

## TOWARDS SUSTAINABLE URBAN MOBILITY – ACTIONS OF THE ŚLĄSKO-ZAGŁĘBIOWSKA METROPOLIS

Ewa PŁACZEK

Uniwersytet Ekonomiczny w Katowicach; Ewa.placzek@ue.katowice.pl, ORCID: 0000-0001-9061-4804

**Purpose:** identification of actions implemented by Śląsko-Zagłębiowska Metropolis (Metropolis GZM) aimed at sustainable mobility that ensures that the inhabitants of the cities of the agglomeration meet their needs and improve the quality of life.

**Design/methodology/approach:** The work uses a case study, observations and a method of analysis of the source materials regarding urban mobility.

**Findings:** The article presents the most important EU legal documents regulating the issues of urban mobility and Polish statutory initiatives related to it. Initiatives undertaken by the cities that are part of the Metropolis GZM are the response to the legal regulations.

**Practical implications:** The article presents examples of undertaken and planned GZM activities aimed at encouraging residents to use eco-friendly means of transport (sustainable mobility - micromobility and public transport).

**Social implications:** The actions of the cities in the Metropolis are well perceived by the inhabitants and encourage them to protect the environment. High position of the Metropolis cities in various rankings should be an incentive for further activities in the field of promoting sustainable mobility.

**Originality/value:** The article is addressed to people interested in urban mobility, especially in the context of sustainable development. It shows the complex character of the topic and the possibilities of solving related problems. It highlights the benefits that can be achieved from sustainable mobility and at the same time outlines the scope of activities for the future.

**Keywords:** urban mobility, sustainable mobility, city management, inclusiveness of transport systems.

**Category of the paper:** Research paper, Case study.

### 1. Introduction

Currently observed trends determine the directions of civilization development. Omnipresent globalization broadly understood digitalization and activities related to sustainable development and corporate social responsibility have the greatest impact on socio-economic development. These trends affect various aspects of the socio-economic life of cities

and villages and the communities inhabiting these areas, while becoming the main determinants of their development.

Cities are seeking opportunities to develop and meet their residents' expectations related to improving the quality of life. Most of the activities implemented by city authorities are aimed at ensuring that residents can meet their social needs in terms of movement (mobility). It is observed that the issue of mobility is especially important for large and medium-sized cities and their functional areas. It should be noted that cities are places of high concentration of mobility of people and goods, which contributes to growing transport problems resulting from the diverse needs and expectations of residents and entrepreneurs. Actions implemented at many levels aim to improve mobility through the development of public transport or the integration of various transport subsystems, among others. These activities are considered in the context of determinants resulting from land development, spatial distribution of various types of economic and social activity and limitations resulting from the promoted concept of sustainable development.

The paper presents the activities undertaken by the management of Śląsko-Zagłębiowska Metropolis in the field of sustainable urban mobility and the effects of these activities that translate into the positions in the Ranking of Sustainable Mobility Cities.

## **2. Urban mobility vs sustainable urban mobility**

For most cities, mobility issues cause many problems. These problems result from a two-fold understanding of mobility. Firstly, urban mobility means the freedom of movement between specific places in urban areas using the available transport network and transport services. It is possible to move using public transport and micromobility means, i.e., bicycles, scooters, walking or transport by individual cars. Each of these forms is complementary and influences the others, but the first three constitute the basis of a system that aims to encourage city residents and visitors to abandon traveling by private car. (Janczewski, Janczewska, 2021). Secondly, mobility is also a way of meeting and securing the needs and social services, work style and ways of spending free time by residents.

For city authorities, managing urban mobility is a big challenge, which is often reduced to making decisions that are difficult to accept by all interested parties. The difficulty of the decision-making lies in the occurrence of conflicting goals. On the one hand, the expectations of residents related to guaranteeing a high quality of life are formulated, while on the other - the expectations of entrepreneurs, i.e., creating attractive conditions conducive to running a business; reducing traffic in sensitive areas without restricting the necessary movement of goods and people<sup>1</sup> are established (European Commission, 2013).

Therefore, the essence of actions implemented in the field of urban mobility is to change the transport behavior of residents, consisting in reducing the demand for travels by individual transport in favor of increasing the share of journeys by public and non-motorized transport (bicycles, scooters, on foot) in accordance with the concept of sustainable development. When talking about urban mobility in relation to sustainable development, the need to integrate various means of transport and invest in more ecological (sustainable) solutions for the sake of the quality of life and the climate is highlighted. Therefore, all activities should aim at sustainable mobility.

Sustainable urban mobility refers to all forms of collective mobility - traditional public transport along with new services based on sharing, including new business models, active mobility (walking, cycling), intermodality and door-to-door mobility, road safety, urban logistics (delivery of goods, last mile), mobility management and smart transport systems (Janczewski, Janczewska, 2021). Urban policy implementing sustainable development goals, e.g., electromobility, zero-emission transport and urban logistics, and appropriately developed and adapted transport infrastructure is a prerequisite for sustainable mobility. Sustainable urban mobility should have features that enable meeting the needs of all stakeholders, considering the efficiency of the ecosystem. The most important features are shown in table 1.

