was education (11.76%) and shopping (5.43%) (Figure 58).

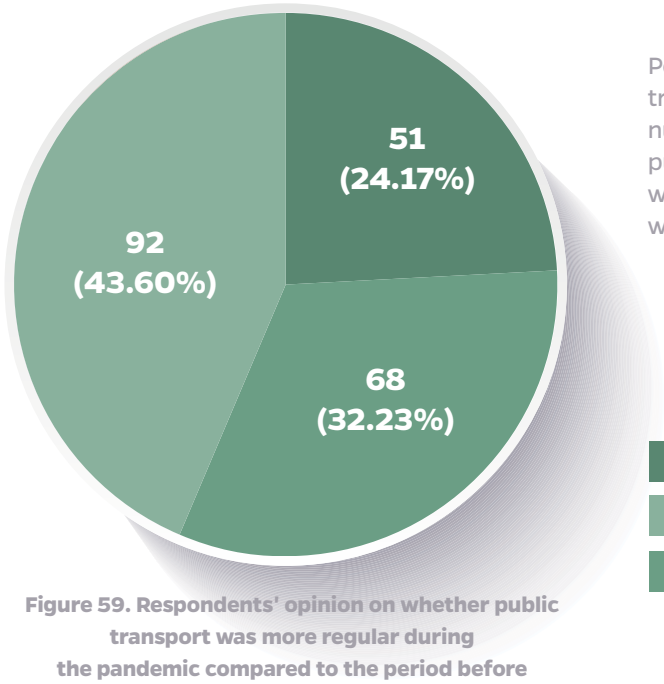


Figure 59. Respondents' opinion on whether public transport was more regular during the pandemic compared to the period before

Perception on the number of vehicles and public transport regularity during the pandemic. The largest number of respondents (43.60%) are not sure whether public transport was regular during the pandemic, while one third of respondents (32.23%) believe that it was regular (Figure 59).

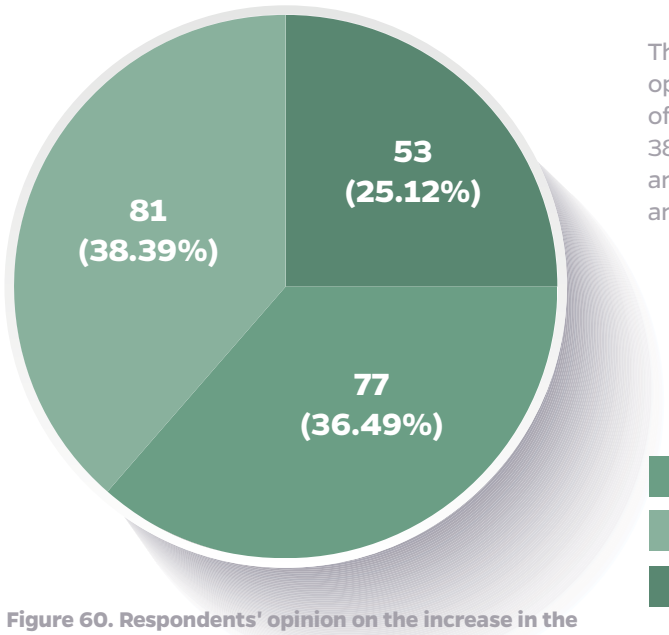


Figure 60. Respondents' opinion on the increase in the number of public transport vehicles during the pandemic

The situation is somewhat similar when it comes to the opinion of respondents on the increase in the number of public transport vehicles during the pandemic – 38.39% of respondents do not know whether there was an increase, 36.49% believe that there was an increase and 25.12% think otherwise (Figure 60).

Use of illegal transport (taxis and vans). The number of respondents who never used illegal transport before the pandemic (39.81%) is almost the same as those who did use such transport (35.07%). During the pandemic, the number of illegal transport users decreased by 11.37% (to 23.70%), and the number of those not using it increased significantly to 60.19% (Table 9).

	Use of illegal transport before the pandemic	Use of illegal transport during the pandemic
Yes	35.07%	23.70%
No	39.81%	60.19%
Sometimes	20.38%	11.85%
I don't know who is legal/illegal	4.74%	4.26%

Table 9: Respondents' use of illegal transport before and during the pandemic

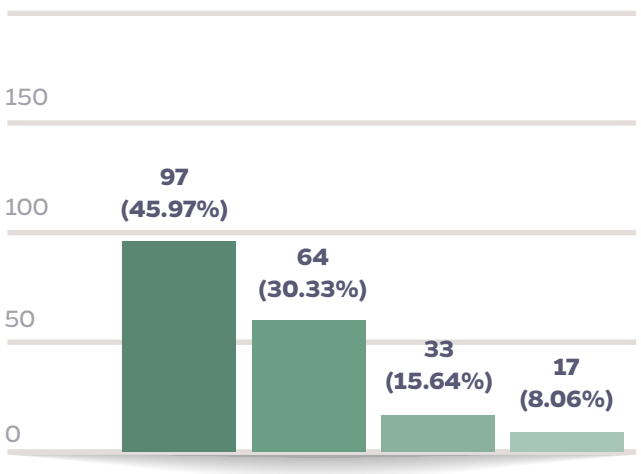


Figure 61. Respondents' interest in more frequent use of non-motorised types of movement

Interest in more frequent use of non-motorised types of mobility options. The vast majority of respondents (76.30%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (45.97% under the condition that adequate and secure infrastructure is built and 30.33% generally interested). A small number of respondents (15.64%) are not interested (Figure 61). A high percentage of interested respondents in frequent use of non-motorised type of movement if adequate and secure infrastructure is built may be related to the relatively high percentage (34.05%) of respondents living in the outer city centre who might use such means of transport but currently do not have the adequate conditions.

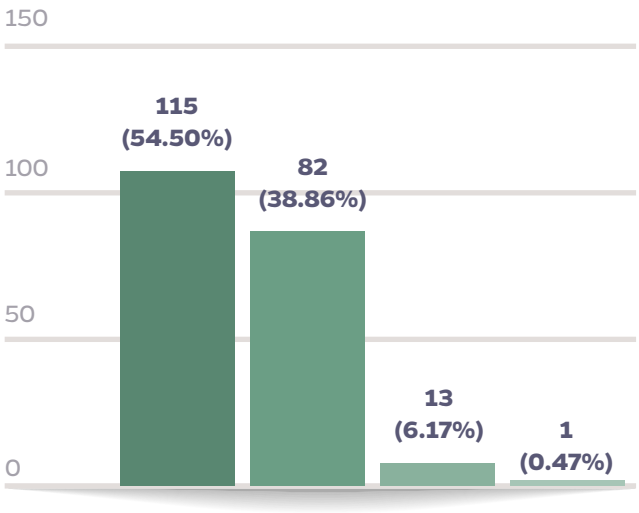


Figure 62. Respondents' answers on the importance of preserving the environment when choosing means of transport

Preservation of the environment. Environmental protection when choosing the means of transport is ranked as "very important" for more than half of the respondents (54.50%) and as "important" for more than one third of the respondents (38.86%) (Figure 62).

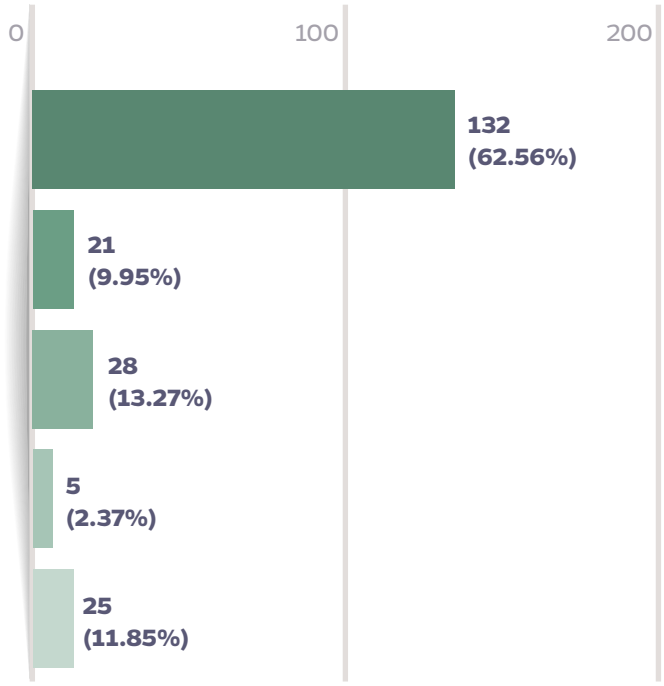
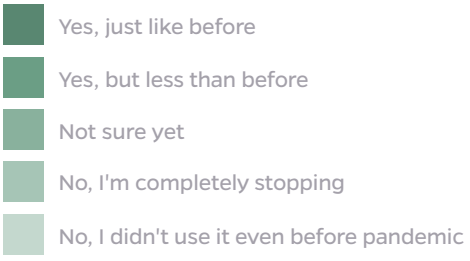


Figure 63. Respondents' opinion on the use of the public transport after pandemic

Use of public transport after the pandemic. Almost two thirds of respondents (62.56%) stated that they will continue to use public transport after the pandemic as before, followed by 13.27% of respondents who are not sure yet. Only 2.37% of respondents stated that they will not use it anymore (Figure 63). The high percentage of respondents who will continue to use public transport as before may be related to the relatively high percentage of respondents (32.13%) who continued to use public transport during the pandemic and a similar percentage of respondents (31.67%) who used public transport frequently during the pandemic, which may indicate the fact that for this group of respondents, public transport is the only means of transport to work/college.



3. Perceptions of safety in public transport

More than half of respondents (51.49%) feel partially safe in public transport during the pandemic, followed by 24.75% who feel safe, and 23.76% who do not feel safe (Figure 64).

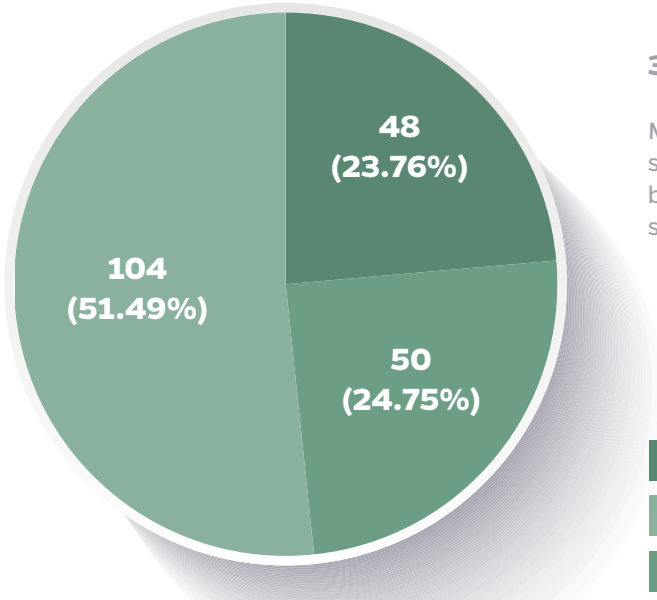


Figure 64. Respondents' answers to the question whether they feel safe in public transport in regard to the pandemic

Violation of epidemiological measures in public transport. Figure 65 shows the respondents' observations on the frequency of violations of epidemiological measures in public transport during the pandemic. More than one third of the respondents (43.07%) noticed frequent violations of epidemiological measures.

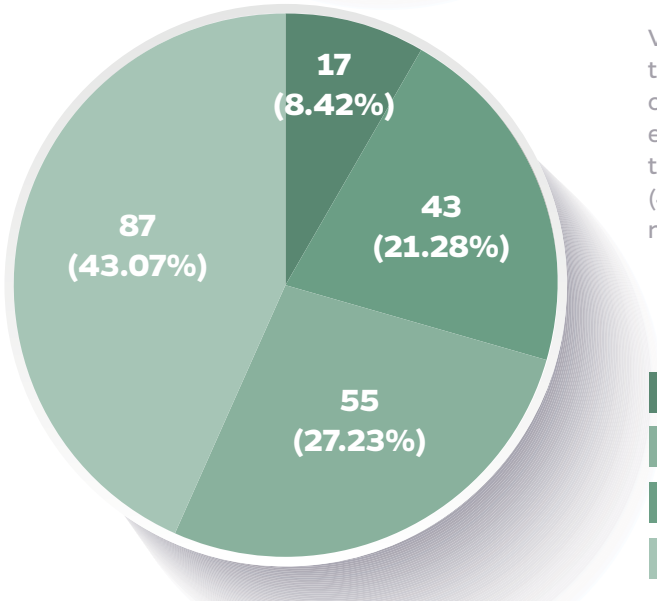


Figure 65. Observation of violations of epidemiological measures in public transport by respondents

Protection of driving staff. More than one third of respondents (42.57%) believe that driving staff were not adequately protected, while slightly less than one third (30.20%) think otherwise (Figure 66).

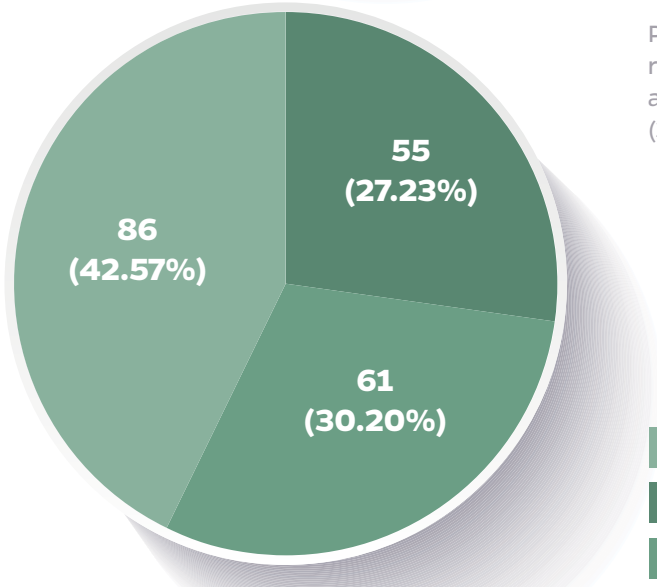


Figure 66. Respondents' opinions on whether the driving staff was adequately protected from potential contamination in the course of their work

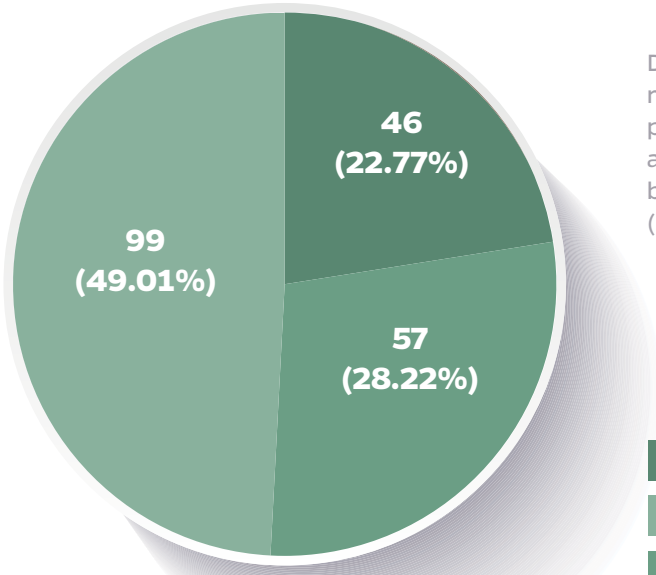


Figure 67. Respondents' opinions on whether public transport vehicles were disinfected regularly and thoroughly for the purpose of protection against infection

Disinfection of public transport vehicles. Only a minority among respondents (22.77%) thinks that public transport vehicles are not disinfected regularly and thoroughly. The rest are either unsure (49.01%) or believe adequate disinfection is carried out (28.22%) (Figure 67).

