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LINE “VRABAC” – PUBLIC TRANSPORT LINE IN THE PEDESTRIAN ZONE

Key Words

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Pedestrian zone

Abstract

As part of the activities on the expansion of the pedestrian zone in Belgrade, in August 2019, the City of Belgrade made a decision to introduce a new public transport line called "Vrabac" ("Sparrow"). Line "Vrabac" is specific and different in its features from other lines in public transport. It is characterized by new ecological - electric vehicles with a capacity of up to 8 passengers, it passes through the pedestrian zone and the transport service is not charged to the users.

The line is primarily intended for the elderly people and people with reduced mobility who live near the pedestrian zone, but it can be used by all visitors to the pedestrian zone. Three vehicles operate on the line, and there are 8 stops.

Introduction of such a line is in course with the principles of sustainable development and environmental protection on which public transport is based.

Several months after the introduction of the "Vrabac" line, a user survey was conducted in order to determine their satisfaction with this new public transport service.

1. INTRODUCTION

As of August 30, 2019, the line "Vrabac" served by mini electric vehicles of "Guevara City Bus" type has been operating within the public transport system of the City of Belgrade. The "Vrabac" system was established thanks to the project called

“Together for the Community” and the company “NIS”, which donated vehicles. The vehicles are parked in the very centre of the City in the public garage of Parking Service, while the maintenance of the vehicles and the provision of drivers were entrusted to GSP Belgrade. The route and elements of operation of this service are determined by the Secretariat for Public Transport.

The "Vrabac" line is 2.2 kilometres long and has a total of 8 stops (Figure 1). There are three vehicles on the line with an arrival interval of 10 minutes in the period from 8 a.m. to 10 p.m.

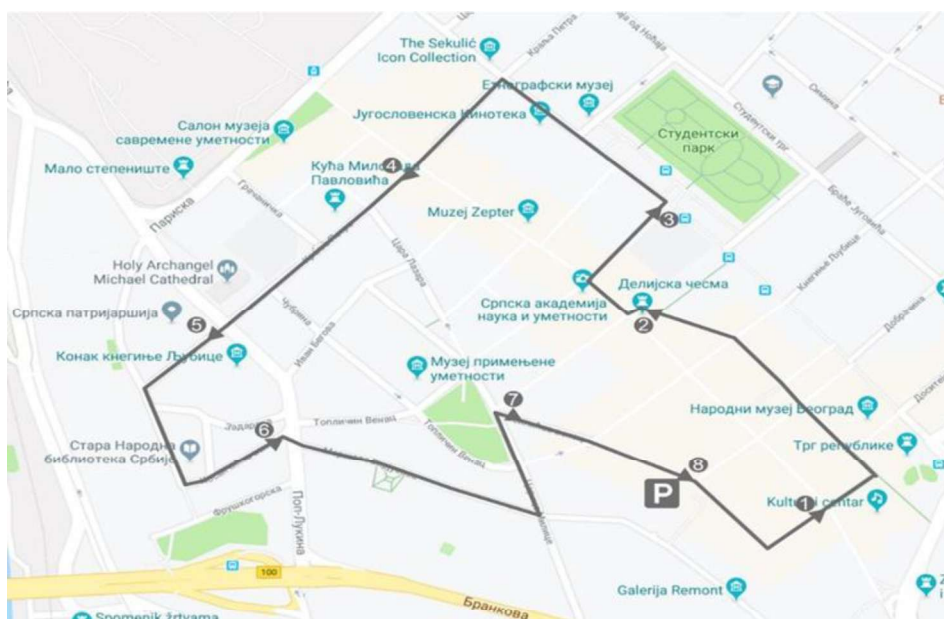


Figure 1. Route of the line “Vrabac”

The line is special in its features and different from other lines in public transport. It is characterized by new ecological - electric vehicles, smaller capacity (up to 8 passengers), operation in the pedestrian zone and free service.

The line is primarily intended for elderly citizens and people with reduced mobility who live in this zone, but it can also be used by other citizens and tourists who visit the city centre.

The vehicles which operate on the line are equipped with a 72-volt ACIM drive motor and a 72-volt 150Ah lithium battery. The battery provides autonomy for all-day operation without additional charging. The dimensions of the vehicle are: length 3950 mm, width 1500 mm, height 2000 mm, weight 1000 kg.

In 2019 (from the introduction to the end of the year), 9,216 km were realized on the "Vrabac" line, while in 2020 (in the period from May to December), 14,669 kilometres were realized.

2. USER SURVEY

After a year of operation of the line "Vrabac" in Belgrade, Public Utility Company GSP "Belgrade", conducted a survey of customer satisfaction of the line "Vrabac", with the aim to improve and enhance the offered transport service.

The research included 464 users of the "Vrabac" line services. This paper will present the most interesting results of the survey.

2.1. Characteristics of users

The starting point for the analysis of user satisfaction is to determine the characteristics and structure of the service users according to different criteria:

1. gender – 34% men and 66% women,
2. age structure – most of the users were 26-40 years old (Figure 2),
3. occupation – due to the specificity of the "Vrabac" line, the categories "tourists" and "people with small children" are also included.
4. frequency of using the "Vrabac" line – Of all surveyed users, 55% are those who use the line "Vrabac" for the first time, and 45% have used the line before.