**Table 1.**  
*Features of sustainable urban mobility*

<b>Features of sustainable urban mobility</b>	<b>Description</b>
Safe	Safe for all users regardless of the means of transport and method of travel/movement
Accessible	Meaning accessibility to various means of transport; aimed at eliminating white spots on the communication map of districts, cities and communes
Reliable	Reliable and ensuring that various types of services complement each other
Efficient and effective	Guaranteeing achievement of the goal regardless of the selected method and means of transport, providing alternative and satisfying solutions
Compact	Giving a sense of completeness and consistency by combining accessibility and ease of use
Ecofriendly	Mobility that supports protection of natural resources and the environment. Now, it is one of the most important values in modern societies.
Fair	Egalitarian mobility in the access to many inclusive means of transport at the user level and in the context of the division of space between the users of various forms of transport
Close	Achievable (available) and adequate to demographic factors and living conditions, i.e., keeping pace with the suburbanization process
Healthy	Promoting healthy behaviors and intermodal mobility
Seamless	Internally consistent, compact in terms of quick identification and transparent application of a uniform system of use

Source: [https://metropoliagzm.pl/wp-content/uploads/2021/07/SUMP\\_raport\\_web2.pdf](https://metropoliagzm.pl/wp-content/uploads/2021/07/SUMP_raport_web2.pdf)

Overall, the implementation of sustainable urban mobility solutions supports the scale of benefits, including:

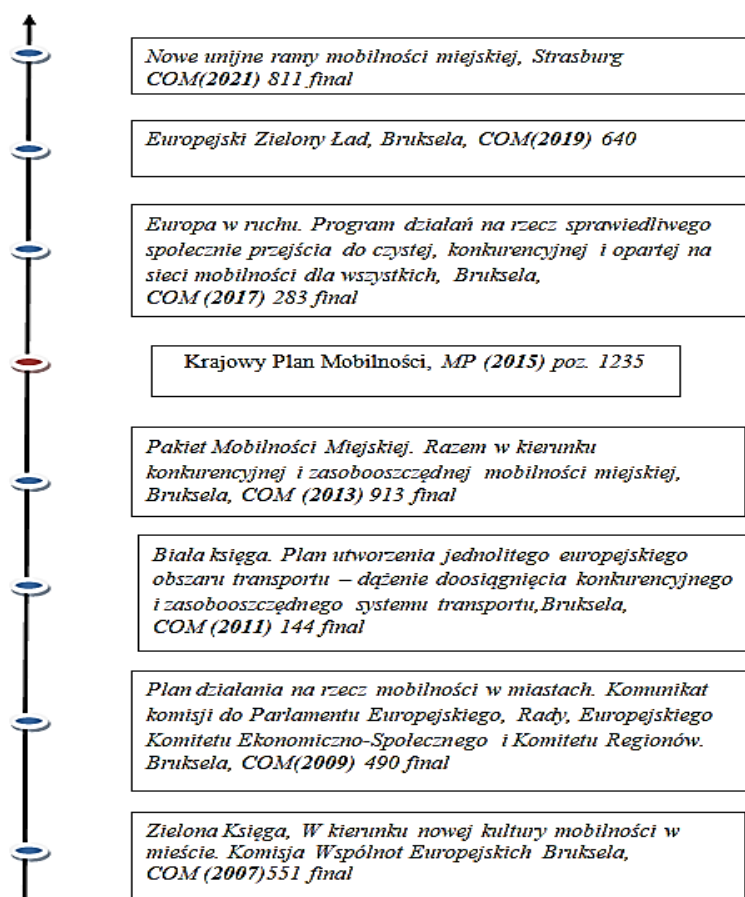
- Reducing CO<sub>2</sub> emissions and noise.
- Improving air quality.
- Encouraging the use of active means of transport benefits public health and road safety.
- Complementarity - meets the individual needs of residents in terms of mobility.
- Reducing competition for public space between different forms of transport.
- Impeding the decline in the use of public transport.
- Increasing the efficiency of public transport.
- Reducing the number of residents using private cars.
- Building improved infrastructure - bicycle paths, wider sidewalks for pedestrians and bicycles or scooters, enforcing speed limits.
- Increasing residents' awareness and their participation in the development of sustainable mobility.

The list of benefits is not exhaustive. It only shows a wide range of ecological, social and economic benefits that can be achieved.

### **3. Legal conditions of sustainable mobility**

Actions in the field of urban mobility refer to the assumptions of EU transport policy aimed at promoting sustainable transport, including sustainable mobility. This involves developing strategies that stimulate a shift to greener and more sustainable means of transport, such as walking, cycling and public transport, and adoption of new patterns of vehicle use and ownership (Communication from the Commission to the European Parliament, 2013).

Actions aimed at sustainable urban mobility have been undertaken by the EU Commission for two decades and are implemented in stages. Fig. 1 presents in chronological order the most important EU documents regulating the issues of sustainable urban mobility.



**Figure 1.** The most important EU documents regulating the issues of sustainable urban mobility.

Source: own study.