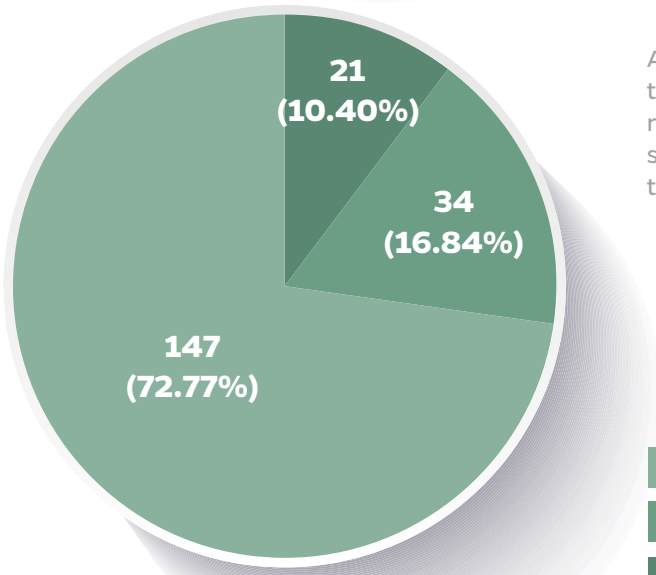


Figure 68. Respondents' opinion on the need to improve passenger protection measures in public transport

Almost three quarters of respondents (72.77%) believe that passenger protection measures in public transport need to be improved. Only 10.40% respondents are satisfied with the current measures and believe that there is no need for improvement (Figure 68).

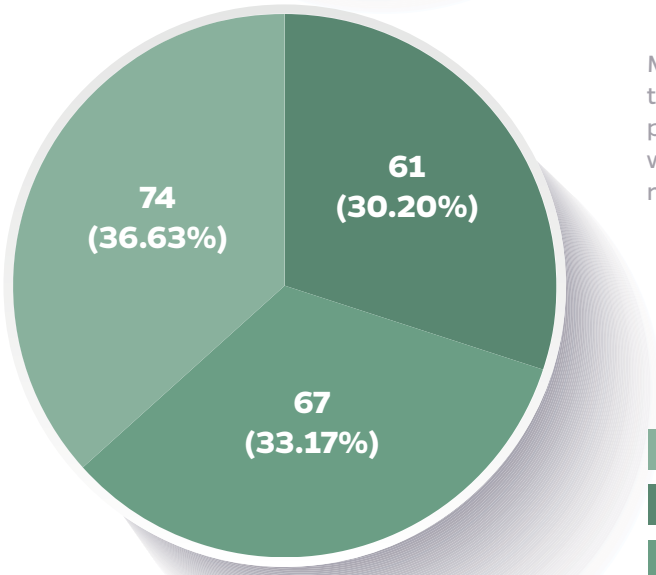


Figure 69. Respondents' opinion on whether adequate measures have been taken to protect vulnerable persons in public transport

More than one third of respondents (36.63%) believe that no measures were taken to protect vulnerable people in public transport during the pandemic, whereas a third (33.17%%) considers that such measures have been taken (Figure 69).

Encountered problems in public transport regarding the pandemic. The respondents selected the following three most common problems encountered in public transportation during the pandemic:

1. social distance in vehicles was not respected (32.67%),
2. there was not enough public transport on a regular basis (18.81%),
3. too many passengers in vehicles (17.33%).

On the other hand, one quarter of respondents (24.75%) did not experience any issues with public transport (Figure 70). Under the "other problems" category, respondents sporadically included some issues such as traffic jams, disrespect for passengers (buses do not stop at stations), not wearing protective masks, etc. .

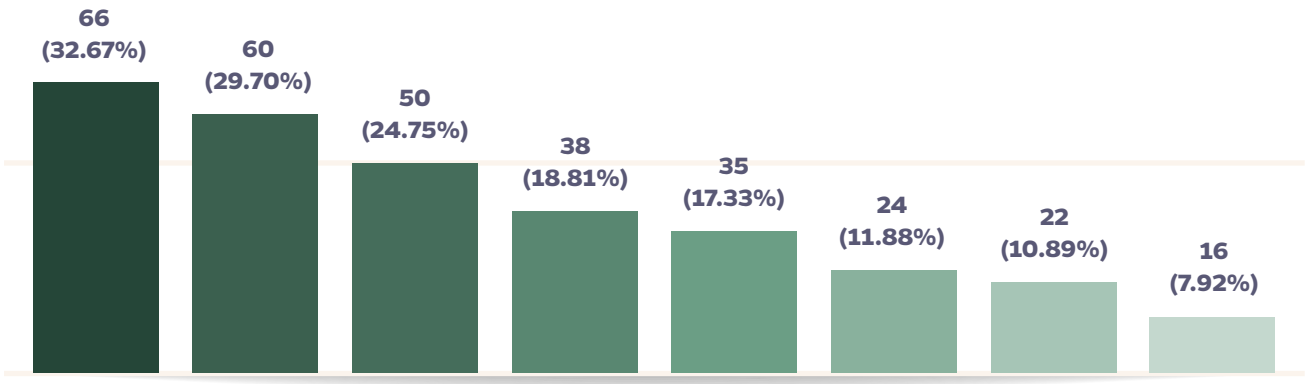
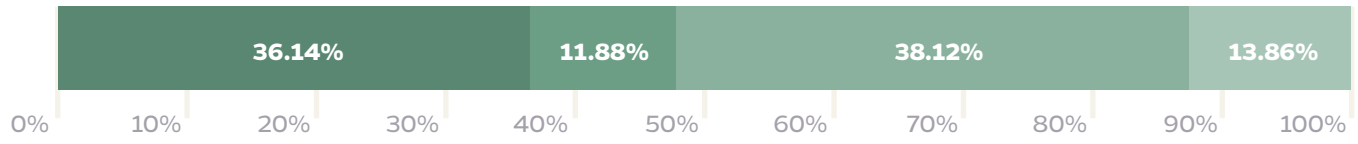


Figure 70. Problems encountered by respondents when using public transportation during the pandemic

- Social distance in vehicles is not respected
- I did not use public transportation during the pandemic
- I had no problems
- There was not enough public transport on a regular basis
- Too many passengers in vehicles
- Lack of public transport vehicles
- Regular disinfection of vehicles is not performed
- Other

The high percentage of those who observed social distancing issues (32.67%) can be closely related to the following two problems – irregular public transport services and crowded public transport vehicles.

Respondents' attitudes regarding the public transport responses to pandemic challenges. More than one third of respondents (38.12%) were partially satisfied with the response of public transport authorities and operators to the challenges of the pandemic, while a slightly smaller number of respondents (36.14%) were satisfied (Figure 71). A small number of respondents (11.88%) expressed dissatisfaction.



Respondents' general satisfaction with public transport responses to pandemic challenges

	Respondents' general satisfaction with public transport responses to pandemic challenges
Satisfied	73
Not satisfied	24
Partially satisfied	77
I dont know	28

Satisfied Not satisfied Partially satisfied I dont know

Figure 71. Respondents' satisfaction with the public transport responses to pandemic challenges

Respondents' attitudes regarding the level of information received during the pandemic regarding public transport. Most of respondents (44.06%) were satisfied with the level of received information related to public transport during the pandemic (Figure 72) while more than third of respondents (37.62%) were partially satisfied. On the other hand, a small number of respondents (18.32%) were dissatisfied with the information received.

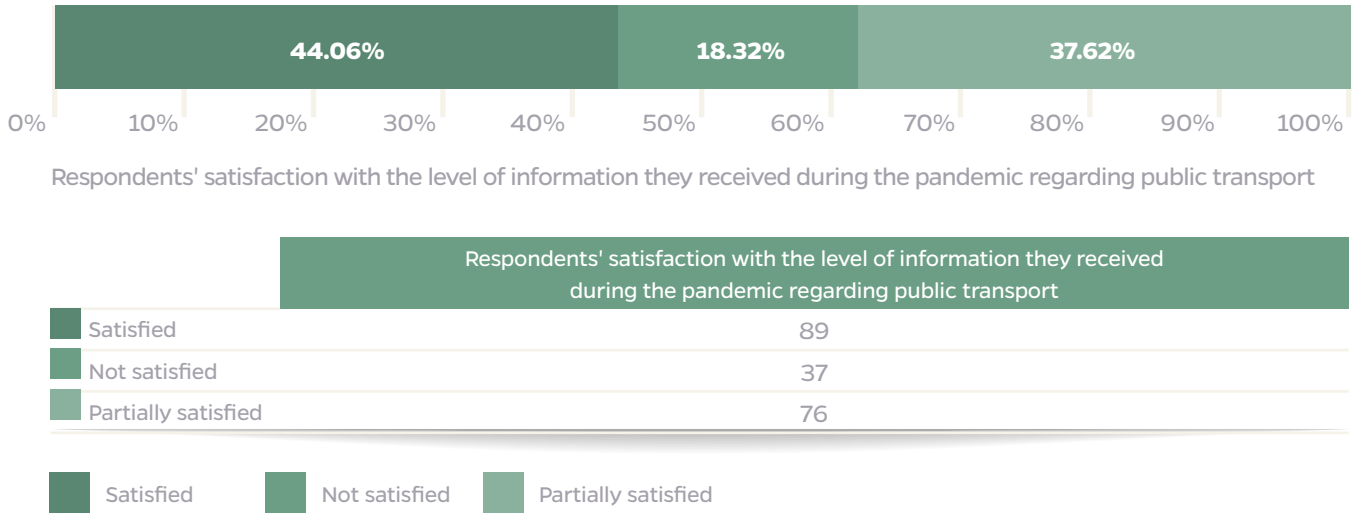


Figure 72. Respondents' satisfaction with the level of information they received during the pandemic regarding public transport

NORTH MACEDONIA

5.5 Survey of Public Transport Users – Detailed Results for North Macedonia

Summary of key survey results

1. The largest number of the respondents are employed persons (middle-aged group, i.e. between 36-55 years) and more than half are women.
2. The main reason for movement/travel during the pandemic for respondents was work (64.54%).
3. The largest number of respondents frequently used public transport before the pandemic (42.73%), followed by respondents who rarely used it (40.30%). However, the pandemic led to significant changes – the percentage of frequent public transport users decreased by almost three times – to only 15.75%, while on the other hand the percentage of respondents who did not use public transport during the pandemic exceeded half of the sample by increasing to 52.42%.
4. Before the pandemic, public transport was the most frequently used type of transport (37.88%), followed by private cars (33.03%). However, during the pandemic, private cars became the most preferred type of transport, and public transport fell to the second place (reduced by half compared to the pre-pandemic period). While people preferring walking increased to some extent (from 10.91% to 17.27%), those using bicycles or scooters increased almost insignificantly (from 12.12% to 13.64%).
5. The majority of respondents (62.16%) do not depend on public transport which is directly related to the fact that three quarters of respondents (75.58%) own private cars. However, a quarter of respondents depend on public transport (24.85%), while 13.03% of respondents do not depend on it, but prefer public transport because of the preservation of the environment.
6. The great majority of respondents (80.56%) stated that they did not use illegal transport before the pandemic, which increased to 87.46% during the pandemic. Only 4.08% used illegal transport before the pandemic, while that number was half as low during the pandemic.
7. Around a third of respondents (38.56%) stated that they will continue to use public transport after the pandemic as before, followed by 17.87% of respondents who will also use public transport, but less than before. A very small number of respondents plan to completely stop using public transport after the pandemic (3.76%).
8. For most respondents, environmental protection when choosing the means of transport is important (45.15%) or very important (41.69%). The vast majority of respondents (88.72%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (47.02% generally interested and 41.70% under the condition that adequate and secure infrastructure is built). Only 6.27% are not interested.
9. The majority of respondents (71.97%) do not feel safe in public transport during the pandemic, whereas 23.25% feel partially safe, and only 4.78% feel safe. More than half of respondents (53.82%) noticed frequent violations of epidemiological measures in public transport. 44.27% of respondents believe that vehicles are not disinfected regularly and thoroughly. More than a third of the respondents (34.40%) believe that drivers were not adequately protected. Around half of respondents (43.26%) think that public transport during the pandemic was not regular at all, compared to only 5.64% who believe that public transport was regular.
10. The vast majority (80.89%) believes that passenger protection measures in public transport need to be improved. Only 2.87% respondents are satisfied with the current measures.
11. Respondents are generally dissatisfied with either the way public transport authorities responded to the challenges of the pandemic, or the level of information they received during the pandemic. More than one third of respondents (36.62%) expressed dissatisfaction with the response of public transport authorities and operators to the challenges of the pandemic, while one quarter (25.16%) was partially satisfied. Only a small number (6.37%) expressed satisfaction. More than one third of respondents (39.49%) were dissatisfied with the level of received information related to public transport during the pandemic. However, a slightly larger number of respondents (44.27%) were partially satisfied and an additional small number (16.24%) satisfied with the information received – these two groups together exceed half of the surveyed sample and it is possible to conclude that public transport responded better to the challenges of the pandemic in terms of informing the population as opposed to protection measures that were insufficiently implemented/respected. Certainly, the large share of dissatisfied respondents (39.49%) indicates room for improvement in this field as well.

