DOI: https://doi.org/10.30932/1992-3252-2019-17-186-200

Electric Bicycles in the Urban Environment: Prospects and Constraints for Use in Megalopolises

Zavyalov, Dmitry V., *Plekhanov Russian University of Economics, Moscow, Russia.*
Bykova, Olga N., *Plekhanov Russian University of Economics, Moscow, Russia*.*

Dmitry V. ZAVYALOV **Olga N. BYKOVA**

ABSTRACT

The development of a transport system that meets both the requirements of residents to ensure mobility while maintaining the ecology of the city, and the requirements of a business that needs an efficient logistics system is a topical task for most megalopolises. Moscow, being no exception, is making significant efforts to develop the city's transport system, using both traditional methods of increasing the capacity of roads and developing the city's infrastructure to use bicycle transport, which can reduce the load on the city's public transport and positively affect the city's economy and ecology. Recently, electric vehicles of individual use began to appear on the streets of the city: electric bicycles, electric scooters, etc.

The objective of the research is to consider problems and assess the prospects for using individual electric vehicles in megalopolises, at the example of Moscow, for both recreational and utilitarian purposes. The study used as research methods the analysis of the experience of development of these vehicles abroad, including in the urban transport system, and the analysis of the regulatory aspects of the use of electric bikes to determine the main areas that need to be taken into account when using electric bikes in the urban environment.

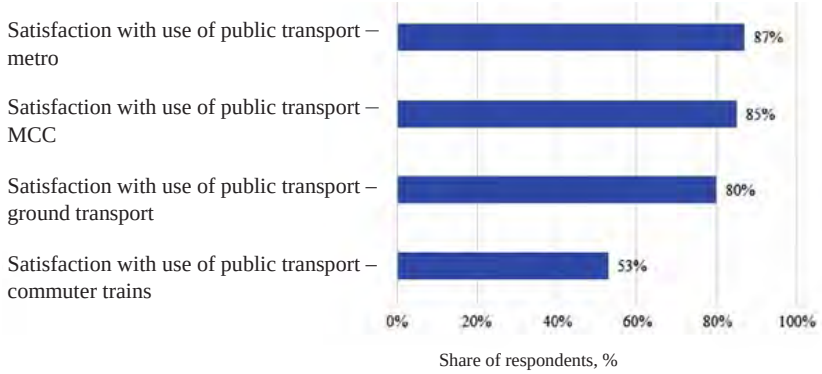
The authors also evaluate the possibilities of their use, considering categories of goods and the features of routing. The conclusion is drawn on the large existing potential of the use of electric bicycles as of an instrument of urban logistics, and on the advantages of electric bicycles as of an alternative urban transport mode.

Keywords: urban land transport, cargo transportation, bicycle transport, electric bicycle, electric bikes, e-bikes.

*Information about the authors:
Zavyalov, Dmitry V. – Ph.D. (Economics), Associate Professor, Head of the Department of Entrepreneurship and Logistics of Plekhanov Russian University of Economics, Moscow, Russia, Zavyalov.DV@rea.ru.
Bykova, Olga N. – D.Sc. (Economics), Professor at the Department of Entrepreneurship and Logistics of Plekhanov Russian University of Economics, Moscow, Russia, Lgaa3@rambler.ru.

Article received 15.08.2019, accepted 21.11.2019.

For the original Russian text of the article please see p. 186



Pic. 1. Satisfaction of Muscovites with the level of development of urban public transport, 2018. Compiled by the authors based on the research of Plekhanov Russian University of Economics.

Background. The modern tasks of developing the transport system of megalopolises in most countries are focused on increasing transport accessibility for citizens and on reducing the negative impact of the transport system on the living conditions of megalopolis residents by increasing the efficiency of traffic management and developing new modes of transport. Part of the solutions to these problems lies in the plane of creating a distributed urban infrastructure, introducing innovative urban development projects focused on creation of many centers of attraction (large shopping centers, parks, recreation areas, office centers, etc.).

Development management in the field of the urban transport systems uses various methods. First of all, it is associated with modernization of transport routes and vehicles. Networks of ground and underground railways are being developed, which results in a steady increase in speed; the street-road network is expanding; modern models of vehicles, buses, trolleybuses, trams are being introduced. Almost all megapolises follow the policy of motivating residents to use public transport, sharing private cars, and using environmentally friendly vehicles: bicycles, scooters, etc.