Legal regulations regarding urban mobility were initiated in 2007 by the Green Paper "Towards a new culture of urban mobility". Transport problems identified in the Green Paper (Commission Communication, 2007) include transport congestion, negative impact on the environment - air pollution, high CO<sub>2</sub> emissions, noise, energy consumption, limited accessibility, especially for the elderly, disabled people, parents with small children and road traffic safety, safety in public transport vehicles and at stops (Wołek, 2014). The "Action Plan on Urban Mobility" published in 2009 (Commission Communication, 2009) is the first document in which a comprehensive set of actions aimed at sustainable mobility in cities was presented. White Paper. The 2011 plan to create a single European transport area - striving to achieve a competitive and resource-efficient *transport system* is the next document. Attention was drawn to the main problems, including: congestion in cities as well as external costs, and at the same time recommendations to reduce the number of conventionally fueled cars to the benefit of greener ones, integrate various means of transport in cities and develop sustainable urban mobility plans for cities were formulated (Commission Communication, 2011). In 2013, the Commission adopted the Urban Mobility Package Together towards competitive and resource-efficient urban mobility. It includes recommendations on urban mobility in order to strengthen support for European cities in the face of mobility-related challenges in the sphere

of urban logistics, urban access regulations, the use of Intelligent Transport Systems solutions (ITS) and road safety (Communication from the Commission, 2013). In 2017, the communication “Europe on the move. An agenda for a socially just transition towards clean, competitive and connected mobility for all”. It includes a set of initiatives to modernize the EU's mobility and transport system Europe on the Move (Commission Communication, 2017). Two years later, in 2019, a communication proposing the introduction of the "European Green Deal" strategy aimed at achieving climate neutrality on the continent was issued (Commission Communication, 2019). The communication also mentions the pursuit of more sustainable mobility in cities. Further work enabled publication of A new EU urban mobility framework in 2021. They include recommendations for implementing actions to move towards a safe, accessible, inclusive, smart, resilient and zero-emission urban mobility which requires a clear focus on active, collective and shared mobility based on low-emission and zero-emission solutions (Commission Communication, 2021).

The initiatives on urban mobility implemented in Poland are consistent with the recommendations of the European Union. Thus, in 2015, a key document in this regard, entitled National Urban Policy 2023 was published (KPK 2023, 2015). The document presented the main objectives, including:

- Polish cities in 2023 should be efficient, compact and balanced, coherent, competitive and strong.
- support for the sustainable development of urban centers, including counteracting the negative phenomena of uncontrolled suburbanization (compact and sustainable city).
- achievement of sustainable mobility in the functional area of the city, perceived as making trips in such a number and of such length as is required to meet the living needs of travelers with the rational use of individual urban transport subsystems.

The original document of the National Urban Policy 2023 was updated, and the time horizon was extended to 2030 - *KPM 2030*. The outline of the National Urban Policy 2030 included five essential goals, such as: building cities accessible and friendly to all residents, increasing the competitiveness and economic attractiveness of cities, adaptation of cities to climate change and increasing the use of nature-based solutions, digital technologies and counteracting the negative effects of suburbanization as well as reusing space in cities (National Urban Policy - We invite cities to the debate, 2021).

Despite emerging difficulties in implementing the KPM 2023 goals, all cities are confronting the related challenges.

#### **4. Identification of the Metropolis' activities in the field of sustainable mobility (<https://www.metropoliaztm.pl/>)**

Since its establishment in 2018, the Górnośląsko-Zagłębiowska Metropolis (GZM) has implemented activities in the field of sustainable mobility, promoting all "green" solutions that have a positive impact on the environment and do not pollute the air. In this context, it is particularly important for the Metropolis to have ecological and integrated transport. As a result, the Metropolis has undertaken a number of actions aimed at integrating transport in all 41 communes that constitute the GZM and guaranteeing sustainable mobility for its residents.

The establishment of the ZTM [Metropolitan Transport Plant], covering the bus, tram and trolleybus transport subsystems was the first step towards the integration of transport systems. Now, the fleet of 1,352 buses, 303 trams and 25 trolleybuses operate under the ZTM [*Metropolitan Transport Plant*] banner, which is gradually being replaced with more modern and environmentally friendly one. This means that in 2022, ZTM had 87 ecological and low-emission vehicles. In June 2023, 32 modern electric buses were delivered to four metropolitan PKMs [*Municipal Transport Companies*], i.e., Katowice, Sosnowiec, Gliwice and Świerklaniec. In the near future (2024), the Metropolis also plans to purchase up to 30 hydrogen-powered buses (20 as part of the principal contract and another maximum of 10 as part of the option right). The vehicles are to be delivered to PKM [Municipal Transport Companies] in Tychy, Katowice and Świerklaniec. In addition, 16 mobile chargers which can be used by two buses at a time will be activated, as well as 11 fast stationary pantograph chargers will be installed in six cities of the Metropolis, including Będzin, Gliwice, Katowice, Mikołów, Sosnowiec and Tarnowskie Góry. Thanks to the investments in public transport vehicles, the fleet of ecological, low-emission buses in GZM [Górnośląsko-Zagłębiowska Metropolis] will increase.

