ASSESSMENT OF THE IMPACT OF PUBLIC TRANSPORT ON TOURISM IN THE BALAKAN ADMINISTRATIVE DISTRICT

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Abstract

The article analyzes the impact of public transport infrastructure on tourism development in the Balakan administrative region located in the northwestern part of Azerbaijan. The main objective of the study is to determine the impact of the existing transport network of the region on tourist mobility, access to tourist sites and the implementation of the tourism potential of the region as a whole. Within the framework of the study, the current state of the public transport system operating in the Balakan region was analyzed, and statistical data on existing route lines, the technical level of the vehicles used, the quality of service and the road infrastructure were studied. The traffic density within the region was calculated using Engel's formula, and the degree of relationship between public transport facilities and tourist activity was determined using Spearman's linear correlation coefficient, and a moderately strong positive correlation was found between them. The results show that some shortcomings of the existing transport infrastructure limit tourists' convenient access to certain facilities, which negatively affects the overall satisfaction of tourists. The article puts forward a number of practical recommendations for improving the transport system. These proposals can become an important scientific and practical basis for the development of a sustainable and balanced strategy for tourism development in the Balakan region.

Keywords: *Balakan, correlation, transport, sustainable development, tourism.*

BALAKƏN İNZİBATİ RAYONUNDA İCTİMAİ NƏQLİYYATIN TURİZMƏ TƏSİRİNİN QİYMƏTLƏNDİRİLMƏSİ

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Xülasə

Məqalədə Azərbaycanın şimal-qərb hissəsində yerləşən Balakən inzibati rayonunda ictimai nəqliyyat infrastrukturunun turizmin inkişafına təsiri təhlil olunur. Tədqiqatın əsas məqsədi regionun mövcud nəqliyyat şəbəkəsinin turistlərin hərəkət-liliyinə, turizm obyektlərinə çıxış imkanlarına və ümumilikdə turizm poten-sialının reallaşdırılmasına təsirini müəyyənləşdirməkdir. Tədqiqat çərçivəsində Balakən rayonunda fəaliyyət göstərən ictimai nəqliyyat sisteminin mövcud vəziyyəti təhlil edilmiş, mövcud marşrut xətləri, istifadə olunan nəqliyyat vasitələrinin texniki səviyyəsi, xidmətin keyfiyyəti və yol infrastrukturu üzrə statistik göstəricilər araşdırılmışdır. Region daxilində hərəkət intensivliyi Engel düsturu vasitəsilə hesablanmış, ictimai nəqliyyat obyektləri ilə turist fəaliyyəti arasındakı əlaqənin səviyyəsi isə Spearmanın xətti korrelyasiya əmsalı ilə müəyyən edilmiş və aralarında orta dərəcədə müsbət korrelyasiya qeydə alınmışdır. Tədqiqatın nəticələri göstərir ki, mövcud nəqliyyat infrastrukturundakı bəzi çatışmazlıqlar turistlərin müəyyən obyektlərə rahat çıxışını məhdudlaşdırır və bu da turistlərin ümumi məmnunluğuna mənfi təsir göstərir. Məqalədə nəqliyyat sisteminin təkmilləşdirilməsi üzrə bir sıra praktik tövsiyələr irəli sürülür. Bu təkliflər Balakən rayonunda dayanıqlı və balanslaşdırılmış turizm inkişaf strategiyasının formalaşdırılması üçün mühüm elmi və praktiki baza ola bilər.