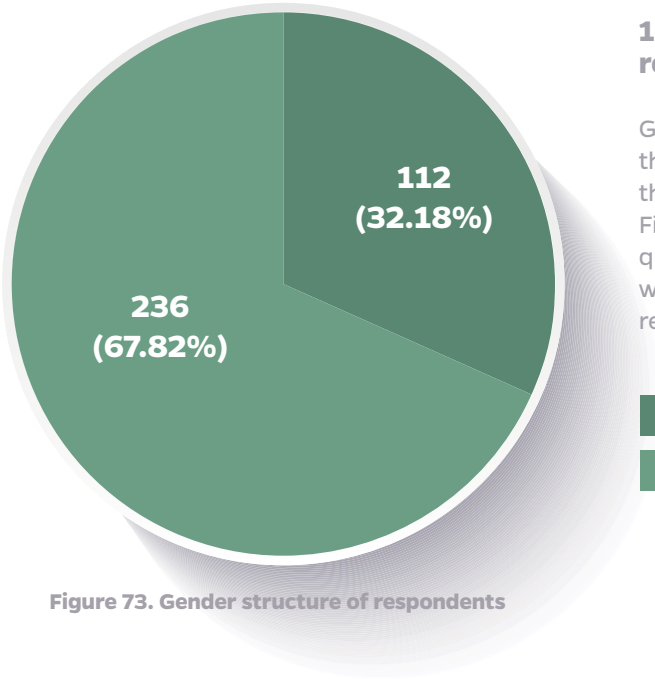


Figure 73. Gender structure of respondents

1. Socio-economic characteristics of the respondents

Gender. 112 men and 236 women participated in the survey. Therefore, women accounted for more than half (67.82%) of the sample size, as shown in Figure 73. Note: The number of respondents for each question may differ due to the fact that respondents were allowed to skip questions and therefore not all respondents answered each question.

Age groups. More than half of the respondents (53.45%) belong to the middle-aged group, i.e. between 36-55 years, followed by a younger age group made up of more than a third of respondents (38.5%). The least represented age group is the older age group, i.e. 56 years and older (8.05%), as shown in Figure 74.

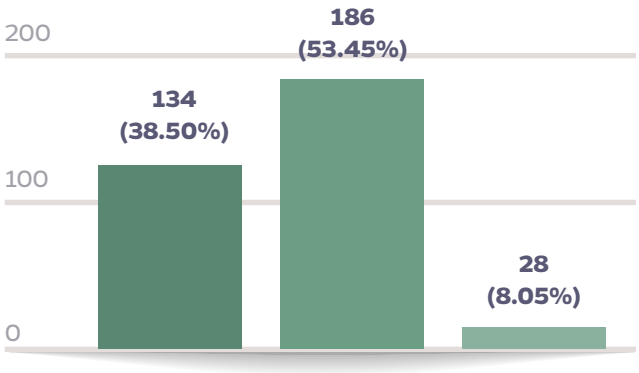


Figure 74. Age structure of respondents

Distribution of respondents by place/city of residence. Almost all respondents (93.10%) are from Skopje, which is also the capital and most populous city in North Macedonia. Other cities are listed sporadically.

Almost half of the respondents (47.99%) live in the outer city centre, while more than a third of the respondents (37.64%) live in the inner city centre (Figure 75). A very small number of respondents (8.62%) live in outskirts of the city or village/ settlement outside the urban zone (5.75%). The small proportion of respondents living in the last two categories may indicate long distances to work/ college that cause them to use other types of transport instead of public transport.

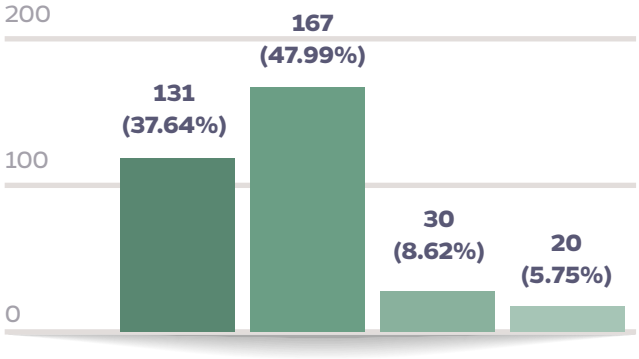


Figure 75. Location of respondents' residence

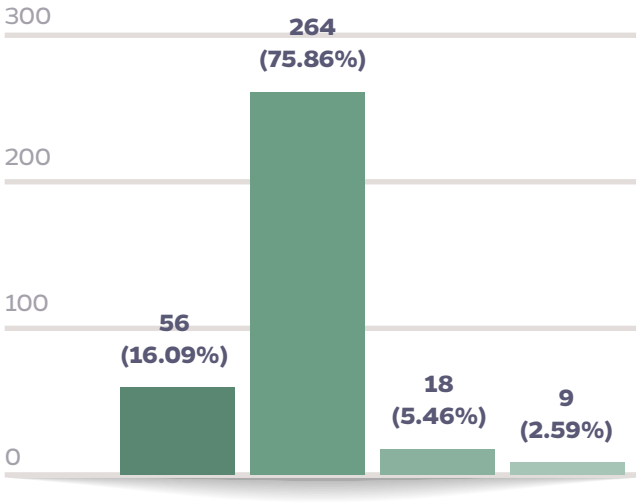


Figure 76. Respondents' employment status

Employment status. As shown in Figure 76, three quarters of respondents (75.86%) are employees, which makes up the majority in this sample, followed by students (16.09%). The least represented group are retired persons (2.59%). The presented results in combination with the previous answers indicate that public transport is mostly used by employees on their way to work, while a smaller number of respondents use public transport to college and for other purposes.

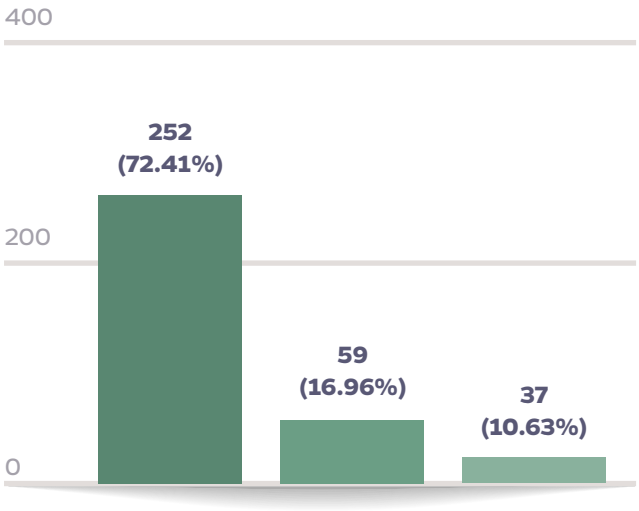


Figure 77. Financial situation of respondents

Financial status. Almost three quarters of respondents (72.41%) have sufficient income only for basic needs, a small number of respondents (16.96%) have a high level of income, and the smallest number of respondents (10.63%) do not have enough income even for basic needs (Figure 77). Comparing these results with the answers from the previous question related to the employment status, it can be concluded that the high share of respondents who have sufficient income only for basic needs is due to the high share of employees who completed this survey, while the low share of students and unemployed survey associated with a low proportion of respondents who do not have enough income even for basic needs.

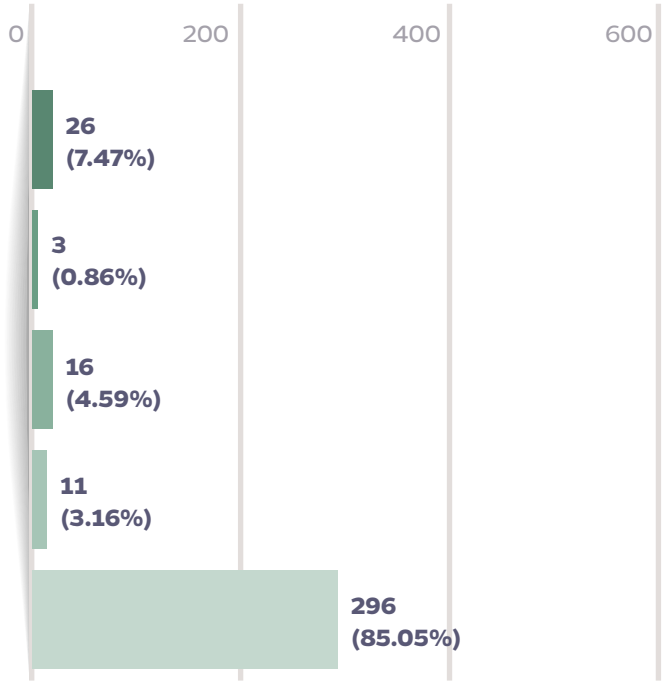


Figure 78. Respondents falling under vulnerable categories

Vulnerable groups. The majority of respondents (85.05%) believe that they do not belong to any vulnerable group. The vulnerable group with the most respondents is the group of chronically ill (7.47%), followed by mothers with small children (4.59%), as shown in Figure 78.

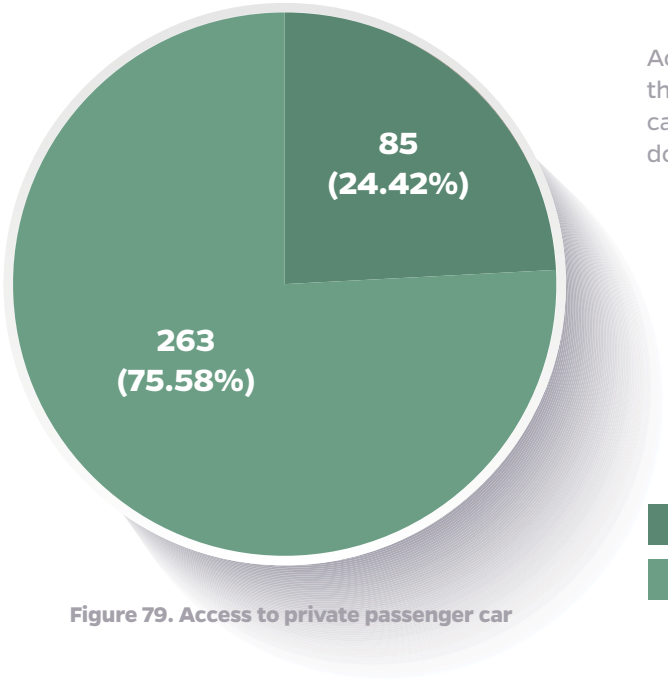


Figure 79. Access to private passenger car

Access to private passenger car. Figure 79 shows that three quarters (75.58%) of respondents own private cars, while about one quarter of respondents (24.24%) do not own them.

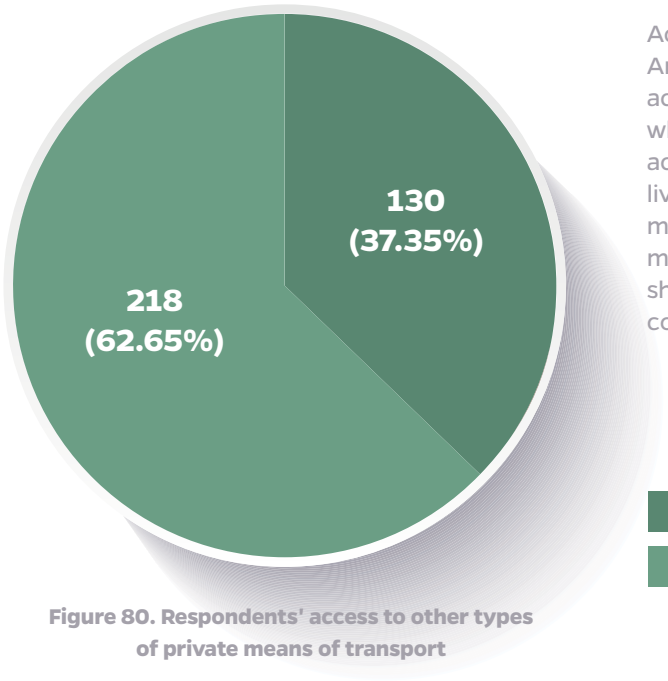


Figure 80. Respondents' access to other types of private means of transport

Access to other types of private means of transport. Around two thirds of respondents (63.65%) have access to other types of private means of transport, while more than one third (37.35%) do not have such access (Figure 80). A large number of respondents living in the inner or outer city centre (which together make up more than three quarters of respondents) may be a link to such responses due to the relatively short distance from home to their place of work/ college.

2. Use of public transport before and during the pandemic

Frequency of public transport use. Respondents were asked how often they used public transport before the pandemic and during the pandemic. The largest number of respondents frequently used public transport before the pandemic (42.73%), followed by respondents who rarely used it (40.30%). Only 16.97% of respondents had never used public transportation before the pandemic. Significant changes were recorded during the pandemic – the percentage of frequent public transport users decreased by almost three times - to only 15.75%, while on the other hand the percentage of respondents who did not use public transport during the pandemic exceeded half of the sample and increased to 52.42%.

	Frequency of public transport use before the pandemic	Frequency of public transport use during the pandemic
Frequently	42.73%	15.75%
Rarely	40.30%	31.83%
Never	16.97%	52.42%

Table 10: Frequency of public transport use before and during the pandemic

Most used types of transport. Before the pandemic, public transport was the most frequently used type of transport (37.88%), followed by private cars (33.03%). However, during the pandemic, private cars were the most preferred type of transport (44.24%), while the second most preferred type was public transport (18.48%) – which means that the use of public transport was halved compared to the pre-pandemic period. Walking increased from 10.91% to 17.27%. Using bicycles or scooters only slightly increased (from 12.12% before to 13.64% during the pandemic).

	Most used type of transport before the pandemic	Most used type of transport during the pandemic
Public transport	37.88%	18.48%
Private car	33.03%	44.24%
Taxi	3.64%	4.85%
Bicycle or scooter	12.12%	13.64%
Walking	10.91%	17.27%
Other	2.42%	1.52%

Table 11: Most used types of transport before and during the pandemic

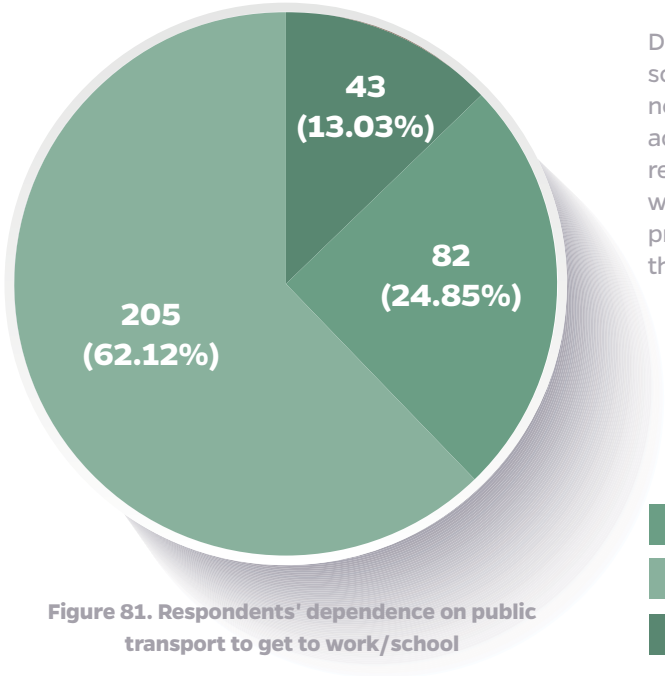


Figure 81. Respondents' dependence on public transport to get to work/school

Dependence on public transport to get to work/school. The majority of respondents (62.12%) do not depend on public transport because they have access to other types of mobility. One quarter of respondents depend on public transport (24.85%) while 13.03% of respondents do not depend on, but prefer public transport because of the preservation of the environment (Figure 81).