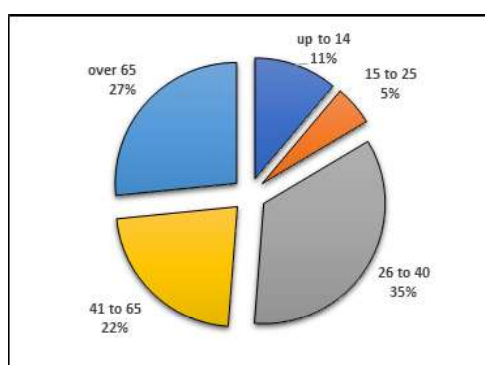


Figure 2. Age structure

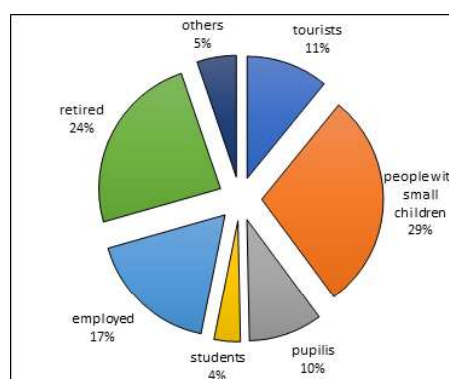


Figure 3. Structure according to occupation

Out of the total number of surveyed users, 11% are tourists and 29% are people with small children (Figure 3).

2.2. Results of research of service users on the line "Vrabac"

Frequency of using the line „Vrabac“ in relation to the occupation

The line "Vrabac" is for the first time mostly used by people with small children, and the least by students and category "others" (Figure 4).

Satisfaction with the vehicle appearance

Users are very satisfied with the appearance of the vehicle. The answer "very satisfied" with the appearance of the vehicle is given by 76% of respondents, while 23.5% are "satisfied" with the appearance of the vehicle.

Safety during the ride

Almost all passengers feel safe while riding on the "Vrabac" line (97%).

Support for further introduction of "Vrabac" vehicles in the public transport system

As many as 98% of the surveyed passengers on the "Vrabac" line support the further introduction of the "Vrabac" vehicle into the public transport system.

Assessment of the "Vrabac" service

The surveyed users rate the "Vrabac" service with the highest marks. Over 94% of passengers rate this service with the highest score of five, 4.6% rate it with a score of 4, while only 0.7% rate the line with a score of 1, 2 and 3.

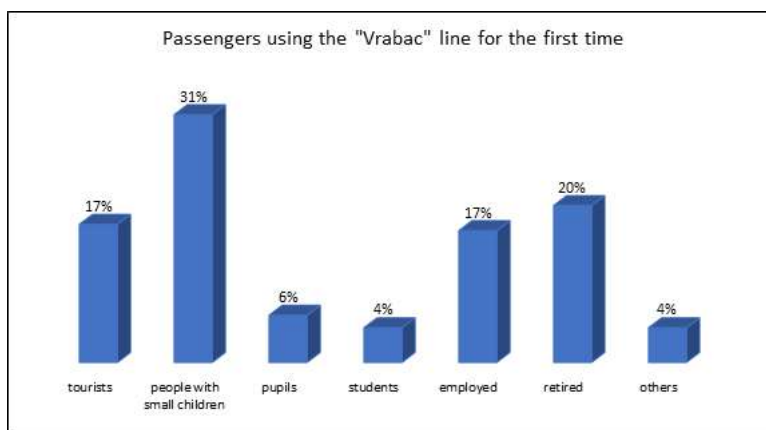


Figure 4. The structure of passengers using the line for the first time

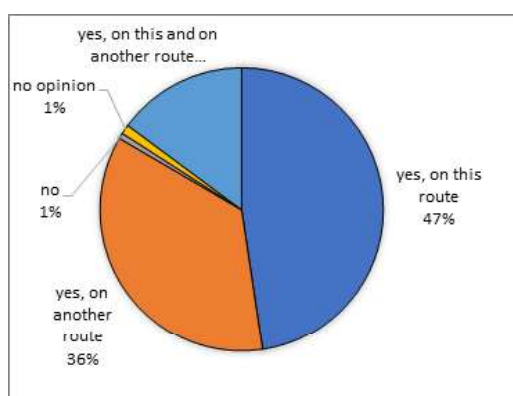


Figure 5. Support for further development of the line "Vrabac"

47% of the surveyed passengers stated that they support the introduction of more vehicles on this route, and 36% stated that they support the introduction of vehicles on another route. 15% of the surveyed passengers are both for introducing more vehicles on the existing route and for introduction of more new routes (Figure 5).

The average rating of the "Vrabac" service, according to the opinion of passengers who use it, is 4.93.

3. CONSLUSION

Users of the "Vrabac" line are very satisfied with it as well as with the vehicles that operate on it.

The opinion of the surveyed users is that the number of vehicles operating on the line should be increased as well as that more such lines should be introduced in order to make this service even more attractive and accessible to users of public transport services.



Figure 6. Electric vehicle on line "Vrabac"

Given the very positive opinion of users and compliance with modern trends of sustainable development, we can expect the expansion of this and the establishment of similar services in Belgrade and other cities in Serbia (Figure 7).

REFERENCES

- [1] PUC GSP "Beograd" Business Programme for 2020.
- [2] GSP „Beograd“, 2020, Business Report for 2020.
- [3] Survey of user satisfaction with the line „Vrabac“, October 2020.