

THE USE OF ABOVE-GROUND TRANSPORT AND LOGISTICS COMPLEXES IN LARGE CITIES

*Zhuruntaev Sultan Maratovich, higher education candidate
education,*

askarrakhimbaev@yandex.kz

*Scientific director: Rakhimbaev A.B., Ph.D., professor
Kazakh Automobile and Highway Institute*

The present time in the world is characterized by a new stage in the development of the scientific and technological revolution, associated with the search for alternative and renewable energy sources, as one of the directions, i.e. with green energy. In this vein, there is a search for alternative off-street modes of transport without the use of hydrocarbon raw materials. This article discusses the need to use the passenger cable car (PCC) as a full-fledged public transport in the largest metropolis of the Republic of Kazakhstan, the city of Almaty with a population of 2 million people. In the future, until 2030, the number of city residents is expected to increase to 2.5-3.0 million. The city itself is located in the mountain basin of the Trans-Ili Alatau Tien Shan and has exhausted its territorial expansion opportunities in its central part. The personal transport fleet amounted to 700 thousand cars in 2022, of which 230 thousand were cars from the suburbs [1, p.47]. The road network is overloaded with hours-long traffic jams during peak hours and public transport is clearly unable to cope with its functions of delivering passengers. These trends are typical for most megacities around the world. Therefore, new, more efficient solutions became necessary, and then transport network specialists remembered the old aerial cableways (ACR).

The greatest development of (PCC), as accessible public transport, was achieved in Latin American countries: Colombia; Brazil and Venezuela. Therefore, the article extensively examines the experience of the above countries. In connection with the economic efficiency, profitability and rapid self-sufficiency of (PCC), the article discusses and substantiates the issues of including (ACR) in passenger public transport of the city of Almaty. The following advantages of the (PCC) speak for this: 1) the ability to overcome long-distance water obstacles along and across any terrain; 2) low construction and operating costs; 3) environmental cleanliness; 4) safety; 5) speed of movement without traffic jams; 6) significant throughput. All these factors have become determining for the increasing frequency of use of cable transport, not only as tourist

entertainment, but also in addition to traditional types of transport - buses, cars, railways, trams, etc.

The greatest development of (PCC), as accessible public transport, was achieved in Latin American countries: Colombia; Brazil and Venezuela. Therefore, the article extensively examines the experience of the above countries. In connection with the economic efficiency, profitability and rapid self-sufficiency of (PCC), the article discusses and substantiates the issues of including (ACR) in passenger public transport of the city of Almaty. The following advantages of the (PCC) speak for this: 1) the ability to overcome long-distance water obstacles along and across any terrain; 2) low construction and operating costs; 3) environmental cleanliness; 4) safety; 5) speed of movement without traffic jams; 6) significant throughput. All these factors have become determining for the increasing frequency of use of cable transport, not only as tourist entertainment, but also in addition to traditional types of transport - buses, cars, railways, trams, etc.

Today in Almaty the transport sector is developed, but not balanced, and opportunities for traffic management are limited. It is also necessary to reduce the share of personal vehicles. Today, 40% of Almaty residents prefer to drive a personal car, while 60% travel by public transport, bicycles, scooters, and on foot (for example, in Paris - 25% to 75%, in Vienna - 20% to 80%) [1, p. 40]. In the first half of 2022, 185 million trips were made on public transport (for comparison, by half-year: in 2019 - 177 million, in the pandemic year 2020 - 127.7 million, in 2021 - 157.7 million trips) [1, p.54]. In the world's major cities, residents primarily travel by rapid transit, which includes subways, light rail transit (LRT), and buses or trolleybuses (Bus Rapid Transit (BRT)).

Regular buses, bicycles, scooters, etc. are used to get to the nearest rapid transit (RT) or for short-distance trips. That is, high-speed transport in major cities of the world is the basis of the transport framework. In Almaty today, the situation is the opposite: regular buses and trolleybuses prevail, and high-speed public transport is in its infancy. There are 11 metro stations in the city with a track length of 13 km, along which 15 trains move. Passenger traffic over the past ten years has increased from 30 to 70 thousand passengers per day [1,p.108], but further growth is limited due to the fact that the lines duplicate ground routes, and the construction of new stations is proceeding at a low pace.

At the end of the 20th century, global trends in the enormous growth of megacities and urbanization literally forced urban transport

infrastructure engineers to look for other, extraordinary solutions to optimize the ever-growing passenger transport flows. At the same time, it becomes clear that the largest megacities in the world can no longer cope with modern passenger flows. This problem could not but lead to engineers not paying attention to cable cars as passenger ones. (PCC) have a number of undeniable advantages over cars, trams, trolleybuses, railways and future urban aircraft for rich people who wear signs of elitism.

All of the above indicates the ineffectiveness of organizing road traffic in large cities. Unfortunately, the allocation of special lanes for public passenger transport does not help. That is, this to some extent solves the problem of city traffic, but it is not entirely optimal, because this creates certain difficulties in general for all road users. A way out of this situation could be a special state program for the construction of (PCC) - as the future of the urban transport infrastructure of the Almaty metropolis.

Since this type of passenger delivery as public transport is not yet used in Almaty, this article needs to cite the successful experience of other countries. In particular, Latin American: Colombia; Venezuela, and Brazil. That is, such states are similar in a number of topographic conditions and macroeconomic indicators.

Such as terrain, standard of living, GDP per capita, inflation, wages and other social indicators. In the study, we chose the city of Medellin in Colombia to study international experience. Medellin is currently home to 2.5 million people, and Almaty has 2,179 thousand as of May 1, 2023. Also, this city is located in a mountainous area, like the metropolis of Kazakhstan. Accordingly, GDP per capita: Colombia 6104 USD and the Republic of Kazakhstan 11298 USD [2, p. 5] (take-profit.org). The research method is to study cases of the best international experience in using (PCC) in public transport.

Literature.

1. <https://lc-av.ru/2022/09/14/programma-razvitiya-goroda-almaty-do-2025-goda-i-srednesrochnye-perspektivy-do-2030-goda/> (дата звернення: 19.10. 2023).
 2. Public Transport and Accessibility in Informal Settlements: (AER) ial Cable Cars in Medellín, Colombia//Transportation Research Procedia 4 (2014) 55 – 67/Available online at [www.sciencedirect.com/ScienceDirect\(2352-1465](http://www.sciencedirect.com/ScienceDirect(2352-1465) © 2014 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license
URL: (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).
- Selection and peer-review under responsibility of Technische Universität München doi: 10.1016/j.trpro.2014.11.005. (дата звернення: 19.10. 2023)