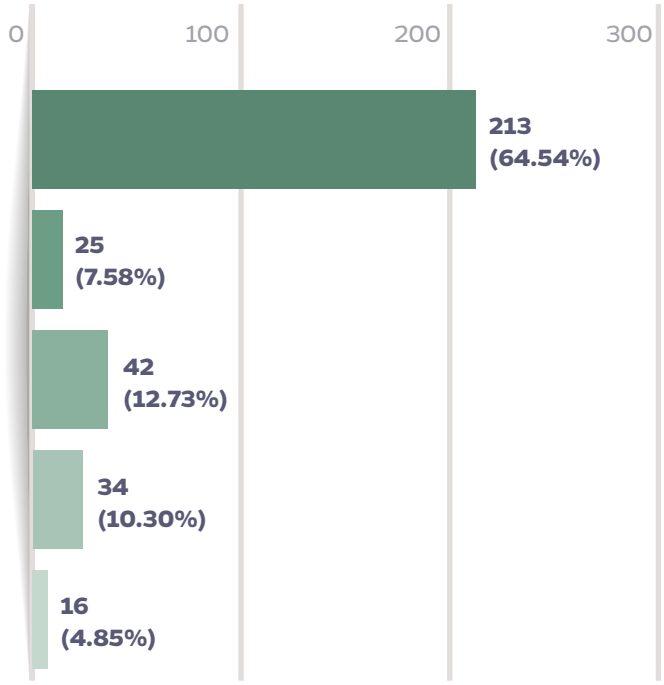


Figure 82. Respondents' main reason for moving/traveling during the pandemic

Reasons for moving/traveling during the pandemic. The main reason for movement/travel during the pandemic for respondents was work (64.54%). Among other reasons, no large differences in percentages were recorded, with shopping being the second most important reason (12.73%) (Figure 82).

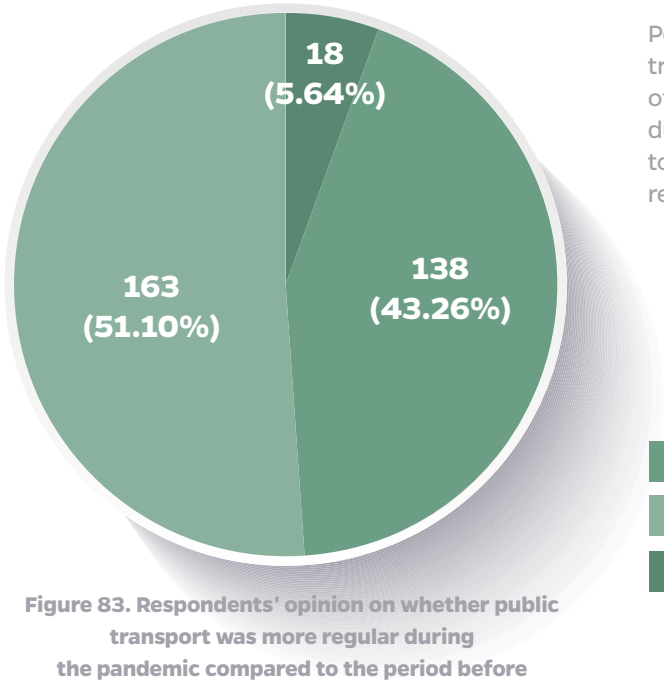


Figure 83. Respondents' opinion on whether public transport was more regular during the pandemic compared to the period before

Perception on the number of vehicles and public transport regularity during the pandemic. Around half of respondents (43.26%) think that public transport during the pandemic was not regular at all, compared to only 5.64% who believe that public transport was regular (Figure 83).

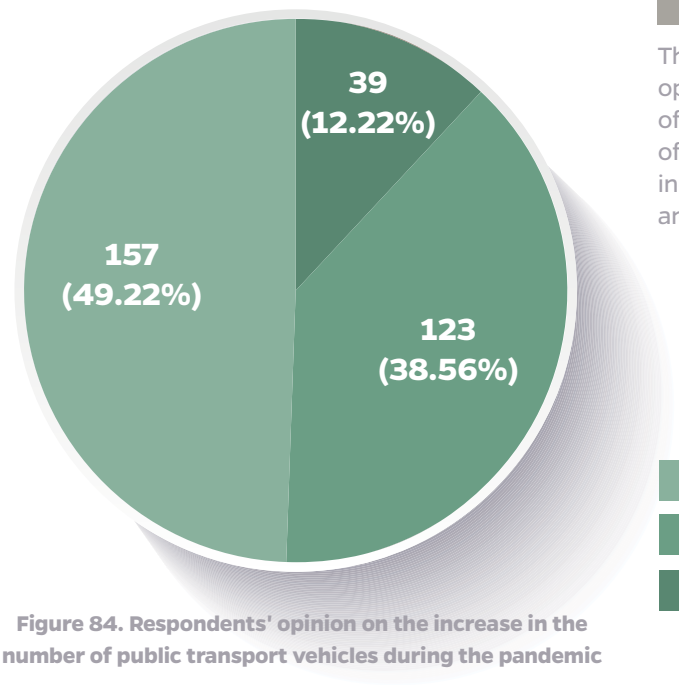


Figure 84. Respondents' opinion on the increase in the number of public transport vehicles during the pandemic

The situation is relatively similar when it comes to the opinion of respondents on the increase in the number of public transport vehicles during the pandemic – half of respondents (49.22%) believe that there was no increase, whereas only 12.22% believe that there was an increase (Figure 84).

Use of illegal transport (taxis and vans). The great majority of respondents (80.56%) stated that they did not use illegal transport before the pandemic, which increased to 87.46% during the pandemic. Only 4.08% used illegal transport before the pandemic, while that number was half as low during the pandemic (Table 12). The large number of respondents who did not use illegal transport before, and especially during the pandemic, can be associated with the large proportion of respondents who own personal cars as well as the large proportion of those who used personal cars, scooters or bicycles and walked during the pandemic. In general, only a small number of respondents (4.85%) used taxi as their main means of transportation during the pandemic.

	Use of illegal transport before the pandemic	Use of illegal transport during the pandemic
Yes	4.08%	2.19%
No	80.56%	87.46%
Sometimes	4.39%	2.51%
I don't know who is legal/illegal	10.97%	7.84%

Table 12: Respondents' use of illegal transport before and during the pandemic

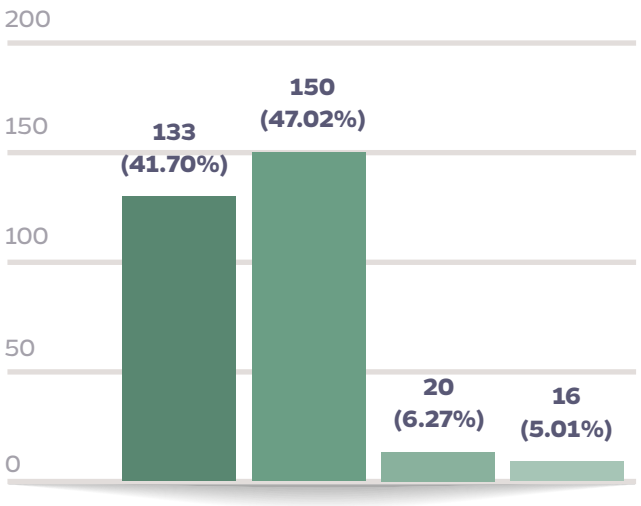


Figure 37. Respondents' interest in more frequent use of non-motorised types of movement

Interest in more frequent use of non-motorised types of mobility options. The vast majority of respondents (88.72%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (47.02% generally interested and 41.70% under the condition that adequate and secure infrastructure is built). Only 6.27% are not interested (Figure 85). Great interest in this issue (with a pronounced need to build adequate and secure infrastructure) can be associated with the large number of respondents (47.99%) living in the outer city centre and the large number of respondents (62.65%) who own other types private means of transportation.

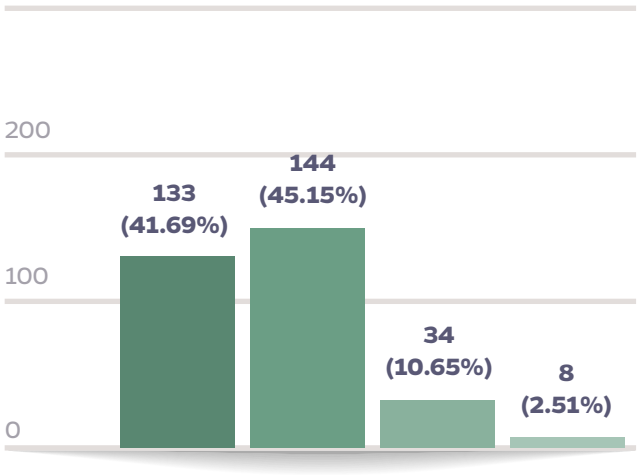


Figure 86. Respondents' answers on the importance of preserving the environment when choosing means of transport

Preservation of the environment. Environmental protection when choosing the means of transport is ranked as “Important” for almost half of the respondents (45.15%) and as “very important” for more than one third of the respondents (41.69%) (Figure 86).

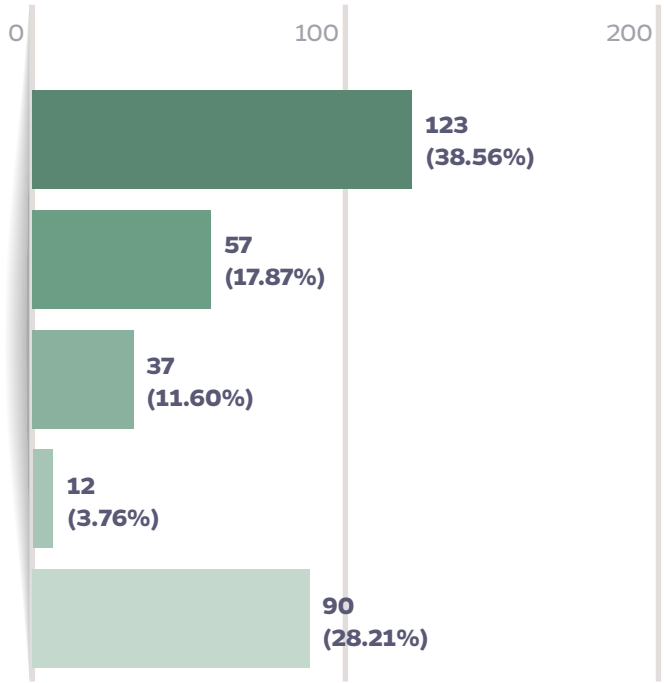


Figure 87. Respondents' opinion on the use of the public transport after pandemic

Use of public transport after the pandemic. Around a third of respondents (38.56%) stated that they will continue to use public transport after the pandemic as before, followed by 17.87% of respondents who will also use public transport, but less than before. Only 3.76% of respondents stated that they will not use it anymore (Figure 87). The high share of respondents who did not use public transport even before the pandemic (28.21%) is related to the high percentage of respondents who own private cars (75.58%) and who do not depend on public transport at all, because they have access to other modes of transport (62.12%).

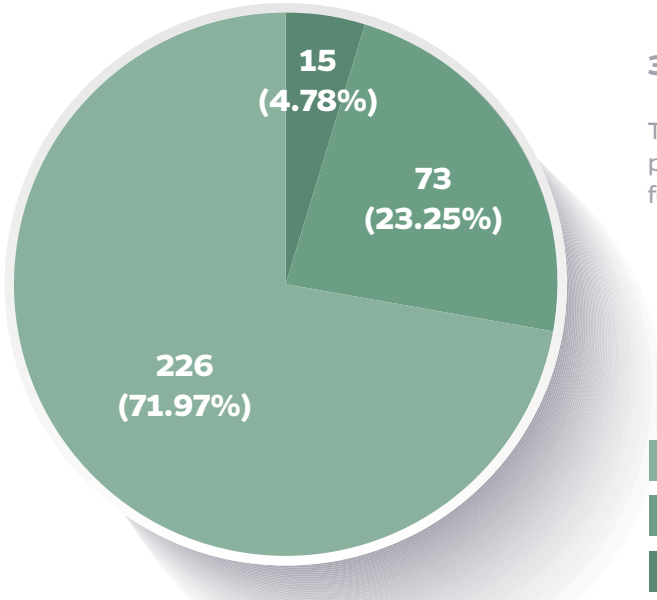


Figure 88. Respondents' answers to the question whether they feel safe in public transport in regard to the pandemic

3. Perceptions of safety in public transport

The majority of respondents (71.97%) do not feel safe in public transport during the pandemic, whereas 23.25% feel partially safe, and only 4.78% feel safe (Figure 88).

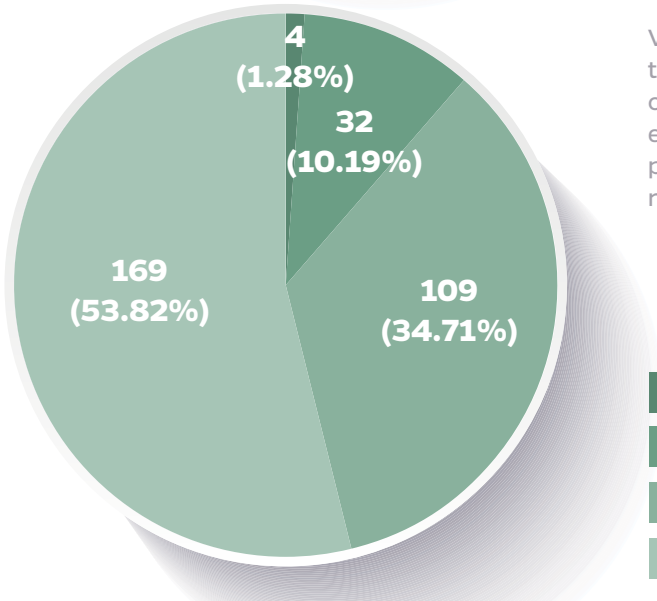


Figure 89. Observation of violations of epidemiological measures in public transport by respondents

Violation of epidemiological measures in public transport. Figure 89 shows the respondents' observations on the frequency of violations of epidemiological measures in public transport during the pandemic. More than half of the respondents (53.82%) noticed frequent violations of epidemiological measures.