The measures taken in recent years in Moscow to develop the urban transport network and improve quality of public transport services significantly influenced the opinion of Muscovites. According to the results of Plekhanov Russian University of Economics (REU) 2018 research residents highly assess the level of development of public transport in the city (Pic. 1).

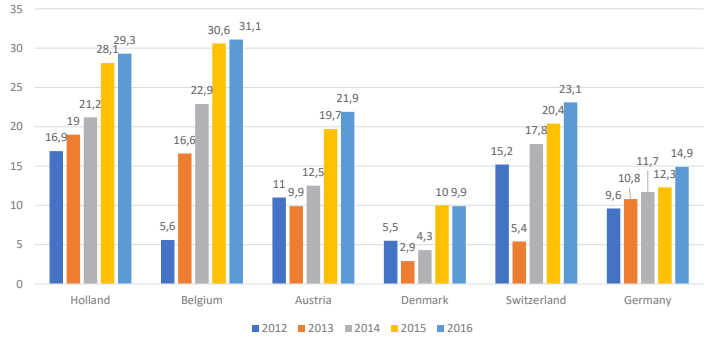
However, the car fleet of Moscow also continues to grow by 8–10 % annually and 3,6 million cars move around the city daily[1]. The possibility of using other modes of transport as alternative to public transport and private cars, in particular, the use of personal or rental bicycles, is limited by many factors, such as insufficient infrastructure, the need to overcome long distances between route points, and the low level of physical activity of citizens [1].

The objective of the research is to study problems and to assess prospects for use in megalopolises, at the example of Moscow, of personal electric transport. The research is based on the methods of comparative analysis of data and regulations.

Electric bicycles in the urban transport system

The use of bicycles as a full-fledged means of urban transport is one of the most relevant areas of strategic development of the transport system of a modern metropolis. The problem of transition from recreational use of a bicycle to solving purely utilitarian, and particularly transport problems, forms the basis of many programs for sustainable development of transport systems of large cities [2]. At the same time, studies show that the use of a bicycle is effective on routes of a small radius, usually up to 4–5 kilometers [3]. This does not require serious physical effort from an unprepared person and often turns out to be faster than using other modes of transport, especially in megacities with busy traffic [4]. However, considering the expansion of the territory of megacities, to overcome longer distances, the bicycle has not yet become a full-fledged

[1] FoxTime (City Internet-edition). [Electronic resource]: http://foxtime.ru/news-view/v-moskve-rastet-kolichestvo-mashin. Last accessed 12.06.2019.



Pic. 2. Share of sales of electric bicycles in the total volume of bicycles sales, %. Source: Plazier P. Weitkamp G., Berg A. Exploring the Adoption of E-Bikes by Different User Groups. Frontiers in Built Environment, 2018, Vol. 4, p. 47.

alternative to public or private road transport. The situation in large cities has begun to radically change over the past few years following the arrival of electric bicycles on the market, whose sales are showing steady growth (Pic. 2).

Electric bicycles market

Currently, the total market for electric bicycles is estimated at 14,7 billion US dollars. Moreover, annual growth is expected at the level of 6,3 % [5]. The main market for electric bicycles is Asia-Pacific region, where the leader is the Chinese market. It is China that, for a decade, has been number one in production and sale of electric bicycles[2]. More than 200 million electric bicycles are operated in the domestic Chinese market, and annual sales amount to about 30 million units, of which about 25 million are purchased to replace old or worn devices. In European countries, it is also possible to see rapid development of electric bicycles as a mode of transport. In Germany in 2018, sales of electric bicycles increased by 36 %, reaching a level of 980 thousand units [6]. In the Netherlands, where 17 million inhabitants account for more than 22 million bicycles, by the end of 2018, out of 1,22 billion Euros spent to purchase new bicycles, 823 million Euros accounted for electric bicycles [7]. In total, more than 400 thousand units of electric bicycles were sold, which is 40 % more than sales a year earlier. The growing popularity of electric bicycles is due to their more active use as the main mode of transport and gradual displacement of conventional bicycles. In the Netherlands, about 60 % of the population lives at a distance of 15 km from work [8], which exceeds the distance of an average trip on a regular bicycle, equal to 4–5 km. Using an electric bicycle allows to increase the length of an average route to 10–25 km without additional time and physical costs.