Using ecological public transport fleet to improve travel between the communes of the Metropolis, ZTM [Metropolitan Transport Plant] has introduced additional bus connections as an alternative to motorized private transport. They are called metropolitan lines (or metrolines) and run between all GZM [Górnośląsko-Zagłębiowska Metropolis] communes. Metrolines are marked with the letter "M" and are characterized by increased frequency and extended operating hours, also at night. So far, 27 metrolines have been created, and ultimately 32 metrolines are to be started. Figure 2 shows the current list of metrolines.

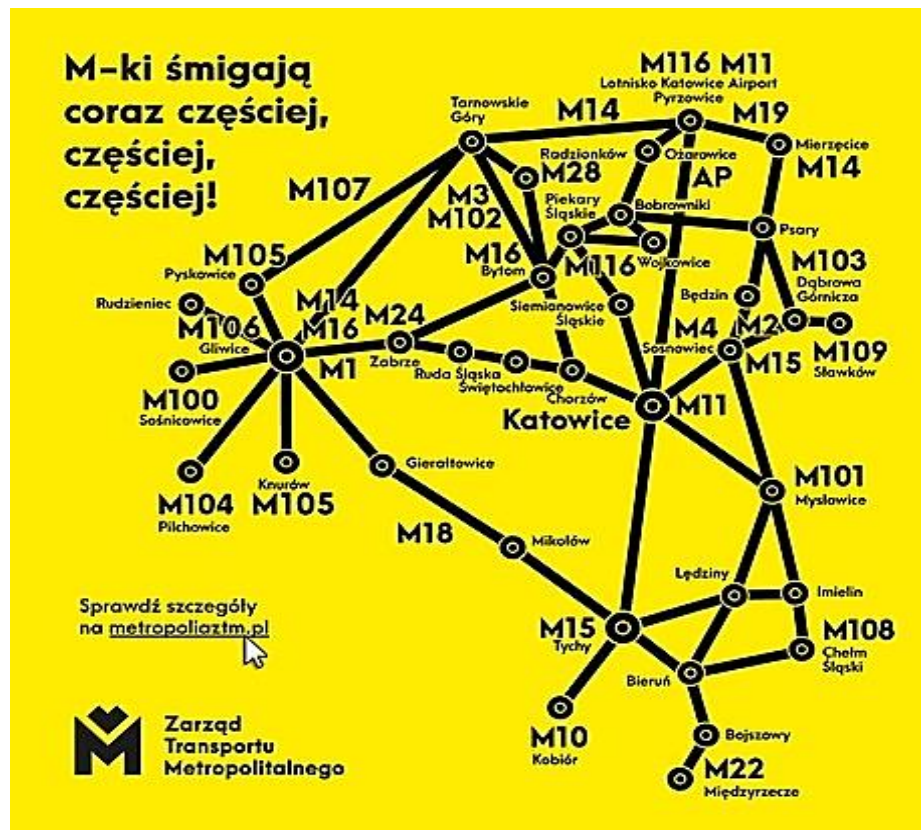


Figure 2. List of metropolitan line routes.

Source: <https://www.metropoliatm.pl/pl/s/linie-metropolitalne>, July 29, 2023.

Sustainable urban mobility is not only public transport, but it is also individual transport. These are technologies perceived as "green solutions in transport". Following the global trend towards ecological transport, the Metropolis takes actions encouraging business entities and individuals to use electric cars. More and more electric vehicles are seen on the roads. This is the result of investments made by GZM [Górnośląsko-Zagłębiowska Metropolis] in creating infrastructure for charging this type of vehicles, i.e., building a dense network of electric charging stations. In accordance with the law on electromobility and alternative fuels, the Metropolis is obliged to have electric vehicles for business purposes. Therefore, GZM [Górnośląsko-Zagłębiowska Metropolis] owns 71 electric vehicles, which were provided, among others, to city offices, city guards, greenery maintenance plants, waterworks services, sports and recreation centers, cultural institutions and social welfare institutions. The 71 vehicles include both city compact vehicles and heavy delivery vehicles. The majority, i.e., 54, are passenger cars of various segments (5 were purchased, 4 are leased and 45 are rented). The remaining 17 vehicles are delivery trucks (12 purchased, 3 rented and 2 leased). Last year, in addition to the existing network of charging points, a further 59 wallbox electric vehicle charging points i.e., those that allow you to charge an electric car at home or at work (e.g., in an underground garage) with a much higher power than from a mains socket – even up to 22 kW were purchased.