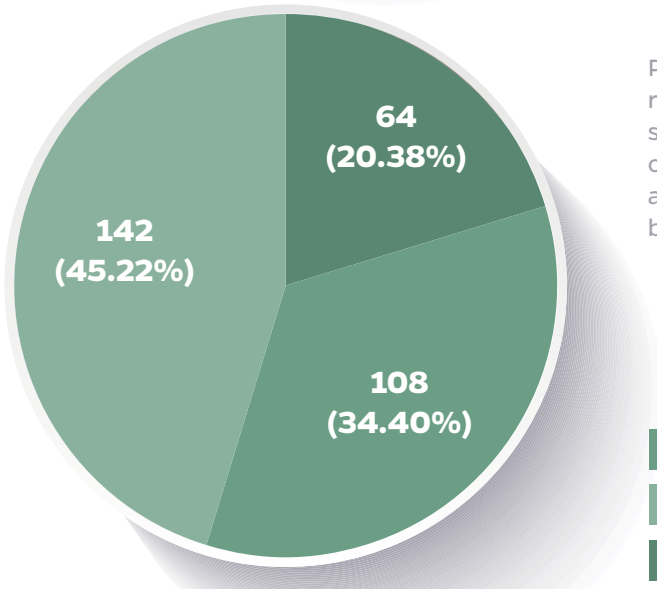


Figure 90. Respondents' opinions on whether the driving staff was adequately protected from potential contamination in the course of their work

Protection of driving staff. Almost half of the respondents (45.22%) do not know whether the driving staff was adequately protected, while more than a third of the respondents (34.40%) believe that they were not adequately protected, and 20.38% of the respondents believe otherwise (Figure 90).

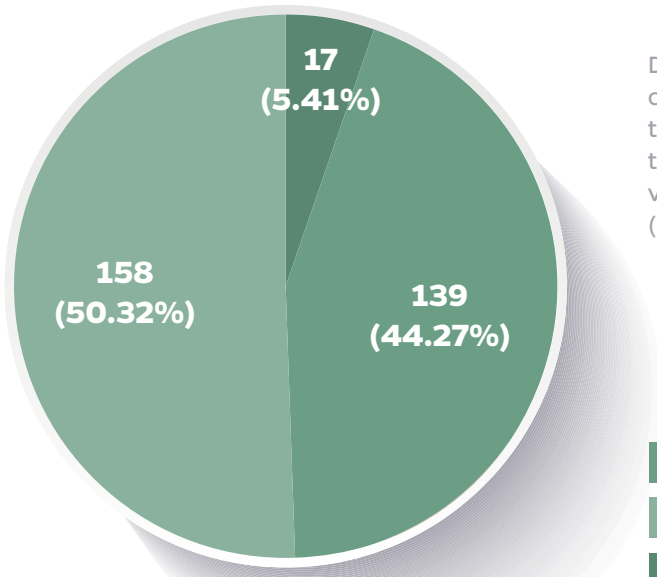


Figure 91. Respondents' opinions on whether public transport vehicles were disinfected regularly and thoroughly for the purpose of protection against infection

Disinfection of public transport vehicles. Around half of the respondents (50.32%) do not know if public transport vehicles are disinfected regularly and thoroughly, followed by 44.27% who believe that vehicles are not disinfected regularly and thoroughly (Figure 91).

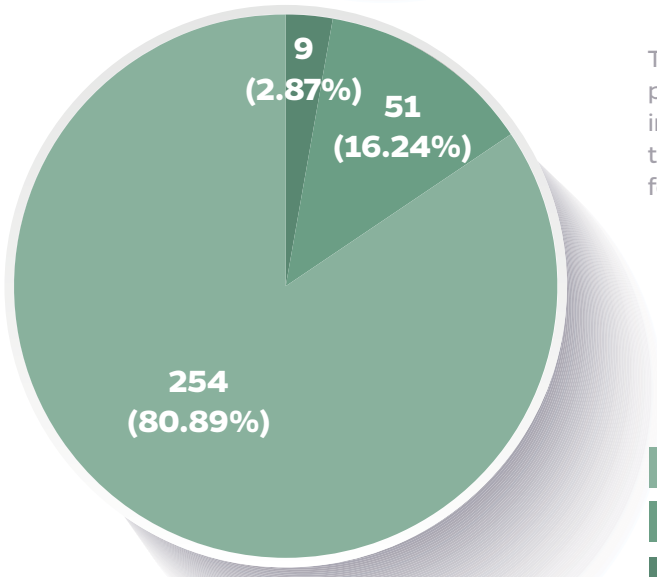


Figure 92. Respondents' opinion on the need to improve passenger protection measures in public transport

The vast majority (80.89%) believes that passenger protection measures in public transport need to be improved. Only 2.87% respondents are satisfied with the current measures and believe that there is no need for improvement (Figure 92).

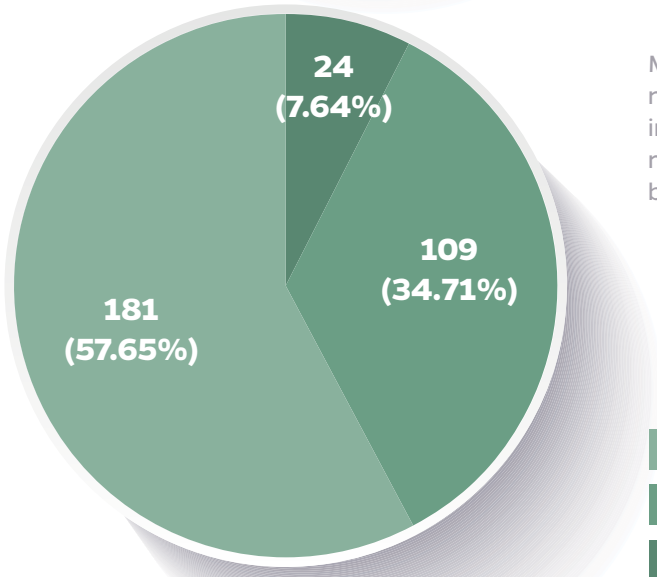


Figure 93. Respondents' opinion on whether adequate measures have been taken to protect vulnerable persons in public transport

More than half of the respondents (57.65%) believe that no measures were taken to protect vulnerable people in public transport during the pandemic, whereas a minority (7.64%) considers that such measures have been taken (Figure 93).

Encountered problems in public transport regarding the pandemic. The respondents selected the following three most common problems encountered in public transportation during the pandemic:

1. too many passengers in vehicles (35.35%),
2. social distance in vehicles was not respected (32.80%),
3. there was not enough public transport on a regular basis (20.7%).

Only 6.05% respondents did not experience any issues with public transport (Figure 94). Under the "other problems" category, respondents sporadically included some issues of which the most common complaint is not wearing protective masks.

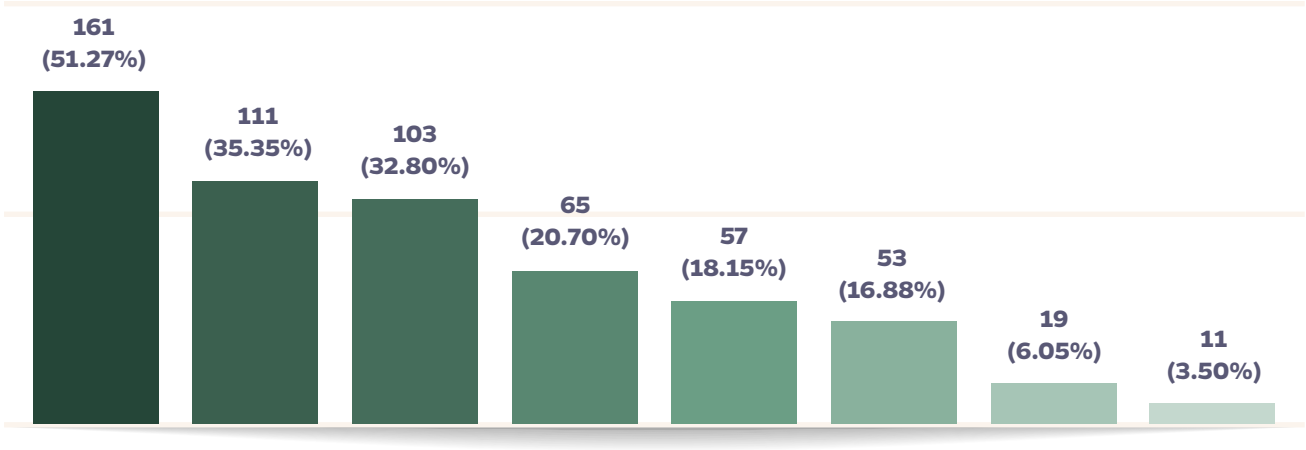
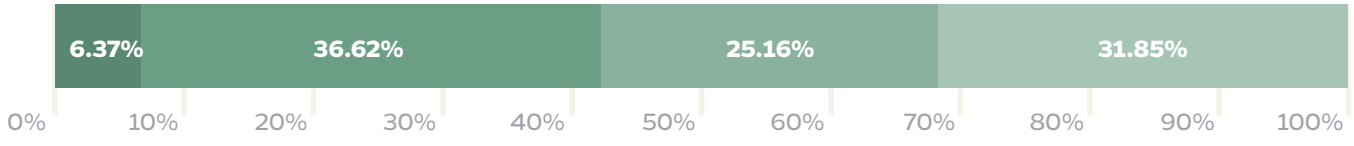


Figure 94. Problems encountered by respondents when using public transportation during the pandemic

I did not use public transportation during the pandemic
Too many passengers in vehicles
Social distance in vehicles is not respected
There was not enough public transport on a regular basis
Regular disinfection of vehicles is not performed
Lack of public transport vehicles
I had no problems
Other

The high percentage of respondents experiencing problems with the use of public transport during the pandemic combined with the relatively high percentage of negative statements (in previous answers) regarding regular and thorough disinfection of public transport vehicles and protection of vulnerable people and work staff, indicate that the majority of public transport users are not satisfied with the services offered and believe that improvements are necessary. On the other hand, a high percentage of respondents who did not use public transport during the pandemic (51.27%) is directly related to a high number of respondents (50.32%) who do not know whether public transport vehicles are regularly and thoroughly disinfected during the pandemic and a high number of respondents using private car or other means of transportation.

Respondents' attitudes regarding the public transport responses to pandemic challenges. More than one third of respondents (36.62%) expressed dissatisfaction with the response of public transport authorities and operators to the challenges of the pandemic, while one quarter of respondents (25.16%) were partially satisfied (Figure 95). Only a small number of respondents (6.37%) expressed satisfaction. The high percentage of respondents (31.85%) who do not know whether they are satisfied can be related to the high percentage of those who generally did not use public transport during the pandemic.



Respondents' general satisfaction with public transport responses to pandemic challenges

	Respondents' general satisfaction with public transport responses to pandemic challenges
Satisfied	20
Not satisfied	115
Partially satisfied	79
I dont know	100

Satisfied
Not satisfied
Partially satisfied
I dont know

Figure 95. Respondents' satisfaction with the public transport responses to pandemic challenges

Respondents' attitudes regarding the level of information received during the pandemic regarding public transport. More than one third of respondents (39.49%) were dissatisfied with the level of received information related to public transport during the pandemic (Figure 96). However, a slightly larger number of respondents (44.27%) were partially satisfied and an additional small number (16.24%) satisfied with the information received.

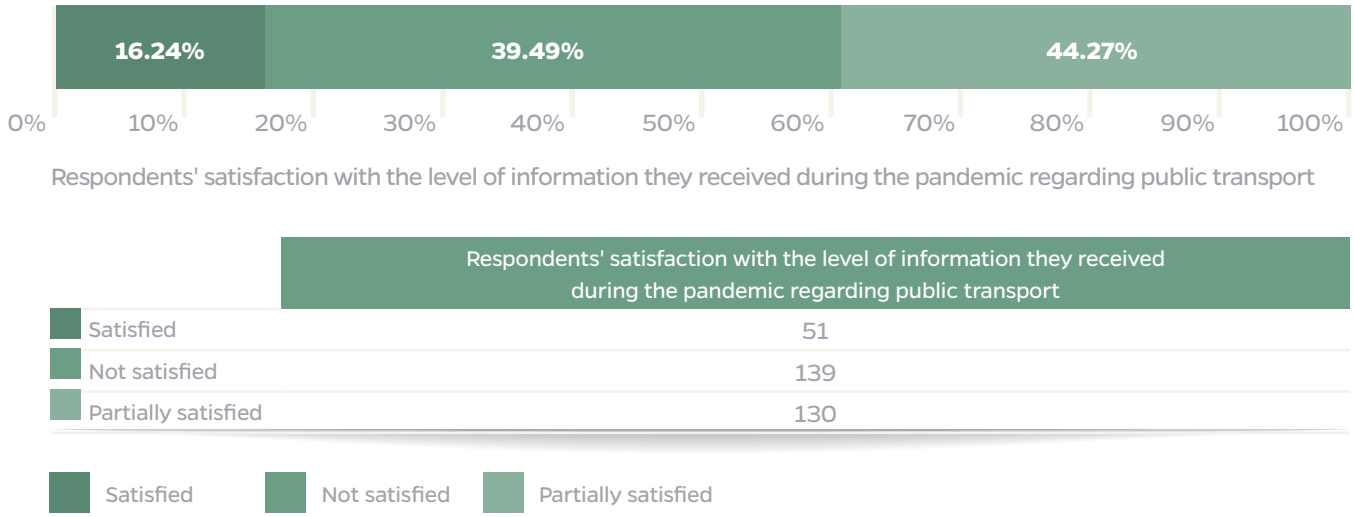


Figure 96. Respondents' satisfaction with the level of information they received during the pandemic regarding public transport

SERBIA

5.6 Survey of Public Transport Users – Detailed Results for Serbia

Summary of key survey results

1. The vast majority of respondents are employed persons (middle-aged group, i.e. between 36-55 years) and more than two thirds are women.
2. The main reason for movement/travel during the pandemic for respondents was work (67.83%).
3. More than a half of respondents frequently used public transport before the pandemic (53.85%), followed by more than one third of respondents who rarely used it (37.06%). Only 9.09% of respondents had never used public transportation before the pandemic. Significant changes were recorded during the pandemic – the percentage of frequent public transport users decreased by more than twice - to only 22.38%, while on the other hand the percentage of respondents who did not use public transport during the pandemic exceeded one third of respondents and increased to 36.71%.
4. Before the pandemic, public transport was the most frequently used type of transport (54.55%), followed by private cars (33.22%). However, during the pandemic, private cars became the most preferred type of transport, and public transport fell to the second place (reduced by more than half compared to the pre-pandemic period). While people preferring walking increased to some extent (from 7.34% to 15.03%), those using bicycles or scooters increased almost insignificantly (from 2.10% to 3.50%).
5. More than half of respondents (53.85%) do not depend on public transport, which may be directly related to the fact that more than two thirds of respondents (69.39%) own private cars. However, one third of respondents depend on public transport (34.62%), while 11.53% of respondents do not depend on it, but prefer public transport because of the preservation of the environment.
6. The majority of respondents (60.00%) stated that they did not use illegal transport before the pandemic, which increased to 67.14% during the pandemic. Only 8.93% used illegal transport before, while that number decreased to 6.43% during the pandemic.
7. Almost half of respondents (48.21%) stated that they will continue to use public transport after the pandemic as before, followed by 20.36% of respondents who will also use public transport, but less than before. A very small number of respondents plan to completely stop using public transport after the pandemic (3.93%).
8. For most respondents, environmental protection when choosing the means of transport is important (45.00%) or very important (33.93%). The vast majority of respondents (86.07%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (48.57% under the condition that adequate and secure infrastructure is built and 37.50% generally interested). Only about every tenth person (9.29%) is not interested.
9. More than half of the respondents (52.19%) do not feel safe in public transport during the pandemic, whereas 37.23% feel partially safe, and only 10.58% feel safe. Slightly less than two thirds of respondents (62.04%) noticed frequent violations of epidemiological measures in public transport. More than half of respondents (54.74%) believe that vehicles are not disinfected regularly and thoroughly, and also half of them (49.64%) believe that drivers were not adequately protected. Around half (47.14%) thinks that public transport during the pandemic was not regular at all, compared to only 6.07% who believe otherwise.
10. The vast majority (75.55%) believes that passenger protection measures in public transport need to be improved. Only 8.39% respondents are satisfied with the current measures and believe that there is no need for improvement.
11. Respondents are generally dissatisfied (39.42%) or only partially satisfied (32.12%) with the way public transport authorities responded to the challenges of the pandemic. Only a small number of respondents (6.57%) expressed complete satisfaction. Similarly, almost half of respondents (46.35%) are dissatisfied with the level of received information related to public transport during the pandemic. Slightly more than one third of respondents (34.31%) were partially satisfied, and an additional small number (19.34%) satisfied with the information received.