Regulatory aspects of using electric bicycles

Electric bicycles have an electric motor that provides traction, but at the same time, the possibility of using traditional pedal traction remains. Modern models of electric bicycles can be equipped with small electric motors that work to facilitate physical effort, as well as with more powerful units that provide fully autonomous movement and allow reaching speeds of 35–45 km/h. In this regard, there is a legislative distinction between the classes of electric bicycles. In particular, in accordance with the legislation of the European Union[3], only Pedelec (Pedal electric cycle) is a bicycle class: an electric bicycle model in which an electric motor, with a maximum power in continuous load mode of not more than 250 W, is connected at the moment of pedaling and automatically turns off when the limit speed of 25 km/h is reached. It is this type of electric bicycles that accounts for the majority of global sales, about 88 % [5]. Models of electric bicycles with more powerful motors that operate without reference to the pedal rotation mechanism, as well as without the automatic shut-off function, are not officially bicycles and, depending on local legislation, belong to the class of mopeds or

[2] Models of electric bicycles used in China are closer in dimensions and functions to motor bikes. Pedal gear is almost not used.

[3] Standard EN15194 Cycles – Electrically power assisted cycles – EPAC Bicycles. [Electronic resource]: https://www.en-standard.eu/ilnas-en-15194-cycles-electrically-power-assisted-cycles-epac-bicycles/. Last accessed 12.06.2019.

motorcycles. For them, there are also restrictions when driving along bicycle lanes: in Germany and the UK only Pedelec owners are allowed to use bicycle lanes; in Norway powerful electric bicycles are allowed on bicycle lanes with electric motors disconnected. In Russia, in accordance with the Traffic rules, vehicles with an electric motor with a rated maximum power in continuous load mode not exceeding 0,25 kW, which automatically switches off at a speed of more than 25 km/h, also belong to the class of bicycles. Electric bicycles with a more powerful engine belong to the class of mopeds and require obtaining the driving license of category «M»[4].

With an increase in the power and speed of electric bicycles, the risks of potential damage to life, health, and property of both the drivers themselves and those around them increase. In this regard, the EU countries are developing a legislative initiative for compulsory liability insurance for owners of electric bicycles. In 2018, this recommendation was announced by the European Commission, but was rejected by the European Parliament under pressure from the European Federation of Cyclists (EFC)[5]. In most European countries, Pedelec is considered as a variant of a conventional bicycle and introduction of additional restrictions, according to EFC [9], will negatively affect development of cycling, a new impetus to which is given by electric transport technologies. The sales of electric bicycles have particularly revived the stagnant market and helped to attract additional users to this type of transport both among young people and in the older age category. According to EFC forecasts, based on data on sales of electric bicycles in Germany and the Netherlands, about 150 million units of electric bicycles will be sold in the next decade [6].

Prospects for use of electric bicycles in Moscow based on international experience

From the point of view of integration into the urban transport system, electric bicycles have a number of undoubted advantages compared to ordinary bicycles: they allow to cover significantly greater distances, minimize the negative effects of complex topography, and are suitable for people of different physical fitness and health. According to the results of surveys conducted as part of studies by the Department of Transport and Development of Road Transport Infrastructure of the city of Moscow, a significant portion of respondents cite health or age as a reason for refusing to use a bicycle. It is for this reason that electric bicycles have more potential in terms of alternatives to personal cars than ordinary bicycles.

Besides recreational use, the popularity of electric bicycles among courier and logistics companies is growing as of a vehicle for intercity transportation of small loads. The use of electric bicycles can solve the problems with the high cost of paid parking, shortage of unloading areas in the central streets, and the lack of the need to have a driver's license significantly expands the pool of potential employees hired as drivers.