Açar sözlər: *Balakən, korrelyasiya, nəqliyyat, dayanıqlı inkişaf, turizm.*

ОЦЕНКА ВЛИЯНИЯ ОБЩЕСТВЕННОГО ТРАНСПОРТА НА ТУРИЗМ В БАЛАКЕНСКОМ АДМИНИСТРАТИВНОМ РАЙОНЕ

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Резюме

В статье анализируется влияние инфраструктуры общественного транспорта на развитие туризма в Балакенском административном районе, располо-женном на северо-западе Азербайджана. Основной целью исследования является определение влияния существующей транспортной сети региона на туристическую мобильность, доступ к туристическим объектам и реализацию туристического потенциала региона в целом. В рамках исследования был проведён анализ текущего состояния системы общественного транспорта в Балакенском районе, изучены статистические данные по действующим маршрутам, техническому состоянию используемых транспортных средств, качеству обслуживания и дорожной инфраструктуре. Плотность транспорт-

ного потока в регионе была рассчитана с использованием формулы Энгеля, а степень взаимосвязи между объектами общественного транспорта и туристической активностью определена с помощью коэффициента ранговой корреляции Спирмена. В результате выявлена умеренно сильная положительная корреляция между этими показателями. Результаты исследования показывают, что отдельные недостатки существующей транспортной инфраструктуры ограничивают удобный доступ туристов к определённым объектам, что негативно сказывается на общем уровне их удовлетворённости. В статье предложен ряд практических рекомендаций по совершенствованию транспортной системы. Эти предложения могут стать важной научной и практической основой для разработки устойчивой и сбалансированной стратегии развития туризма в Балакенском районе.

Ключевые слова: *Балакен, корреляция, транспорт, устойчивое развитие, туризм.*

Introduction

Tourism and transport are two strategic sectors of the economy that are interrelated. The integration of these sectors is of particular importance in terms of accelerating regional development, improving the standard of living of the population and diversifying economic activity.

Although transport is not an independent industry, it is a type of service that occupies an important place in the tourism sector. Transport, which is the backbone of the economy of each country, is of great importance, especially in passenger transportation. Tourists make up a significant part of passengers in this sector.

Balakan district, located in the northwestern region of Azerbaijan, in the southern foothills of the Greater Caucasus, in the Alazan-Haftaran valley, is distinguished by an abundance of natural resources, economic development potential and rich cultural heritage. The population of Balakan district, with a total area of 923 km², is 100.7 thousand people according to statistical data of 2024 *(Executive Power of Balakan Region, 2025).*

Balakan administrative district was formed in 1930. In 1963, it was merged with the Zagatala district, but in 1965 it was reorganized into an independent district. The administrative center of the district is Balakan city *(Executive Power of Balakan Region, 2025).*

The region has high relief features: mountainous in the north and northwest, flat in the south. Forested mountain ranges rise from the north to alpine meadows, and the

highest peaks usually remain covered with snow until August. These features create favorable conditions for the development of mountain tourism, mountaineering and various mountain sports in Balakan. *(Executive Power of Balakan Region, 2025).* However, there are certain problems in the area of transport infrastructure in the administrative district. Despite the growth of tourism indicators in the region in recent years and the development of its infrastructure in this area, the insufficiently efficient functioning of the public transport system is a serious problem.

Taking this into account, it is relevant to study the impact of public transport on the tourism sector in the Balakan district, analyze the current situation and assess the development prospects. The purpose of this study is to analyze the current situation of public transport in the Balakan district, assess its impact on tourism development and propose optimal solutions.

Considering that in recent years no scientific work has been written separately on tourism or transport infrastructure of the Balakan district, this article has high scientific significance. The main objective of the study is to assess the impact of public transport infrastructure on tourism in the Balakan district and to determine development prospects.

To achieve this goal, the following tasks were completed:
- Analysis of the current state of the transport infrastructure of the Balakan region;
- Assessment of the tourism potential of the region;
- Determination of the impact of public transport on tourism development;
- Identification of existing problems in the fields of tourism and transport;
- Providing effective solutions and recommendations.

Methodology and theoretical basis

The rapid development of tourism is mainly due to the improvement of transport infrastructure. Jean-Paul Rodrigue defines the relationship between tourism and transport as follows: Tourism as an economic activity uses transport to bring tourists to their destination, and transport can be part of the tourist experience (*Jean-Paul Rodrigue, 2024*).