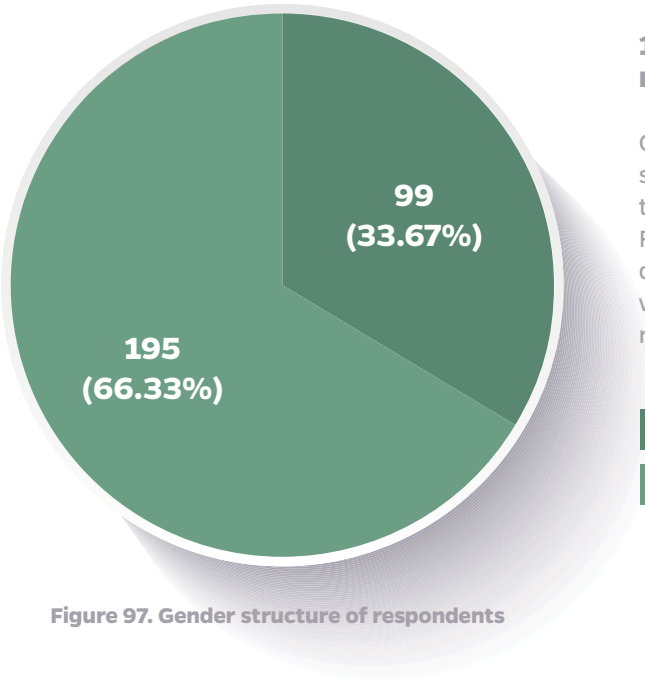


Figure 97. Gender structure of respondents

1. Socio-economic characteristics of the respondents

Gender. 99 men and 195 women participated in the survey. Therefore, women accounted for more than two thirds (66.33%) of the sample size, as shown in Figure 97. Note: The number of respondents for each question may differ due to the fact that respondents were allowed to skip questions and therefore not all respondents answered each question.

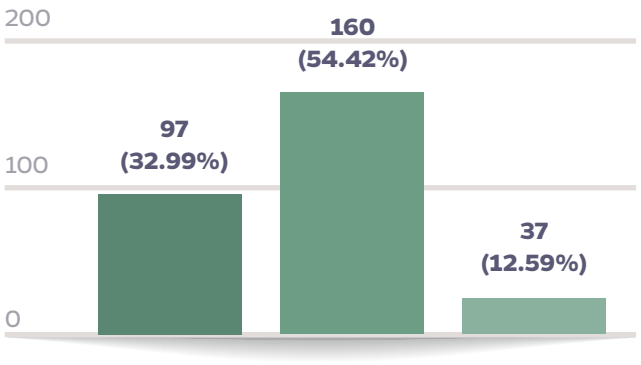


Figure 98. Age structure of respondents

Age groups. More than half of the respondents (54.42%) belong to the middle-aged group, i.e. between 36-55 years, followed by the younger age group made up of a third of respondents (32.99%). The least represented age group is the older age group, i.e., 56 years and older (12.59%), as shown in Figure 98.

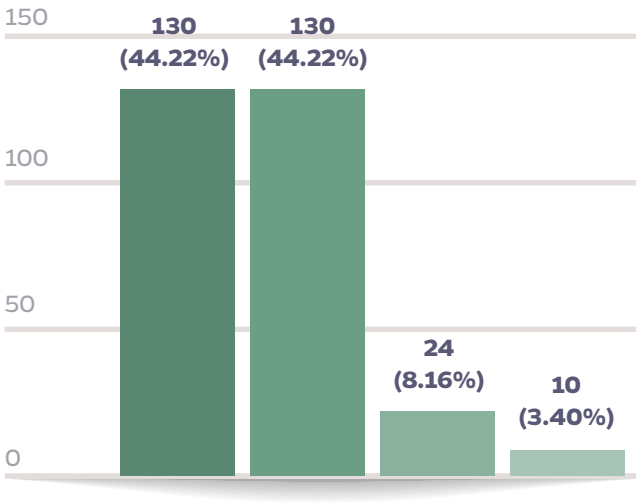


Figure 99. Location of respondents' residence

Distribution of respondents by place/city of residence. More than three quarters of respondents (77.89%) are from Belgrade, which is also the capital and most populous city in Serbia, followed by respondents from Novi Sad (10.20%) and Užice (1.02%). Other cities are listed sporadically.

Slightly less than half of the respondents (44.22%) live in the inner city centre and the same number also lives in the outer city centre (Figure 99). A smaller number of respondents live in the city outskirts (8.16%) while the smallest number lives in villages/settlements outside the urban zone (3.40%).

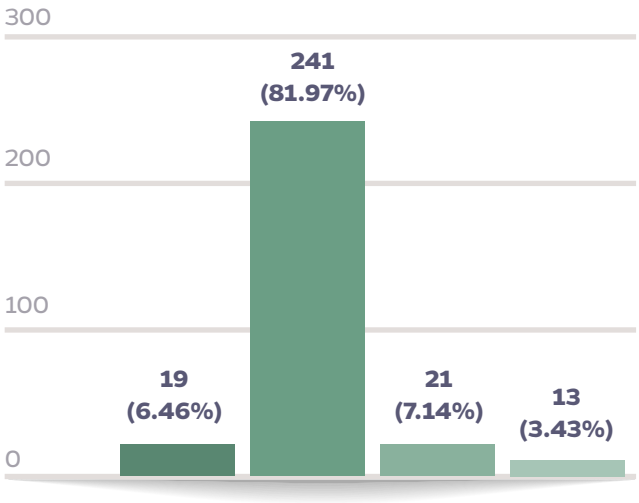


Figure 100. Respondents' employment status

Employment status. As shown in Figure 100, the vast majority of respondents (81.97%) are employed persons, followed by unemployed respondents (7.14%) and college students (6.46%). The least represented group are retired persons (4.43%). The presented results in combination with the previous answers indicate that public transport is mostly used by employees on their way to work, while a smaller number of respondents use public transport to college and for other purposes.

Student
Unemployed
Employed
Pensioner

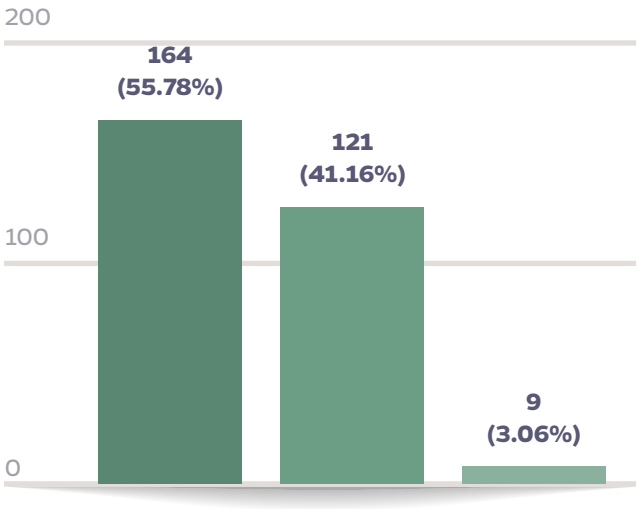


Figure 101. Financial situation of respondents

Financial status. More than half of the respondents (55.78%) have sufficient income only for basic needs, followed by respondents (41.16%) who have a high level of income. A small number of respondents (3.06%) do not have enough income even for basic needs (Figure 101). Comparing these results with the answers from the previous question related to employment status, it may be concluded that the high share of respondents who have a sufficient or high level of income corresponds to the high share of employees who completed this survey, while the low share of students and unemployed persons is associated with the low proportion of respondents who do not have enough income even for basic needs.

I have enough income only for basic needs
I have high level of income
I don't have enough income even for basic needs

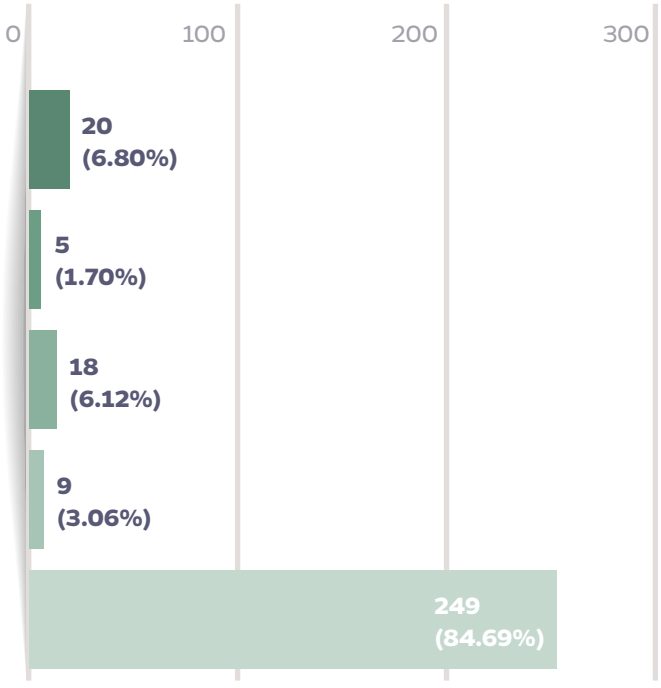


Figure 102. Respondents falling under vulnerable categories

Vulnerable groups. The majority of respondents (84.69%) believe that they do not belong to any vulnerable group. The vulnerable group with the most respondents is the group of chronically ill (6.80%), followed by mothers with small children (6.12%), as shown in Figure 102.

Yes, chronically ill
Yes, a person with mobility difficulties
Yes, mother with small children
Other
No

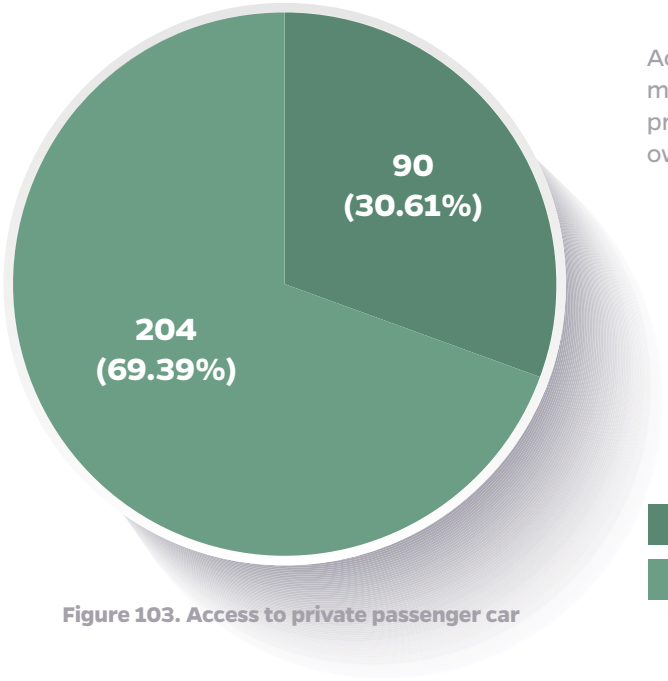


Figure 103. Access to private passenger car

Access to private passenger car. Figure 103 shows that more than three thirds (69.39%) of respondents own private cars, while less than one third (30.61%) do not own them.

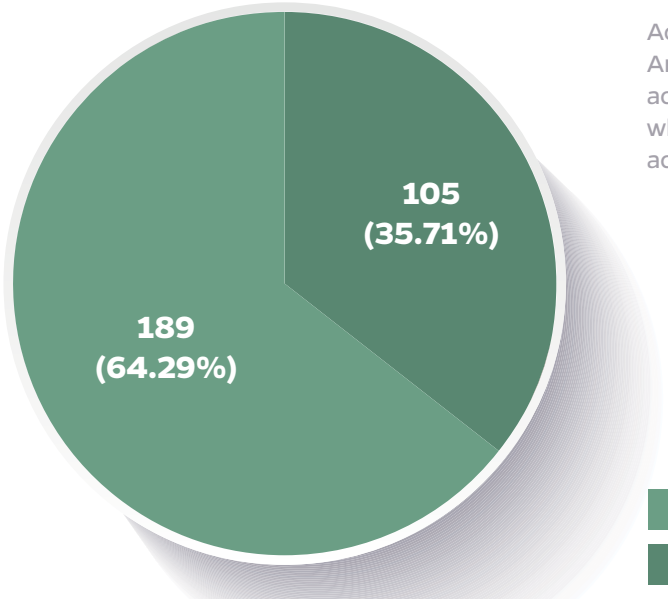


Figure 104. Respondents' access to other types of private means of transport

Access to other types of private means of transport. Around two thirds of respondents (64.29%) have access to other types of private means of transport, while more than one third (35.71%) do not have such access (Figure 104).