The development of rail transport in the Metropolis is one of the main demands of GZM [Górnośląsko-Zagłębiowska Metropolis] in the field of sustainable mobility. It is assumed that in the future, rail transport will be the backbone of public transport in the Metropolis area. For this to happen, the creation of the Metropolitan Railway is necessary. The activities of the Metropolis are currently at the concept stage that assumes that the construction of the Metropolitan Railway will take place in four stages:

- stage 0 assumes co-financing of the existing infrastructure, increasing railway connections, purchasing new rolling stock and establishing two main transport corridors: west-east (Gliwice-Katowice-Dąbrowa Górnicza) and south-north (Tychy-Katowice-Tarnowskie Góry).
- stage 1 is based on the construction of approximately 220 km of new dedicated tracks from Gliwice to Dąbrowa Górnicza and from Nowy Bieruń to Tarnowskie Góry, which would not interfere with trains of other carriers. Additionally, the plan includes the purchase of 33 trains and the construction of 26 additional railway stops, the number of which in a given area depends on the population density.
- stage 2, in addition to traditional railways, includes the creation of light urban railway and monorail. The north-south route from stage 1 will be extended to Pyskowice. Residents could travel by city rail on the Gliwice - Ruda Śląska - Mikołów - Tychy route. The monorail will be created for faster transport between the International Airport in Pyrzowice, Katowice and Sosnowiec.
- stage 3 includes the maximum expansion of rail transport in the Metropolis and light urban railway from Gliwice through Knurów, Gierałtowice to Ornontowice and Orzesze.

The implementation of a bicycle policy including the so-called urban bicycle system, the so-called Metropolitan bike and bicycle infrastructure is another activity of GZM [Górnośląsko-Zagłębiowska Metropolis] in the field of promoting sustainable urban mobility aimed at micromobility. The aim of the Metropolitan bike is to improve the quality of life of residents who gain wide access to a healthy and ecological means of transport. At the beginning, the urban bike system in Katowice operated as a classic bike rental that allowed the use of a bike only within a given commune/city, which made the use of this form of transport much more difficult. In the following years, city bike systems were created in Sosnowiec, Siemianowice Śląskie, Tychy, Gliwice, Chorzów and Czeladź communes, with the possibility of returning the bike in the rentals in another city.

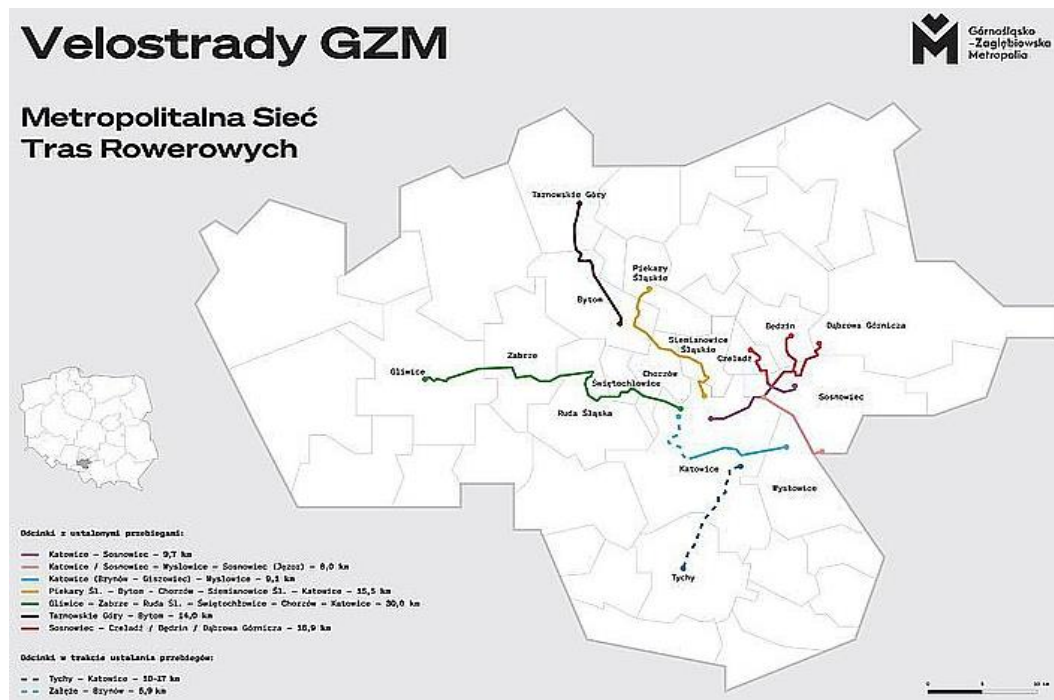
In August 2023, the procedure for launching the Metropolitan Bike system was completed. 7000 bicycles and 924 bicycle rental stations are available to users. They are in 31 communes that are part of GZM [Górnośląsko-Zagłębiowska Metropolis]. They are 4th generation bikes. Renting them and leaving them at the station does not involve plugging them in and unplugging them from the rack. Each bike is equipped with a GPS transmitter. Due to the scale of the operation resulting from a large area and a large number of bicycles, the system will be

implemented in stages. In the first phase, 1,260 bicycles will be made available in 7 cities where similar systems are currently operating, i.e., Katowice, Sosnowiec, Gliwice, Zabrze, Tychy, Czeladź and Siemianowice Śląskie. In the second phase, started within 12 months from signing the contract, the number of bicycles will increase to almost 4,800. Bicycles will then appear in other cities: Bytom, Ruda Śląska, Dąbrowa Górnicza, Chorzów, Mysłowice, Piekary Śląskie and Świętochłowice. In the last, third phase of the system implementation, the number of bicycles will reach the target of 7,000. Within 22 months from signing the contract, bicycles will appear in the remaining cities and communes that joined the project: Będzin, Bieruń, Chełm Śląski, Gierałtowice, Knurów, Łaziska Górne, Mikołów, Pyskowitz, Radzionków, Rudziniec, Siewierz, Sławków, Świerklaniec, Tarnowskie Mountains, Wojkowice, Wiry and Zbrostawice.