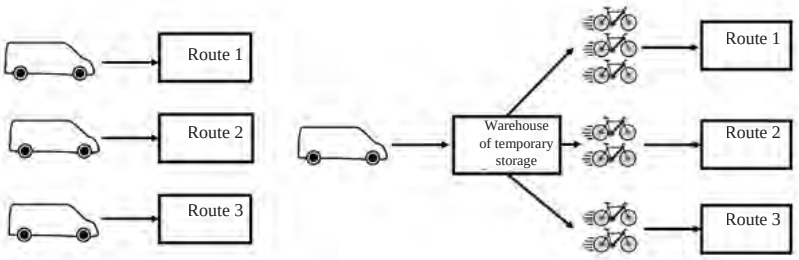
Organization of intracity transportation is one of the main tasks of logistics experts in large cities. Transport cargo flows mostly coincide with traffic routes of personal vehicle owners and worsen the busy traffic situation during peak hours. Cargo transportation makes up from 8 % to 10 % of the transport flow and, in case of loading and unloading, reduce street throughput by 30 % [10; 11]. About 20 % of CO_2 emissions into the city's atmosphere are caused by cargo transportation [12]. For example, in the UK the number of small vehicles over the past 20 years has grown by 71 %, while the fleet of cars has increased by only 13 %. Using electric bicycles can partially solve these problems. According to preliminary estimates, from 19 % to 48 % of the average daily mileage of a truck operating within the city [13], and transportation of up to 51 % [14] of all goods can be carried out using electric bicycles adapted for transportation of small goods (cargo electric bicycles).

A study conducted by Amsterdam University of Applied Sciences [15] in 2016–2017 confirms the possibility of using electric bicycles instead of cars for 10–15 % of intra-urban cargo transportation. The most promising areas are food transportation, courier and mail delivery, retail trade in non-food products, and services.

Labor costs can be considered among potential constraints when using electric

[4] Federal Law dated 10.12.1995 No. 196-FZ (as amended on 27.12.2018) «On Traffic Safety» (with amend. Entering into force since 01.11.2019). Article 25. [Electronic resource]: http://www.consultant.ru. Last accessed 21.07.2019.

[5] European Cyclists' Federation (ECF). [Electronic resource]: https://ecf.com/. Last accessed 21.07.2019.



Pic. 3. Model of replacement of low-tonnage trucks with electric bicycles. Compiled by the authors on the basis of: Nocerino, R., Colorni, A., Lia, F., Luè, A. E-bikes and E-scooters for smart logistics: environmental and economic sustainability in pro-E-bike Italian pilots. 6th Transport Research Arena, 2016.

Table 1

Limitations of the use of electric bicycles for transportation of goods

Parameter	Suitable for electric bicycles	Not suitable for electric bicycles
Temperature mode	• Cargo without special temperature mode of transportation and storage. • Cargo with a predetermined temperature mode (hot, cold) requiring fast delivery	Frozen products
Cargo weight	Light cargo	Heavy cargo
Dimensions	Cargo of small dimensions	Oversized cargo transportation is limited by traffic rules
Movement speed	Speed limit roads, busy streets	In the absence of additional speed limits for cars or in the absence of traffic jams, it is preferable to use a car
Number of stops on the route	The presence of a large number of delivery points on the route, since it is easier to park a bicycle	An increase in points along the route leads to an increase in mass or volume of the cargo. To use a bicycle, it may be required to limit points on the route and use an intermediate storage location
Distance	Short distance between points of unloading	At large distances between points, comparative effectiveness of a bicycle decreases
Availability of parking	• Shortage of parking space. • Lack of possibility to park a car directly at an unloading point. • High cost of car parking	The presence of a special entrance for cargo/courier transport to the unloading point increases the unloading time

Compiled based on City logistics: light and electric LEFV-logic: research on light electric freight vehicles. Amsterdam University of Applied Sciences. [Electronic resource]: https://www.amsterdamuas.com/car-technology/shared-content/publications/publications-general/city-logistics-light-and-electric.html. Last accessed 21.07.2019.

bicycles as an instrument of urban logistics, since the model of replacing low-tonnage trucks with electric bicycles implies an increase in the number of personnel involved (Pic. 3).

In this case, the increase in labor costs and potential costs for organizing a temporary storage warehouse should be adequately compensated both by reducing the variable costs associated with operating the fleet, and by reducing delivery time and improving quality of customer service. In addition, in areas of limited traffic, areas with restricted capabilities for loading and unloading, in zones with the absence of parking space or with expensive parking payment, time savings can be especially significant.