2. Use of public transport before and during the pandemic

Frequency of public transport use. Respondents were asked how often they used public transport before the pandemic and during the pandemic. More than half of respondents frequently used public transport before the pandemic (53.85%), followed by more than one third of respondents who rarely used it (37.06%). Only 9.09% of respondents had never used public transportation before the pandemic. Significant changes were recorded during the pandemic – the percentage of frequent public transport users decreased by more than twice – to only 22.38%, while on the other hand the percentage of respondents who did not use public transport during the pandemic exceeded one third of respondents and increased to 36.71%. The number of respondents who rarely used public transport during the pandemic also increased to 40.91%.

	Frequency of public transport use before the pandemic	Frequency of public transport use during the pandemic
Frequently	53.85%	22.38%
Rarely	37.06%	40.91%
Never	9.09%	36.71%

Table 13: Frequency of public transport use before and during the pandemic

Most used types of transport. Before the pandemic, public transport was the most frequently used type of transport (54.55%), followed by private cars (33.22%). However, during the pandemic, private cars were the most preferred type of transport (46.85%), and public transport fell to the second place (23.78%) – which means that the use of public transport was more than halved compared to the pre-pandemic period. Walking increased twice as much as before the pandemic (from 7.34% to 15.03%). There has also been an insignificant increase in the use of bicycles and scooters during the pandemic compared to the period before.

	Most used type of transport before the pandemic	Most used type of transport during the pandemic
Public transport	54.55%	23.78%
Private car	33.22%	46.85%
Taxi	2.45%	7.34%
Bicycle or scooter	2.10%	3.50%
Walking	7.34%	15.03%
Other	0.34%	3.50%

Table 14: Most used types of transport before and during the pandemic

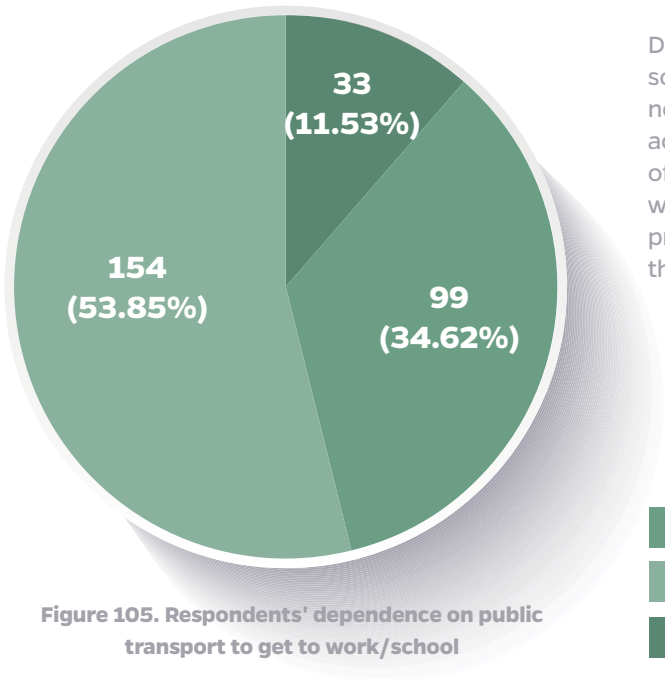


Figure 105. Respondents' dependence on public transport to get to work/school

Dependence on public transport to get to work/school. More than half of respondents (53.85%) do not depend on public transport because they have access to other types of mobility. More than one third of respondents depend on public transport (34.62%), while 11.53% of respondents do not depend on it but prefer public transport because of the preservation of the environment (Figure 105).

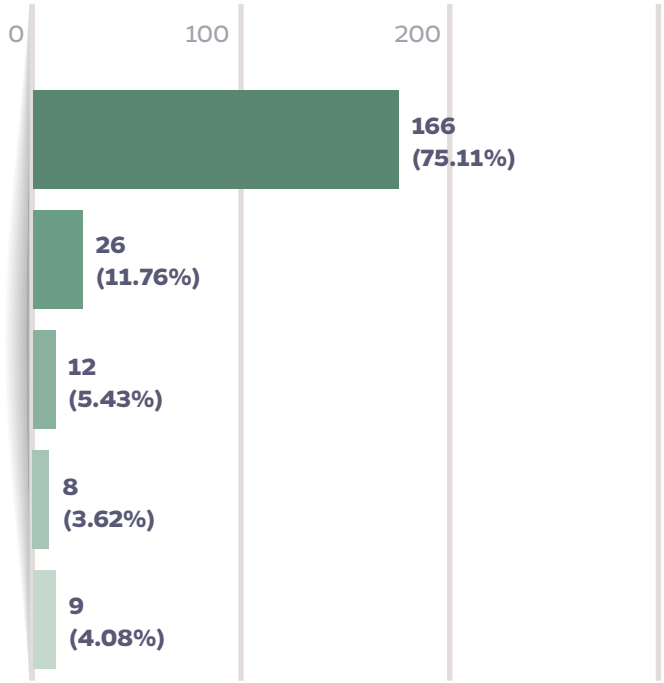


Figure 106. Respondents' main reason for moving/traveling during the pandemic

Reasons for moving/traveling during the pandemic. The main reason for movement/travel during the pandemic for respondents was work (67.83%). Among other reasons, no large differences in percentages were recorded, with health being the second most important reason (11.54%) (Figure 106). Within the category "Other", some of the reasons cited were leisure, entertainment, training, socialisation and other private reasons.

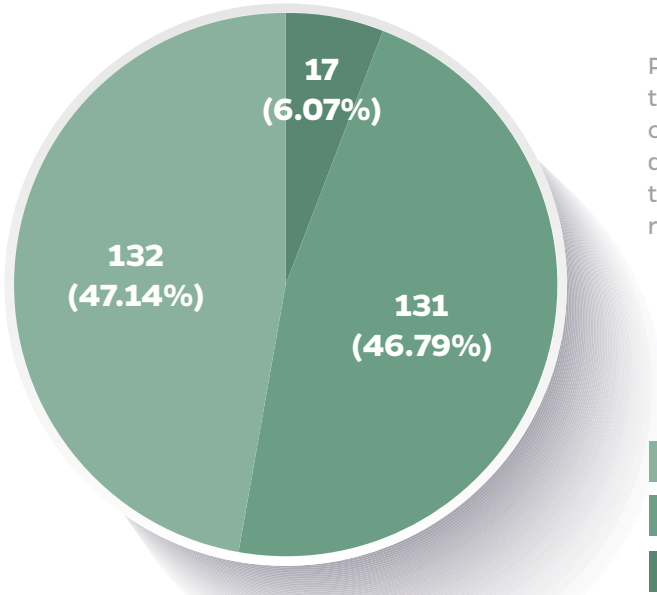


Figure 107. Respondents' opinion on whether public transport was more regular during the pandemic compared to the period before

Perception on the number of vehicles and public transport regularity during the pandemic. Around half of respondents (47.14%) believe that public transport during the pandemic was not regular at all, compared to only 6.07% who believe that public transport was regular (Figure 107).

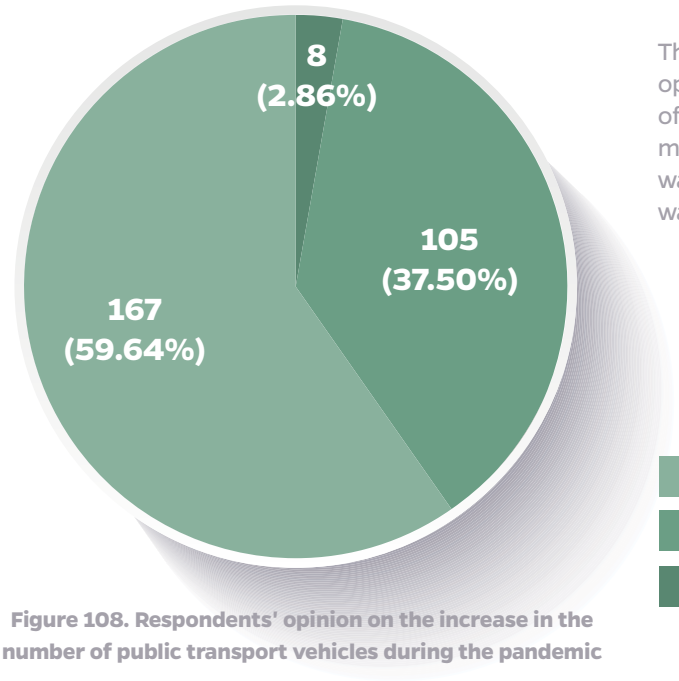


Figure 108. Respondents' opinion on the increase in the number of public transport vehicles during the pandemic

The situation is relatively similar when it comes to the opinion of respondents on the increase in the number of public transport vehicles during the pandemic – more than of respondents (59.64%) believe that there was no increase, whereas only 2.86% believe that there was an increase (Figure 108).

Use of illegal transport (taxis and vans). Slightly less than two thirds of respondents (60.00%) stated that they did not use illegal transport before the pandemic, which increased to 67.14% during the pandemic. Only 8.93% used illegal transport before the pandemic, and that number decreased to 6.43% during the pandemic (Table 15). The large number of respondents who did not use illegal transport before, and especially during the pandemic, can be associated with the large proportion of respondents who own personal cars (69.39%) as well as the large proportion of those who used personal cars (46.85%), scooters or bicycles and walked during the pandemic.

	Use of illegal transport before the pandemic	Use of illegal transport during the pandemic
Yes	8.93%	6.43%
No	60.00%	67.14%
Sometimes	10.71%	6.79%
I don't know who is legal/illegal	20.36%	19.64%

Table 15: Respondents' use of illegal transport before and during the pandemic

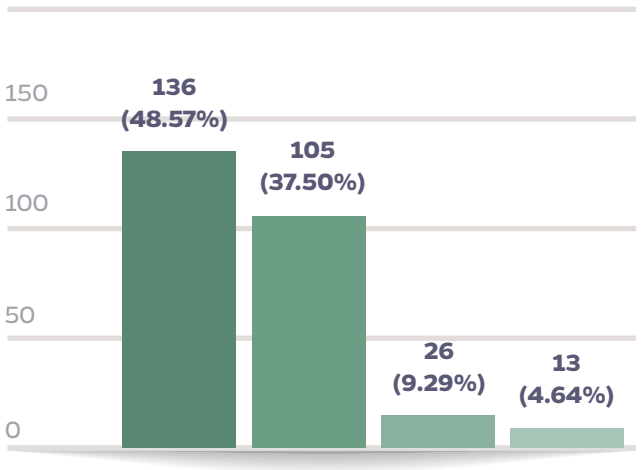


Figure 109. Respondents' interest in more frequent use of non-motorised types of movement

Interest in more frequent use of non-motorised types of mobility options. The vast majority of respondents (86.07%) are interested in more frequent use of non-motorised types of mobility options such as walking, bicycles, scooters, etc. (48.57% under the condition that adequate and secure infrastructure is built and 37.50% generally interested). Only 9.29% are not interested (Figure 109).

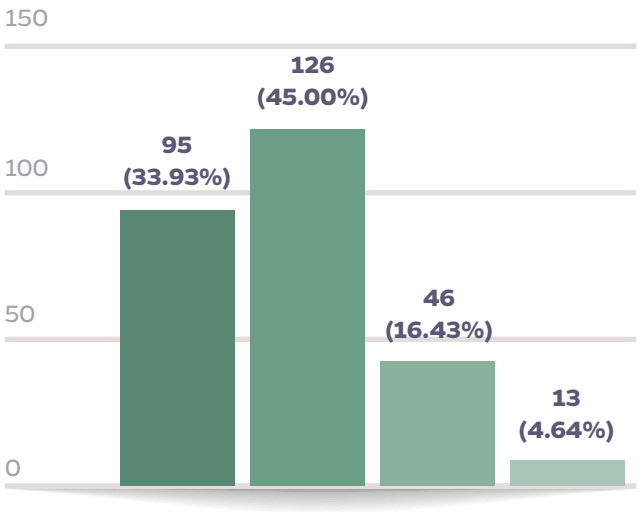


Figure 110. Respondents' answers on the importance of preserving the environment when choosing means of transport

Preservation of the environment. Environmental protection when choosing the means of transport is ranked as “Important” for almost half of the respondents (45.00%) and as “very important” for more than one third of the respondents (33.93%) (Figure 110).

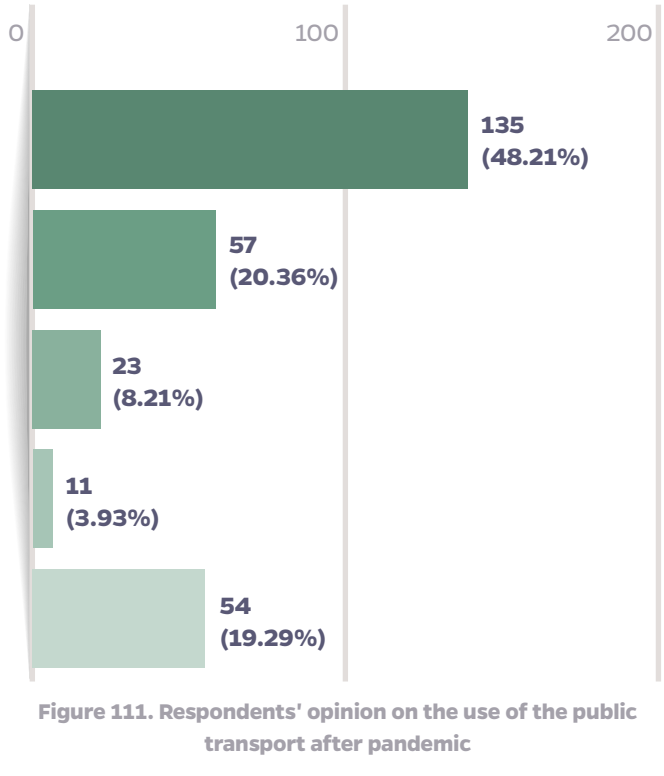


Figure 111. Respondents' opinion on the use of the public transport after pandemic

Use of public transport after the pandemic. Almost half of respondents (48.21%) stated that they will continue to use public transport after the pandemic as before, followed by 20.36% of respondents who will also use public transport, but less than before. Only 3.93% of respondents stated that they will not use it anymore (Figure 111). The third most represented group of respondents did not use public transport even before the pandemic (19.29%) may be related to the high percentage of respondents who own private cars (69.39%).