One of the leading factors in the territorial organization of tourism in the Sheki-Zagatala economic and geographical region is the transport infrastructure. The Baku-Yevlakh-Balakan railway, the Baku-Yevlakh-Balakan and Baku-Ismayilli-Gabala-Balakan highways passing through the region play an important role in establishing internal and external tourism links (*Badalova Kh., 2022*).

122

The linear correlation coefficient proposed by Spearman (2008) can be used to assess the relationship between the two specified economic sectors. Based on this, the relationship between tourism and public transport in the Balakan region can be determined (Spearman, C., 2008).

The model of E. Engel allows to characterize the density of the transport network and the general provision of the population with transport (Engel coefficient). Using the Engel coefficient, it is possible to express the ratio of the total length of transport routes in the Balakan region both to the population and to the area of this region *(Lewbel, A., 2008)*.

Ana-Maria Dinu (2018) studies the importance of transport in international tourism, the role of individual modes of transport in tourism. As is known, water transport is the only mode of transport not used for passenger transportation in the Balakan region. The development potential of each of the remaining modes is great (*Ana-Maria Dinu, 2018*).

Thomas Bausch (2024) analyses the factors that influence tourists' use of public transport when travelling to tourist destinations. These factors include socio-demographic indicators, daily mobility in public transport, its environmental impact, preferences compared to private cars and the possibility for tourists to use public transport more conveniently *(Bausch, 2024)*.

Page (2009) discusses the importance of government policy in the development of the tourism industry and transportation in his book, and also describes the place of transportation and destinations in the formation of the tourism system (picture 1)*(Stephen J. Page, 2009)*.
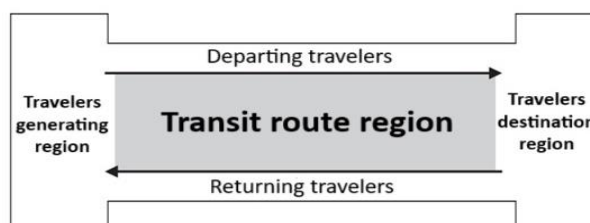
Picture 1. Scheme of the tourist system
Source: Stephen J. Page (2009).

If we apply the tourism system scheme proposed by Page to the administrative region of Balakan, then in the near future, when the land borders are restored, Balakan will become a transit region for tourists traveling from Baku to Georgian tourist destinations. This, in turn, will require the development of public transport

infrastructure and create conditions for faster development of tourism in the region (Stephen J. Page, 2009). Also, the article mainly used and analyzed the latest statistical data from the State Statistical Committee of the Republic of Azerbaijan and the State Tourism Agency.

Tourism in Azerbaijan

The development of tourism has emerged as a vital component of the state policy of the Republic of Azerbaijan, reflecting its growing significance in the country's overall strategy for economic development and modernization. Recognizing the multifaceted benefits of tourism — including job creation, regional development, cultural exchange, and foreign investment — the government has increasingly prioritized this sector in its long-term planning and policy-making processes. Tourism not only contributes to economic growth but also serves as a powerful tool for promoting Azerbaijan's rich cultural heritage, natural landscapes, and historical landmarks on the global stage.

After 1993, the tourism industry was given strategic importance, and its potential as a driver of national development was thoroughly assessed. A series of institutional, legislative, and practical measures were introduced to lay the foundation for sustainable tourism. These included the improvement of tourism infrastructure, the adoption of relevant legal frameworks, the promotion of Azerbaijan as a tourist destination, and support for public-private partnerships in tourism development. As a result, the tourism sector began to experience steady growth, gradually becoming one of the important pillars of the country's economy.

Over the past two years, Azerbaijan's tourism sector has faced a noticeable decline, primarily due to a combination of internal and external challenges. One of the major factors contributing to this downturn was the 44-day war in 2020, which had significant socio-political and economic repercussions for the country. The conflict not only affected regional stability but also discouraged international tourist flow due to safety concerns and disrupted infrastructure.