The final stage of integration will be the creation of the Metropolitan Public Bicycle Rental System (MSWRP) in GZM [Górnośląsko-Zagłębiowska Metropolis]. The new system will enable the use of bicycles in each commune using one application and for the same rate. Additionally, long-term rent of bicycles with electric support, the so-called e-bikes will be possible.

In terms of bicycle infrastructure, two documents have been developed. The first of them, "Study of the bicycle route system", is the development of a "skeleton" of bicycle routes in the Metropolis. Based on it, a network of paths that will enable comfortable and safe travel by bicycle in the GZM [Górnośląsko-Zagłębiowska Metropolis] is to be created. "Standards and guidelines for shaping bicycle infrastructure" is the other document. It contains guidelines that will allow for the unification of bicycle routes in the communes and cities of the Metropolis. Based on the above-mentioned documents, the Metropolis has plans to create 940 stations located on average every 350-400 meters with over 8000 bicycles available all year round, and an additional eight velostrades (Fig. 3), i.e., fast bicycle paths separated from car traffic, 120 km long running through 11 cities and communes.

The possibility of using electric scooters is an alternative in the field of micromobility. They appeared in GZM in 2019 along with dynamic development of urban electric scooters in Poland and Europe. Currently, there are 5 operators in the Metropolis, including 3 foreign operators, i.e., Lime, Bolt, Tier, and 2 Polish operators, i.e., Roler and Blinkcity., but their operation is now limited only to the cities of the Metropolis. It is observed that this means of transport is very popular, especially among the young generation - it is easy to equip and return (stationless system), however, many city residents notice problems related to it, which result from the lack of regulations on the use of this method of transport. The main problem was solved in 2021 by amending the Road Traffic Law, introducing the status of an electric scooter (definition of a scooter, technical requirements, user, speed limit and parking method).



**Figure 3.** Velostrades GZM. Metropolitan Network of Bicycle Routes.

Source: <https://:metropoliagzm.pl>> tag> velostrada

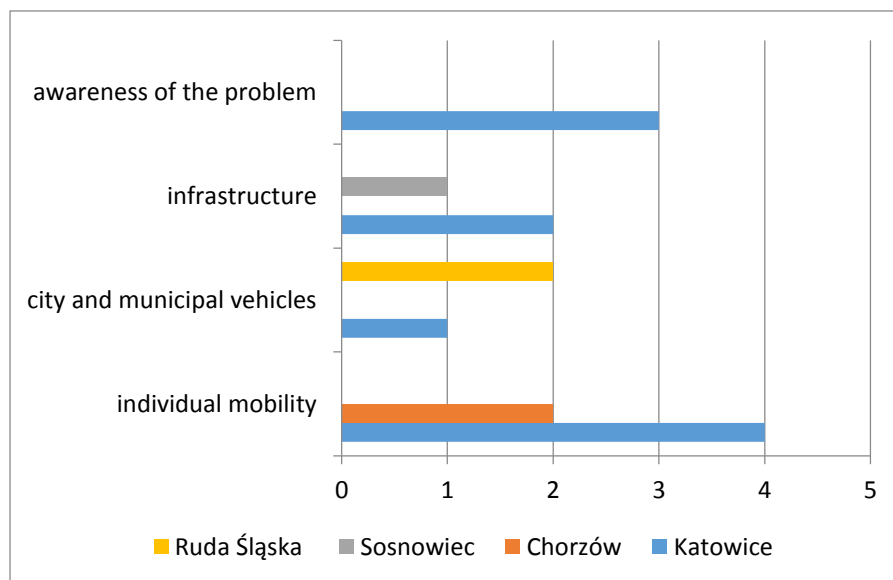
## 5. Results of activities - Ranking of cities

In accordance with the adopted mobility plan, the GZM [Górnśląsko-Zagłębiowska Metropolia] implements the basic goals of sustainable development. It is difficult to assess clearly and objectively the achievements of the Metropolia in the field of sustainable development, because due to the structure of the GZM [Górnśląsko-Zagłębiowska Metropolia], the final assessment covers the activities of all the cities that are part of the metropolis. In addition, the overall assessment is affected by other factors that characterize each commune and city separately, e.g., the level of economic development, the number of residents and preferences of the population, transport infrastructure, the amount of financing and the implemented commune/city mobility policy.