The implementation of such models of use of electric bicycles on a mass scale in the territory of Moscow is limited by both insufficient connectivity of the existing bicycle infrastructure [3] and the current regulation in the field of traffic. In particular, the issues of fixing violations of traffic rules by bicycle drivers, liability insurance for bicycle carriers, the possibility of electric bicycles traveling via pedestrian streets and streets with restricted traffic remain open. Excessive workload of the existing bicycle infrastructure can also become a potential problem if it is actively used for commercial transportation. Nevertheless, such work schemes are being actively implemented in many cities, especially regarding logistics of the last mile. So, in Hamburg, weColli team

created a mobile application that allows logistics companies to place orders for transportation of goods by electric bicycle carriers [16]. In many cases, this made it possible to reduce the delivery time since carriers use the bicycle infrastructure, which frequently exists outside of highways, and does not depend on traffic congestion. International companies UPS and DHL are actively testing various models of electric bicycles to choose the most effective options for use as the last mile transportation in large cities [16]. They are prompted to make such a decision not only to reduce delivery time during peak hours, but also to follow the global trend to reduce harmful emissions into the atmosphere, due to which «Clean Air Zones»[6] have appeared in some cities in the USA, where cars using traditional fuels are not allowed. However, the use of electric bicycles for logistics of the last mile has its limitations: certain categories of goods or route features do not allow to obtain additional benefits provided by electric bicycles (Table 1).

As can be seen from the Table 1, the use of an electric bicycle in the logistics of the last mile has several features and requires construction of an appropriate operation chain. The formation of routes should consider the features of this type of transport and requires the use of appropriate software to consider the characteristics of the cargo, route, current data on traffic congestion. The authors of the study conducted in the Netherlands [15] noted several additional disadvantages of electric bicycles, particularly battery charge time, lack of infrastructure for recharging, uncertainty of the legal status of cargo electric bicycles relative to other road users and pedestrians, and insufficient width of bicycle lanes for comfortable maneuvering.

Despite these shortcomings, the share of electric bicycles in urban logistics in European cities is increasing. Already, the accumulated experience of large logistics companies, as well as the results of experimental studies have shown the undoubted advantages of electric bicycles as of an alternative urban transport. The increase in the length of the route, the possibility of using an electric bicycle by wide strata of residents of megalopolises, development of technology to increase mileage without recharging and reduce cost and price of electric bicycles explain the growing popularity of this type of transport among cyclists and potential consumers. From the point of view of using an electric bicycle in logistics of the last mile, its advantages in maneuverability, speed of movement in city traffic, and the possibility of traveling to restricted traffic areas represent great opportunities for transporting small loads, goods with a limited shelf life and limited time of transportation, goods requiring urgent delivery.

Conclusion. The development of bicycle transport, equipped with electric motors, is a promising area for improving the transport system of the city. These vehicles can be used to travel long distances, which is especially important for a growing city, proceeding with inclusion of new territories that do not have a dense and developed transport network, as well as for delivery of small loads. However, the use of vehicles with electric motors requires creation of special transport infrastructure facilities, which include dedicated lanes, separate from pedestrian and car flows. Even if allocated lanes exist, systematic monitoring of compliance with traffic rules by cyclists using electric motors is necessary, since their mass is much higher than that of mechanical bicycles.

[6] Clean Air Zone. [Electronic resource]: https://en.wikipedia.org/wiki/Clean_Air_Zone. Last accessed 21.07.2019.

That is, when moving along lanes combined with pedestrian traffic (at a speed of less than 25 km/h), the damage caused by a collision with a pedestrian can be significantly higher. These conditions are mandatory to ensure safety of pedestrians and participants in traffic.

The effective use of electric bicycles also requires:

1) presence of battery charging stations and a system for disposal of used batteries;

2) reequipment of special parking spaces for temporary and permanent storage of bicycles and installation of a vehicle safety monitoring system;

3) control over technical state of vehicles;

4) speed limits for electric bicycles and scooters in recreational areas.

The variety of models of electric bicycles and scooters requires development of a service network for repair and technical inspection of a vehicle. On the one hand, all these activities are costly. On the other hand, they can contribute to economic development of the city. The most appropriate in this situation is public-private partnership, in which the responsibilities of the city include development of bicycle infrastructure projects (with a payback period of at least 3–5 years), while small and medium-sized businesses ensure implementation of these projects.

REFERENCES

1. Zavyalov, D. V., Saginova, O. V., Zavyalova, N. B. Methodology for monitoring the level of development of bicycle transport infrastructure perceived by city dwellers in Moscow [*Metodika monitoring vosprinimaemogo gorozhanami urovnya razvitiya velotransportnoi infrastruktury v g. Moskva*]. *MIR (Modernization. Innovations. Development)*, 2019, Iss. 1, pp. 66–83.