In addition to this, the global COVID-19 pandemic severely impacted the tourism industry worldwide, and Azerbaijan was no exception. The pandemic led to widespread travel restrictions, lockdowns, and a sharp decline in international and domestic mobility. As a result, Azerbaijan's tourism operations were significantly limited. The country's logistics and transportation capabilities were strained, and many tourism-related services faced operational disruptions.

Moreover, rising costs and inflation during this period further compounded the challenges for both service providers and potential tourists. Price increases in transportation, accommodation, and other sectors have made travel less accessible, slowing the recovery of the industry.

Despite these temporary setbacks, the government of Azerbaijan continues to prioritize the development of tourism as a key part of its non-oil economic diversification strategy. Recognizing tourism's potential to create jobs, boost regional economies, and enhance the country's international image, Azerbaijan remains committed to overcoming these difficulties. With active government support, strategic planning, and renewed investment, it is expected that the negative trends in the sector will be reversed in the near future, paving the way for a stronger, more resilient tourism industry.

In 2024, Azerbaijan was home to approximately 300 travel agencies and tour operators, employing around 1,700 individuals—down from 432 enterprises and 2,205 employees in 2019. This decline largely reflects the global tourism downturn triggered by the COVID-19 pandemic (www.tourism.gov.az).

Back in 2019, our country's agencies welcomed 30,950 inbound tourists and arranged travels for 68,557 departures. By 2024, those numbers had dropped to 11,232 arrivals and 39,133 departures, illustrating a significant recovery yet still well below pre-pandemic levels (www.tourism.gov.az).Overall visitor traffic also reflects this trend: in 2024, 2,626,000 foreign and stateless individuals entered Azerbaijan, compared to a peak of 3,170,400 in 2019 (www.tourism.gov.az).

Looking ahead, Azerbaijan possesses significant potential to grow and diversify its tourism industry across a wide range of specialized niches. The country is rich in cultural heritage, offering unique opportunities for cultural tourism through its historical monuments, ancient cities, traditions, and UNESCO World Heritage Sites. Health and wellness tourism also shows promise, with numerous natural springs, therapeutic mud baths, and sanatoriums located throughout the country. Likewise, Azerbaijan's mountainous terrain and seasonal snowfall create favorable conditions for the development of mountain and winter tourism, including skiing and hiking.

In addition, Azerbaijan has the capacity to attract visitors through sports tourism by hosting international competitions and promoting adventure and recreational sports. Business tourism is also expanding, particularly in urban centers such as Baku, where modern conference and event facilities have been established to attract regional and international business events. The country's coastline along the Caspian Sea supports

the growth of beach tourism, while its diverse natural landscapes and protected areas are ideal for eco-tourism and sustainable travel. Moreover, regions with rich biodiversity and hunting reserves offer possibilities for developing regulated and environmentally responsible hunting tourism.

Despite these vast opportunities, realizing the full potential of these tourism segments will depend largely on the advancement and enhancement of transport infrastructure. Reliable, accessible, and modern transportation—both within the country and across its borders—is essential for facilitating tourist mobility, ensuring comfort and safety, and connecting remote destinations to major tourism hubs. Continued investment in road networks, air travel facilities, rail systems, and public transport services will be critical in supporting the sustainable and inclusive growth of Azerbaijan's tourism industry in the coming years.

Tourism in Balakan

Tourism plays an important role in achieving the sustainable development goals of Azerbaijan and expanding the non-oil sector. In this regard, the Balakan region, which has rich tourism resources, should make the most of its potential for tourism development.

One of the main tourist attractions of the area is the Heydar Aliyev Culture and Leisure Park, which is loved by both locals and visitors. This park has various attractions and a 1,200-meter-long cable car. The park also houses the 132-room, 4-star Gubek Hotel, which has been operating since 2011 *(Executive Power of Balakan Region, 2025)*.