So, what is the assessment of the activities of the Metropolia in the field of sustainable urban mobility? The cities of GZM [Górnśląsko-Zagłębiowska Metropolia] make numerous efforts to promote ecological means of transport and encourage residents to use them. These actions require many changes in the mentality of residents and large financial investments in digitalization and in building transport infrastructure. Despite numerous difficulties related to sustainable urban mobility, the results of the actions implemented so far should be assessed positively. This is also confirmed by the results of research published in the Sustainable Mobility Cities Report 2023 (Piznal, 2023). All cities participating in the study

were assessed in 5 categories, including individual mobility, city and municipal vehicles, infrastructure, awareness of the problem - clean air, public transport as well as regulations and policies.

Among the 8 cities of the Metropolis participating in the study, some of them can boast of being leaders of sustainable mobility cities 2023 (Fig. 4). They include Katowice, Sosnowiec, Chorzów and Ruda Śląska. Warsaw, Wrocław, Gdańsk, Opole and Kraków are other cities high in the ranking.



**Figure 4.** Ranking of the cities of the Metropolis – leaders.

Source: own study based on Piznal, 2023.

The third place of Katowice in the "problem awareness" category was influenced by social campaigns promoting the use of available forms of micromobility, encouraging residents to use public transport, informing and making residents aware of the negative impact of pollution from transport. Katowice are also distinguished by a well-developed system for monitoring air quality and reporting pollution concentrations, installed on the initiative of the local government. In the case of other cities in the agglomeration, the occupied places are the result of the lack of GIOŚ [Chief Inspectorate for Environmental Protection] measurement stations.

The high result of the two cities of the agglomeration, Chorzów and Katowice, was influenced by the well-developed bicycle paths. In the case of Chorzów, taking second place was possible thanks to the availability of a large number of bicycles - 4.6 bicycles per 1 thousand residents. Katowice owes its fourth place to the fastest expansion of bicycle paths in 2020-2021 (their length increased by over 55 km during this period). The total length of DDR [*bicycle roads*] in the city was 111 km per 100 km<sup>2</sup>, which was above the average in this subcategory. In addition, the services of e-scooter operators with whom the city hall has concluded agreements regulating their operation can be used in the city. However, Katowice offers few public bicycles per 1000 people and does not have developed covered bike-parks (Piznal, 2023).

In the "city and municipal vehicles" category, Katowice had the highest percentage of zero-emission vehicles in municipal vehicle fleets - in 2022 it was 43% – and the largest increase in this percentage compared to 2021 – by 19 percentage points. The capital of the metropolis was also distinguished by the high share of electric cars in the fleet of the city hall (25%). The second place was occupied by Ruda Śląska, which also had a high percentage of zero-emission vehicles in the official fleet (22%) and in the fleet of municipal services (almost 29%), e.g., the city guard (Piznal, 2023). Activities in this area may contribute to the interest and persuasion of residents to purchase zero-emission vehicles, especially because the infrastructure enabling charging of electric cars is being built.

Sosnowiec realized that, because it has the second (after Olsztyn) densest network of public charging points for electric vehicles (103 points per 100 square kilometers of the city's area). Katowice has had a well-developed network of charging points for several years (Piznal, 2023).

Referring to the previously presented discussion on the general activities of the Metropolis, it can be concluded that the efforts of cities in implementing sustainable mobility initiatives translate into the achieved results (Table 2). Although the cities of the Metropolis occupy distant places in the "public transport" category (second and third ten), on a daily basis the inhabitants notice the efforts of their cities, e.g., bus connections, the so-called *Metrolinie* or *metrobilet* [metrotickets] that integrates all means of public transport in the Metropolis, including buses, trams, trolleybuses and Silesian Railways trains.

**Table 2.**

*Results of the cities of the GZM Metropolis*

City	Individual mobility	Public transport	City vehicle	Infrastructure	Regulations and policies	Problem awareness	Result
Katowice	38.73 (4)	21.47 (14)	42.38 (1)	65.26 (2)	49.55 (16)	83.14 (3)	50.08
Sosnowiec	25.77 (13)	22.48 (13)	7.57 (23)	81.19 (1)	27.94 (32)	40.00 (30)	34.16
Gliwice	17.38 (27)	10.24 (30)	6.12 (25)	3.57 (34)	31.08 (30)	50.00 (20)	19.73
Zabrze	12.49 (34)	18.75 (19)	3.55 (29)	4.99 (31)	37.51 (26)	31.18 (32)	18.08
Bytom	20.27 (23)	15.61 (24)	0.0 (34)	3.67 (33)	28.11 (31)	30.00 (33)	16.27
Ruda Śl	16.67 (28)	12.85 (28)	33.18 (2)	0.65 (36)	31.19 (29)	30.00 (33)	20.76
Tychy	19.42 (26)	17.91 (20)	17.24 (10)	40.20 (14)	50.70 (13)	10.00 (36)	26.91
Dąbrowa Górnicza	8.74 (35)	9.53 (32)	0.00 (34)	0.00 (37)	8.33 (37)	40.59 (29)	11.20
Chorzów	46.19 (2)	13.08 (27)	0.89 (33)	9.52 (28)	12.02 (36)	10.00 (36)	15.28

The places that cities obtained in the ranking in each category are placed in brackets.

Source: own study based on Piznal, 2023.

We can therefore congratulate the Metropolis and individual GZM cities on their positions in the ranking showing the effects of activities for sustainable mobility and encourage them to continue fruitful activities.