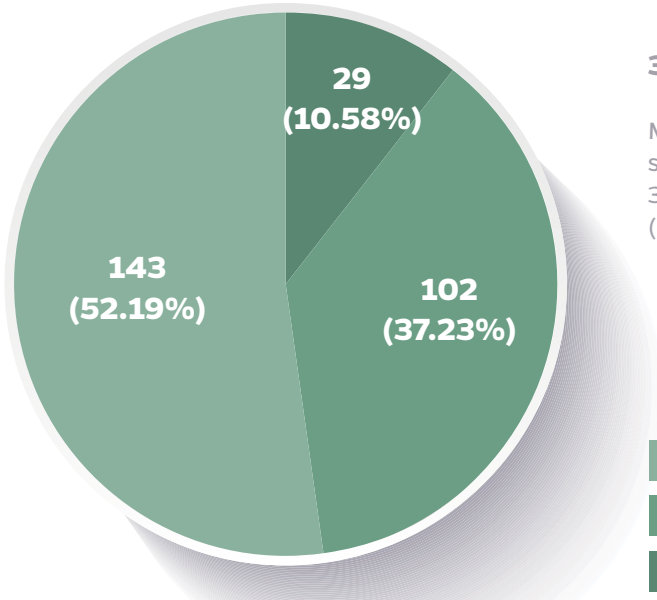


Figure 112. Respondents' answers to the question whether they feel safe in public transport in regard to the pandemic

3. Perceptions of safety in public transport

More than half of respondents (52.19%) do not feel safe in public transport during the pandemic, whereas 37.23% feel partially safe, and only 10.58% feel safe (Figure 112).

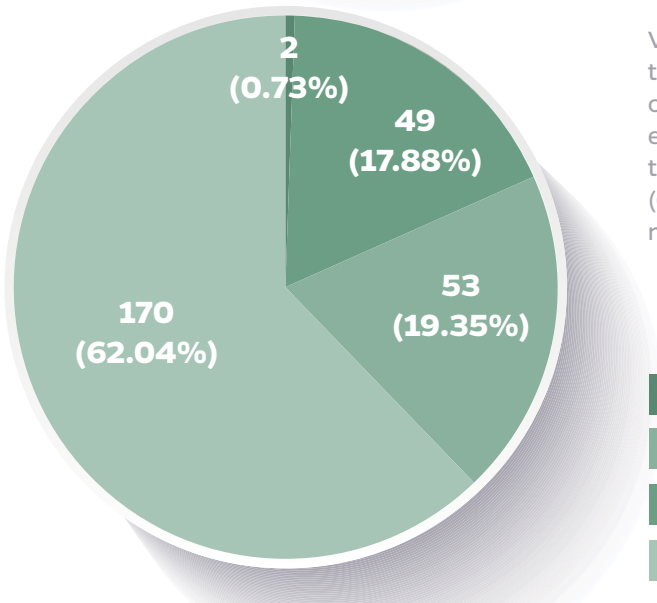


Figure 113. Observation of violations of epidemiological measures in public transport by respondents

Violation of epidemiological measures in public transport. Figure 113 shows the respondents' observations on the frequency of violations of epidemiological measures in public transport during the pandemic. Almost two thirds of the respondents (62.04%) noticed frequent violations of epidemiological measures.

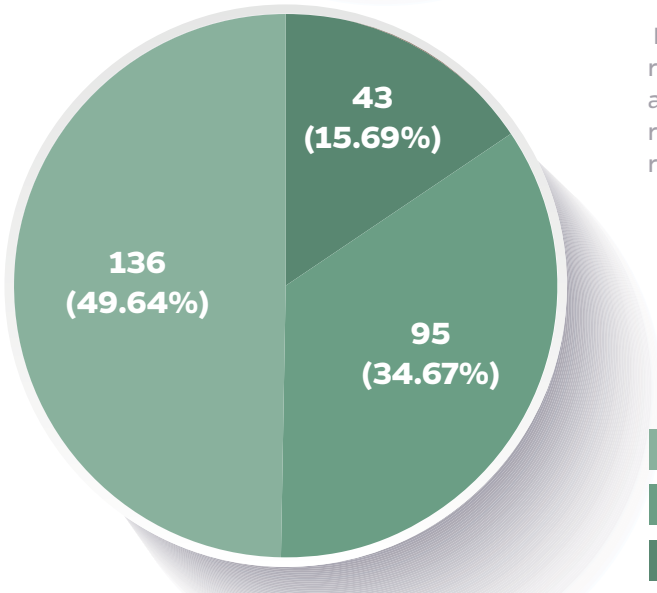


Figure 114. Respondents' opinions on whether the driving staff was adequately protected from potential contamination in the course of their work

Protection of driving staff. Almost half of the respondents (49.64%) believe that driving staff was not adequately protected, while more than a third of the respondents (34.67%) does not know, and 15.69% of the respondents believe otherwise (Figure 114).

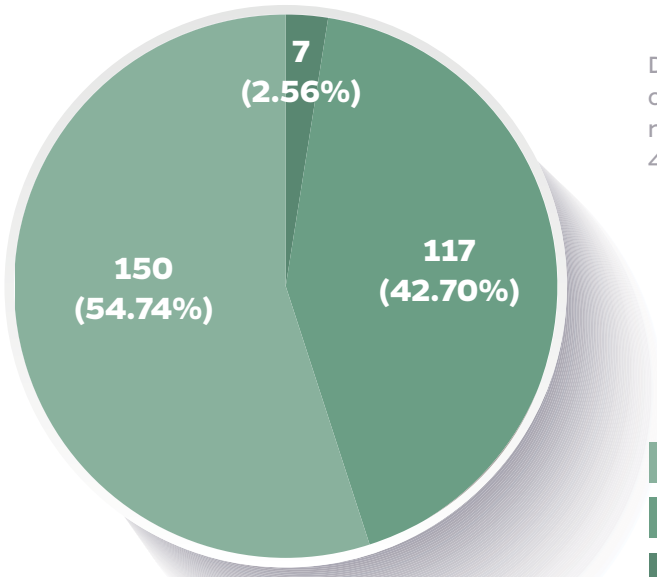


Figure 115. Respondents' opinions on whether public transport vehicles were disinfected regularly and thoroughly for the purpose of protection against infection

Disinfection of public transport vehicles. More than half of the respondents (54.74%) believe that vehicles are not disinfected regularly and thoroughly, followed by 42.70% who do not know (Figure 115).

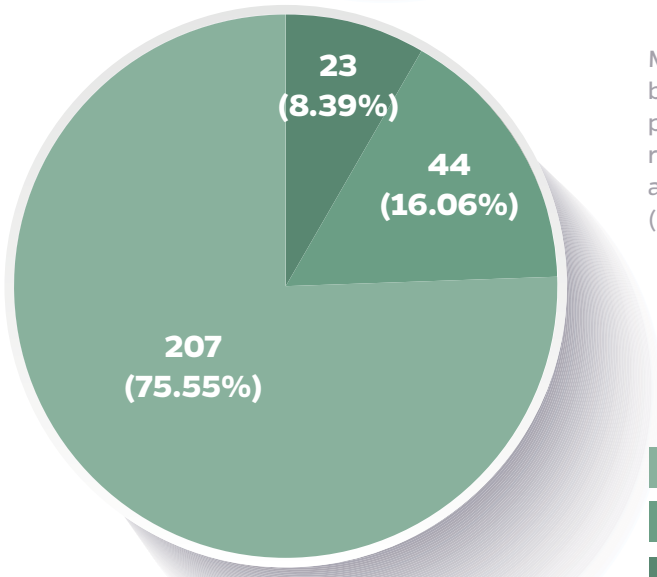


Figure 116. Respondents' opinion on the need to improve passenger protection measures in public transport

More than three quarters of respondents (75.55%) believe that passenger protection measures in public transport need to be improved. Only 8.39% respondents are satisfied with the current measures and believe that there is no need for improvement (Figure 116).

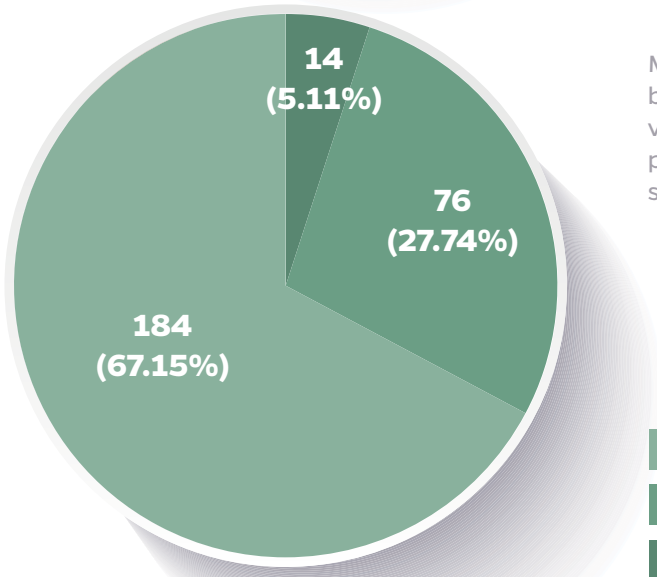


Figure 117. Respondents' opinion on whether adequate measures have been taken to protect vulnerable persons in public transport

More than two thirds of the respondents (67.15%) believe that no measures were taken to protect vulnerable people in public transport during the pandemic, whereas a minority (5.11%) considers that such measures have been taken (Figure 117).

Encountered problems in public transport regarding the pandemic. The respondents selected the following three most common problems encountered in public transportation during the pandemic:

1. too many passengers in vehicles (58.76%),
2. social distance in vehicles was not respected (44.53%),
3. there was not enough public transport on a regular basis (32.12%).

Only 3.28% respondents did not experience any issues with public transport (Figure 118). Under the "other problems" category, respondents sporadically included some issues such as non-wearing of masks by passengers and drivers, etc.

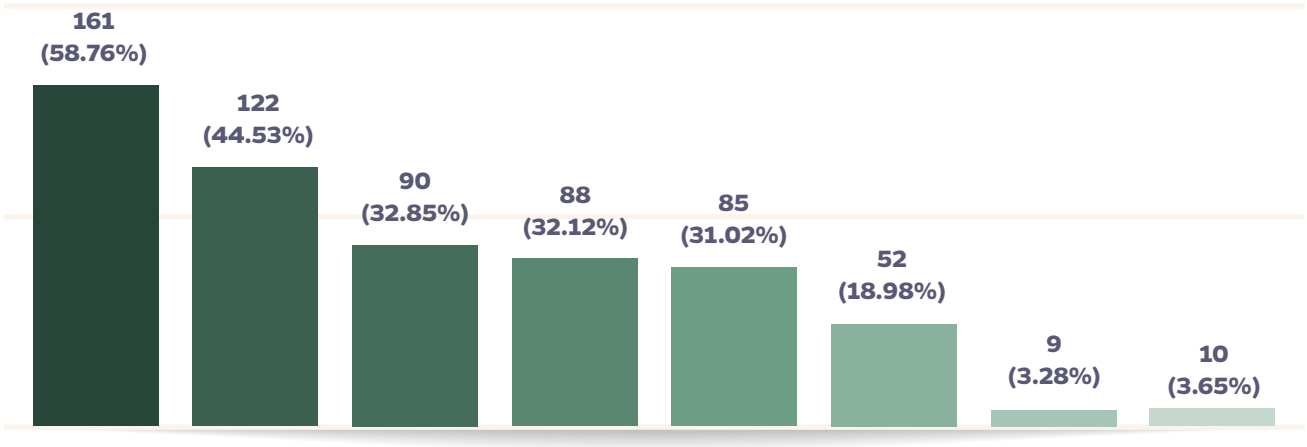
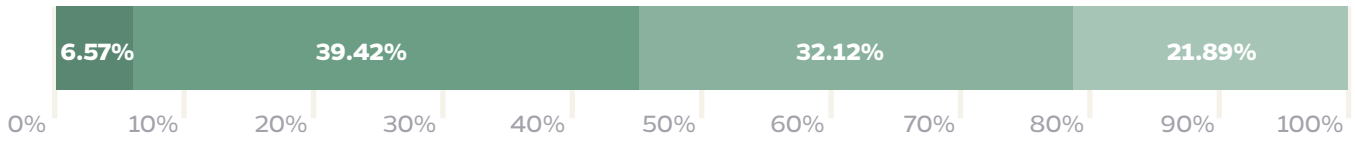


Figure 70. Problems encountered by respondents when using public transportation during the pandemic

- Too many passengers in vehicles
- Social distance in vehicles is not respected
- I did not use public transportation during the pandemic
- There was not enough public transport on a regular basis
- Regular disinfection of vehicles is not performed
- Lack of public transport vehicles
- I had no problems
- Other

The high percentage of respondents experiencing problems with the use of public transport during the pandemic combined with the relatively high percentage of negative statements (in previous answers) regarding regular and thorough disinfection of public transport vehicles and protection of vulnerable people and work staff, indicate that the majority of public transport users are not satisfied with the services offered and believe that improvements are necessary.

Respondents' attitudes regarding the public transport responses to pandemic challenges. More than one third of respondents (39.42%) expressed dissatisfaction with the response of public transport authorities and operators to the challenges of the pandemic, while slightly less than one third of respondents (32.12%) were partially satisfied (Figure 119). Only a small number of respondents (6.57%) expressed satisfaction.



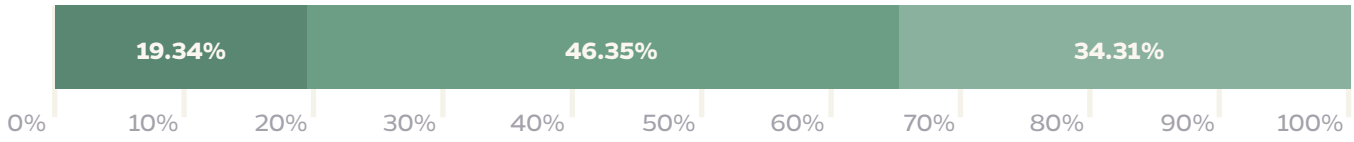
Respondents' general satisfaction with public transport responses to pandemic challenges

	Respondents' general satisfaction with public transport responses to pandemic challenges
Satisfied	18
Not satisfied	108
Partially satisfied	88
I dont know	60

Satisfied Not satisfied Partially satisfied I dont know

Figure 119. Respondents' satisfaction with the public transport responses to pandemic challenges

Respondents' attitudes regarding the level of information received during the pandemic regarding public transport. Slightly less than half of the respondents (46.35%) were dissatisfied with the level of received information related to public transport during the pandemic (Figure 120). More than one third of respondents (34.31%) were partially satisfied, and an additional smaller number (19.34%) satisfied with the information received.



Respondents' satisfaction with the level of information they received during the pandemic regarding public transport

	Respondents' satisfaction with the level of information they received during the pandemic regarding public transport
Satisfied	53
Not satisfied	127
Partially satisfied	94

Satisfied Not satisfied Partially satisfied

Figure 120. Respondents' satisfaction with the level of information they received during the pandemic regarding public transport

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