Based on the Baku-Shamakhi-Ismayilli-Belaken tourist route, zones for 12 different tourist routes have been identified in the Belaken region *(State Tourism Agency of the Republic of Azerbaijan, 2025)*:
1. Balakan – Katekh falls;
2. Balakan – Qubek – "Su donen";
3. Balakan – "Mirovaya voda";
4. Balakan – Arilig;
5. Balakan – Garachay river – Siltik – "Geological exploration";
6. Balakan – Mazım river;
7. Balakan – Darvazbina – Goyamtala – Ganikh;
8. Balakan – Gabaqchol – Baghman spring – Kubchar spring;
9. Balakan – Aviation center – Imam spring;
10. Balakan – Ititala;

11. Balakan – Garakli – Zepel spring – Pari castle;
12. Balakan – Jijikhana.

Given the region's existing tourism resources, cultural, ecological, exotic, natural-sports (hunting, hang-gliding, hiking, horse riding) and family tourism can be developed here. At the same time, the region's local cuisine creates favorable conditions for the development of gastronomic tourism.

According to official statistics for 2024, the number of operating hotels and similar establishments in the Balakan region is 3. In total, 3,495 guests were accommodated in these facilities in 2024, of which 251 were foreign tourists (table 1) *(State Tourism Agency of the Republic of Azerbaijan, 2025)*.

Table 1. Main tourism indicators of Balakan district

Indicators	2020	2021	2022	2023	2024
Number of domestic tourists (persons)	11,053	28,055	31,320	29,843	29,831
Domestic tourist spending (thousand manats)	6,341	13,225	13,597	13,298	13,365
Number of hotels and similar establishments (units)	3	3	3	3	3
Number of rooms, unit	95	95	95	95	95
Number of accommodated person, person	755	781	3498	3296	3495
Number of accommodated foreigners and stateless persons in hotels	50	13	86	262	251

Source: Azerbaijan State Statistical Committee (2025)

According to statistics from 2024, only 1.4% of foreigners and stateless persons visiting Balakan district stayed in hotels. At the same time, 48.5% stayed in their own homes, 46% in relatives' homes, and 4.1% in rented houses. These statistics show that the majority of those visiting Balakan district are stateless Azerbaijanis. These persons mainly live in the Russian Federation, Kazakhstan, Ukraine, Georgia and other countries (picture 2) *(State Tourism Agency of the Republic of Azerbaijan, 2025)*.
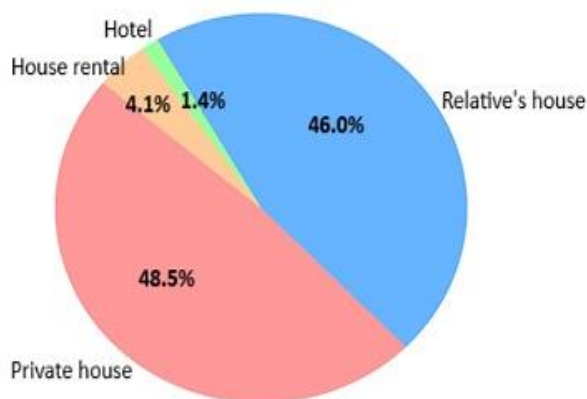
Picture 2. Statistics of overnight stays of tourists in Balakan in 2024
Source: State Tourism Agency of the Republic of Azerbaijan (2024).

Transportion in Balakan

Transport provision is widely recognized as one of the key factors in ensuring effective communication and connectivity between the capital and the various regions of a country. It plays a vital role in facilitating economic integration, regional development, and the equitable distribution of resources and services. This factor becomes particularly crucial for regions that have a high potential for recreational and tourism activities, as well as those actively engaged in foreign trade. Efficient transportation systems enable the movement of tourists, goods, and services, contributing to regional economic growth and improved quality of life for local populations.

In Azerbaijan, although significant progress has been made in developing the national transport network, the overall level of transport accessibility in many regions still lags behind that of several advanced foreign countries. Inadequate road conditions, limited availability of public transport, and underdeveloped railway and air connections in certain areas hinder the full realization of the economic and tourism potential of these regions. This gap in transport infrastructure not only affects the competitiveness of Azerbaijan's regions on a global scale but also creates disparities in regional development.