2. Zavyalov, D. V., Saginova, O. V., Zavyalova, N. B., Bykova, O. N. Bicycle transport infrastructure of the city as a means of changing transport behavior of Muscovites [*Velotransportnaya infrastruktura goroda kak sredstvo izmeneniya transportnogo povedeniya moskvichei*]. *Ekonomika: vchera, segodnya, zavtra*, 2019, Iss. 2A, pp. 238–251.

3. Saginova, O. V., Mkhitaryan, S. V., Zavyalov, D. V. Consumer perception of new forms of urban mobility: an example of monitoring bicycle infrastructure in Moscow [*Vospriyatie potrebitelyami novykh form gorodskoi mobilnoti: primer monitoring veloinfrastruktury v Moskve*]. *Marketing i marketingovie issledovaniya*, 2019, Iss. 2, pp. 132–145.

4. Council of the European Union. Draft statement by Luxembourg promoting cycling as a mode of transport (11.09.2015). [Electronic resource]: http://data.consilium.europa.eu/doc/document/ST-11944-2015-INIT/en/pdf. Last accessed 21.08.2019.

5. Mordor Intelligence. E-bike market – growth, trends, and forecast (2019–2024). [Electronic resource]: https://www.mordorintelligence.com/industry-reports/e-bike-market. Last accessed 21.08.2019.

6. 100 million extra e-bike purchases by 2030, Graphs NGO Using 2018's Stellar EU Sales Figures. [Electronic resource]: https://www.forbes.com/sites/carltonreid/2019/04/11/100-million-extra-e-bike-purchases-by-2030-graphs-ngo-using-2018s-stellar-eu-sales-figures/#42052f481a89. Last accessed 21.07.2019.

7. Zonnig 2018 stuwt omzet fietsbranche naar record [BOVAG and RAI Association]. [Electronic resource]: https://raivereniging.nl/artikel/persberichten/2019-q1/0301-zonnig-2018-stuwt-omzet-fietsbranche-naar-record.html. Last accessed 20.07.2019.

8. The Guardian. Bike country No. 1: Dutch go electric in record numbers. [Electronic resource]: https://www.theguardian.com/world/2019/mar/01/bike-country-n0–1-dutch-electric-record-numbers-e-bikes-netherlands. Last accessed 20.07.2019.

9. Annual report of the European Federation of Cyclists. [Electronic resource]: https://ecf.com/system/files/ECF_AnnualReport_2018.pdf. Last accessed 21.07.2019.

10. MDS Transmodal Limited: DG MOVE, European Commission: Study on Urban Freight Transport, Final Report, 2012. [Electronic resource]: https://ec.europa.eu/transport/sites/transport/files/themes/urban/studies/doc/2012-04-urban-freight-transport.pdf. Last accessed 21.07.2019.

11. Patier, D. La Logistique dans la ville. CELSE, February 2002. [Electronic resource]: https://www.researchgate.net/publication/5086863_La_Logistique_dans_la_ville. Last accessed 21.07.2019.

12. Schoemaker, J., Allen, J., Huschebek, M., Monigl, J. Quantification of urban freight transport effects I. Project co-funded by the European Commission within the Sixth Framework Programme (2002–2006), BESTUFS Consortium, 2006. [Electronic resource]: http://www.bestufs.net/download/BESTUFS_II/key_issuesII/BESTUF_Quantification_of_effects.pdf. Last accessed 28.08.2019.

13. Gruber, J., Ehrler, V., Lenz, B. Technical potential and user requirements for the implementation of electric cargo bikes in courier logistics services. 13th World Conference on Transport Research (WCTR), 2013. [Electronic resource]: https://www.researchgate.net/publication/259904186_Technical_potential_and_user_requirements_for_the_implementation_of_electric_cargo_bikes_in_courier_logistics_services. Last accessed 28.08.2019.

14. Schliwa, G., Armitage, R., Aziz, S., Evans, J., Rhoades, J. Sustainable city logistics – Making cargo cycles viable for urban freight transport. *Research in Transportation Business & Management*, June 2015, Vol. 15, pp. 50–57. DOI: https://doi.org/10.1016/j.rtbm.2015.02.001.