## 6. Conclusions

Urban mobility involves many problems, which is why activities in the field of sustainable urban development, including mobility, are nowadays implemented in many directions. The European Union is undertaking a number of legislative works aimed at determining current directions of action to adapt sustainable urban mobility activities to society's expectations. Through specific sustainable mobility policies, cities make numerous efforts in this sphere.

In the case of the Śląsko-Zagłębiowskie Metropolis, this is an extremely difficult task, because the metropolis is unique due to its composition (it includes 41 communes). The cities and communes that form the Metropolis simultaneously implement the GZM policy and their own sustainable mobility policy. The possibilities of its implementation vary depending on the economic level, the condition of transport infrastructure and the possibilities of financing activities improving urban mobility towards sustainable mobility, while simultaneously improving the quality of life and encouraging society to act in pro-ecological way.

According to the authors, the Metropolis will continue to undertake numerous activities aimed at encouraging residents to be more active in the field of sustainable mobility. Observing the activities in this area, it can be seen that not all actions implemented by the Metropolis are enthusiastically received by its residents, e.g. introduction of clean transport zones (SCT), or paid parking zones in cities. The challenge for the Metropolis is the need for further promotional activities e.g. encouraging the use of transfers centers or public transport, that will change the attitudes of residents and increase the attractiveness of sustainable urban mobility.

Analyzing GZM's activities in the field of sustainable urban mobility, it appears that the implemented actions bring positive results. Certainly, this is related to further investments in this area, but the high positions of metropolitan cities in the ranking of sustainable mobility cities may be a factor motivating further activity.

## Reference

1. Janczewski, J., Janczewska, D. (2021). Zrównoważona mobilność miejska – dobre praktyki. *Zarządzanie innowacyjne w gospodarce i biznesie*, no. 2(33), pp. 165-196, doi.org/10.25312/2391-5129.33/2021\_11jjdj
2. Komisja Europejska, Planowanie dla ludzi (2013). *Wytyczne dotyczące opracowania i wdrożenia planu zrównoważonej mobilności miejskiej*, <http://op.europa.eu/webpub/eca/special-report/urban-mobility-6-2020/pl>

3. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Plan działania na rzecz mobilności w miastach*, KOM(2009) 490 (2009), <https://eur-lex.europa.eu/>
4. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. Biała Księga. *Plan utworzenia jednolitego europejskiego obszaru transportu – dążenie do osiągnięcia konkurencyjnego i zasobooszczędnego systemu transportu*. COM(2011) 144, Bruksela (2011). <https://eur-lex.europa.eu/legal-content/PL/TXT/>
5. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Pakiet Mobilności Miejskiej Razem w kierunku konkurencyjnej i zasobooszczędnej mobilności miejskiej*. COM(2013) 913 final,(2013).[https://www.europarl.europa.eu/meetdocs/2014\\_2019/documents/com/com\\_com\(2013\)0913\\_/com\\_com\(2013\)0913\\_pl.pdf](https://www.europarl.europa.eu/meetdocs/2014_2019/documents/com/com_com(2013)0913_/com_com(2013)0913_pl.pdf)
6. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Europa w ruchu. Program działań na rzecz sprawiedliwego społecznie przejścia do czystej, konkurencyjnej i opartej na sieci mobilności dla wszystkich* (2017) <https://eur-lex.europa.eu/legal-content/PL/TXT>
7. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Europejski Zielony Ład*, COM(2019) 640 final (2019), <https://eur-lex.europa.eu/legal-content/PL/>
8. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Nowe unijne ramy mobilności miejskiej* COM (2021) 811 final (2021) <https://eur-lex.europa.eu/legal-content/PL/TXT/>
9. Komunikat Komisji do Parlamentu Europejskiego, Rady, Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Zielona Księga, W kierunku nowej kultury mobilności w mieście*. Komisja Wspólnot Europejskich Bruksela (2007), <https://eur-lex.europa.eu/legal-content/PL/ALL/>
10. *Krajowa Polityka Miejska – Zapraszamy miasta do debaty* (2021). <https://www.miasta.pl/aktualnosci/krajowa-polityka-miejska-2030-zapraszamy-miasta-do-deba>
11. *Krajowa Polityka Miejska 2023* (2023). [https://www.funduszeuropejskie.gov.pl/media/74967/Krajowa\\_Polityka\\_Miejska\\_2023.pdf](https://www.funduszeuropejskie.gov.pl/media/74967/Krajowa_Polityka_Miejska_2023.pdf)
12. *Metropoliagzm*. [https://metropoliagzm.pl/wpcontent/uploads/2021/07/SUMP\\_raport\\_web2.pdf](https://metropoliagzm.pl/wpcontent/uploads/2021/07/SUMP_raport_web2.pdf),
13. Piznal, J. (2023). *Ranking miast zrównoważonej mobilności*. Polityka Insight.
14. Wołek, M. (2014). SUMP (Sustainable urban Mobility Plan) jako narzędzie kształtowania mobilności miejskiej. *Logistyka*, no. 2, pp. 380-398.