To address these challenges, further investments and policy interventions are needed to modernize and expand the country's transport systems. Strengthening regional connectivity will be essential to unlocking tourism opportunities, enhancing trade flows, and fostering balanced, inclusive development across Azerbaijan.

The fact that Balakan district has a land border with Georgia in the northwest and a border crossing at Mazymchay is one of the main points increasing the possibilities of international tourism here. Using this opportunity, tourist trains can be organized from Baku to Tbilisi, and from there to Batumi and even to Turkey.

Currently, the public transport system of Balakan district is organized by bus and taxi services for intra-district passenger transportation, as well as bus, rail and automobile (taxi) transport for intercity transportation.

In recent years, the main public transport routes in the district are taxi services (Bolt, Arifoglu, TaksiPlus), intra-city and inter-village route buses (on 10 lines), intercity bus routes (in the direction of Baku, Ganja, Mingachevir, Sheki, Gabala, Zagatala and others), as well as a railway line (in the direction of Baku).

One of the main difficulties associated with public transport is the old infrastructure and material and technical base. Thus, 60% of the bus fleet in the district is older than 15 years (table 2).

Table 2. Main transport indicators of Balakan district

Indicators	2018	2019	2020	2021	2022	2023
Passengers transportation by road transport, thousand passengers	8,032	8,201	4,584	4,634	5,785	6,971
Number of passenger buses, unit	111	124	130	137	142	143
Number of passenger cars, unit	7,322	7,546	7,715	8,310	9,163	9,929
from them private passenger cars, unit	7,292	7,478	7,653	8,257	9,120	9,884
Number of private passenger cars per 100 households, by the end of the year, unit	34	34	35	38	35	39

Source: Azerbaijan State Statistical Committee (2025)

Another problem is the small number of bus routes, unstable and long intervals of service (bus routes in the region do not operate after 19:00 in the evening), as well as the inefficiency of taxi services. There are only two trips per day from Baku to Balakan and back, and the trips are carried out at 10:00 and 12:30 in the morning, which creates certain difficulties for those wishing to travel *(Baku International Bus Terminal Complex, 2025).*

Short-term measures may include the organization of additional routes to popular tourist season destinations, updating the bus and taxi fleet, introducing an electronic ticket system, creating information centers, and others.

Also, according to the "Short-term, Medium-term, and Long-term Development Plan for the City of Balakan," approved in 2021, it is planned to implement such measures as improving the road and transport infrastructure of the city of Balakan, repairing the cable car, eliminating traffic jams, and ensuring free and safe movement of pedestrians.

Relationship between transport and tourism

Ensuring the socio-economic development of any region is fundamentally dependent on the existence of modern, reliable, and efficient transport infrastructure. Such infrastructure serves as the backbone for connecting people, goods, and services, and is essential for fostering economic activities, social inclusion, and regional integration. To be truly effective, transport infrastructure must be designed and developed with careful consideration of the specific needs and priorities of both the local population and the diverse economic sectors operating within these territories, including agriculture, industry, tourism, and trade.

When transport infrastructure is insufficient or outdated, it creates significant barriers to sustainable development. Underdeveloped transport networks restrict access to markets, education, healthcare, and employment opportunities, which can lead to the economic and social marginalization of communities. Additionally, poor transport conditions often result in logistical challenges, increased costs, and reduced competitiveness for local businesses. These limitations hinder the full realization of a region's development potential and contribute to the persistence of regional inequalities. Addressing transport infrastructure deficits is therefore crucial for promoting balanced development, improving quality of life, and ensuring the long-term sustainability of all territories.