15. City logistics: light and electric LEFV-logic: research on light electric freight vehicles. Amsterdam University of Applied Sciences. [Electronic resource]: https://www.amsterdamuas.com/car-technology/shared-content/publications/publications-general/city-logistics-light-and-electric.html. Last accessed 21.07.2019.

16. Urban logistics redefined – with e-cargo bikes over the last mile. [Electronic resource]: https://www.logistics-newsfeed.com/top-story-november/. Last accessed 22.08.2019.

17. How UPS sees electric cargo bikes fitting into global logistics. [Electronic resource]: https://electricbikereport.com/how-ups-sees-electric-cargo-bikes-fitting-into-global-logistics-video/. Last accessed 22.07.2019.

18. Plazier, P. A., Weitkamp, G., Van Den Berg, A. E. Exploring the adoption of e-bikes by different user groups. Faculty of Spatial Sciences, University of Groningen, Groningen, Netherlands, Frontiers in Built Environment, 27 August 2018, Vol. 4, p. 47. DOI: https://doi.org/10.3389/fbuil.2018.00047.

Фото: mos.ru, Евгений Самарин.

САМЫЙ ДОЛГИЙ СЕЗОН ВЕЛОПРОКАТА В МОСКВЕ

Пользователи велопроката совершили в 2019 году пять миллионов поездок – почти на 17 процентов больше, чем в 2018 году.

В свой седьмой год столичный велопрокат отработал самый долгий сезон – почти семь месяцев. В 2019 году пункты аренды городских велосипедов работали с 20 апреля, а на зимний перерыв ушли только 17 ноября, ранее они так поздно не закрывались. Сезон продлили, потому что позволила погода, а также из-за большого количества просьб, поступивших от москвичей.

Столичная система велопроката – одна из самых динамично растущих в мире. За пять лет масштаб проекта вырос в два раза. В 2015 году станций было 300, а велосипедов – 2600. В этом году горожанам были доступны 528 станций и более 5,5 тысячи велосипедов в разных районах города.

Карта самых популярных районов велопроката в 2019 году включает районы Хамовники, Тверской, Пресненский, Останкинский, Марьино, Очаково-Матвеевское, Нагатинский Затон и Лефортово.

Героями минувшего сезона стали два пользователя. Один из них проехал более 10 тысяч километров – это расстояние длиной от экватора до Южного полюса. Другой пользователь брал велосипед 3300 раз – в прошлом году москвич успел 2,5 тысячи раз воспользоваться прокатом.

Столичный прокат – один из лидеров по уровню востребованности среди жителей: в среднем в Москве приходится 6,1 поездки на один велосипед в сутки, что более чем в два раза больше, чем в Лондоне – одном из городов-лидеров по популярности велопроката. В британской столице на один велосипед в среднем приходится 2,6 поездки.

Среднее время поездки прокатного велосипеда – 27 минут.

Растёт популярность электровелосипедов. В этом году на них совершено 125 тысяч поездок. Сейчас в городе можно взять напрокат 429 электровелосипедов, а в следующем году количество увеличится почти в два раза – их будет 729.

В следующем году планируется добавить ещё 100 станций и тысячу велосипедов. Таким образом, велопрокат будет работать на всей территории города. Специалисты оценят предложения жителей, где разместить станции, а также проанализируют, где по итогам 2019 года прокат пользовался наибольшей популярностью.

Всего с момента запуска «Велобайка» в системе зарегистрировались один миллион 600 тысяч человек. В сознании москвичей велосипед сейчас – это популярный и привычный способ добраться из одной точки в другую.

Благодаря развитию проката велосипедисты в Москве становятся активными участниками движения. В столице проводятся городские велофестивали. Так, на 2020 год уже запланировано три подобных события.

Набирает обороты прокат самокатов, который открылся в Москве в 2018 году. В этом году более полумиллиона поездок совершили пользователи проката. Это почти в четыре раза больше, чем годом ранее – тогда самокаты брали 140 тысяч раз. За время работы сервис завоевал популярность у москвичей – поездки в центре города стали частым явлением. Всего в системах операторов зарегистрировано около 350 тысяч пользователей.

По материалам официального сайта мэра Москвы: https://www.mos.ru/news/item/65374073/?utm_source=search&utm_term=serp ●