The concept of transport provision of the population, in terms of provision of transport services, reflects the level of provision of infrastructure of one or several types of transport per capita of the territory. To conduct an analysis in this area, it is advisable to use the indicator of E.Engel (Engel coefficient), which characterizes the density of the transport network per capita and the total provision of the population with transport. The Engel coefficient expresses the ratio of the total length of transport routes in the territory to both the population and the area of this territory:

$$E = \frac{L}{\sqrt{SH}}$$

where:

> *L – total length of public transport routes*
> *S – size of territory*
> *H – size of population*

Using this coefficient, let's evaluate the transport infrastructure in Balakan: The total length of roads in Balakan is 273 km, the population is 100.7 thousand, and the area is 923 km2. Based on this, let's find the Engel coefficient:

$$E = \frac{L}{\sqrt{SH}} = \frac{273}{\sqrt{100700 * 923}} = \frac{273}{9640} = 0.03$$

As can be seen, the coefficient is significantly lower than 1, which indicates that public transport is not yet fully accessible in Balakan.

In addition, it is very important to determine the relationship between transport and tourism in the Balakan region. Thus, with the development of tourism, the transport infrastructure develops, and the numbers increase. Conversely, as tourism development weakens, the rate of transport development also weakens. There are a number of methods for assessing this relationship, one of which is Spearman's rank correlation coefficient.

Spearman's rank correlation coefficient is used to determine and evaluate the density of the relationship between two comparable quantitative indicators. Based on the Spearman coefficient, the density of the relationship between the data is conditionally estimated as follows: if the coefficient value is less than 0.3, then this is considered a weak relationship; values in the range of 0.3–0.7 indicate a moderate relationship; values of 0.7 and above indicate a strong relationship.

Additionally, the Chaddock scale is also widely used to assess the density of correlation (table 3)*(Saadalov, T., Myrzaibraimov, R., & Abdullaeva, Zh. (2021)):*

Table 3. Chaddock scale for assessing the density of correlation

Absolute value of correlation	Interpretation
0.0 – 0.3	Negligible correlation
0.3 – 0.5	Weak correlation
0.5 – 0.7	Moderate correlation
0.7 – 0.9	Strong correlation
0.9 – 1.0	Very strong correlation

Source: Saadalov, T., Myrzaibraimov, R., & Abdullaeva, Zh. (2021).

Using data on the total number of persons accommodated in hotels and similar establishments, along with the number of passengers transported via road transport in the Balakan administrative district for 6 years (2018–2023), we will calculate the correlation coefficient using the Spearman method to assess the relationship between public transport and tourism. According to the State Statistics Committee, the statistical indicators for the transport and tourism sectors in Balakan district during the specified timeframe are as follows:

	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Total number of persons accommodated in hotels and similar establishments (X)	1672	2598	755	755	3498	3296
Passengers transportation by road transport in Balakan district (Y)	8032000	8201000	4584000	4634000	5785000	6971000

Source: Azerbaijan State Statistical Committee (2025)

Using the X and Y data presented in this table, we calculate the correlation coefficient. First of all, we will arrange the values of X and Y by year — from the smallest to the largest:

Years	Total number of persons accommodated in hotels and similar establishments (X)	Rank number by Mx indicator	Passengers transportation by road transport in Balakan district (Y)	Rank number by My indicator
2018	1 672	3	8 032 000	5
2019	2 598	4	8 201 000	6
2020	755	1	4 584 000	1
2021	781	2	4 634 000	2
2022	3 498	6	5 785 000	3
2023	3 296	5	6 971 000	4
Sum		21		21

Source: Azerbaijan State Statistical Committee (2025)

Next, we calculate the difference between the rank positions of data sets X and Y for the corresponding years, followed by computing the square of these differences:

Years	Total number of persons accommodated in hotels and similar establishments (X)	Rank number by Mx indicator	Passengers transportation by road transport in Balakan district (Y)	Rank number by My indicator	d = Mx-My	d²
2018	1 672	3	8 032 000	5	-2	4
2019	2 598	4	8 201 000	6	-2	4

132

2020	755	1	4 584 000	1	0	0
2021	781	2	4 634 000	2	0	0
2022	3 498	6	5 785 000	3	3	9
2023	3 296	5	6 971 000	4	1	1
Sum		21		21	0	18

Source: Azerbaijan State Statistical Committee (2025)

Finally, using the square of the difference between the rank numbers of the obtained data X and Y (d²), as well as the number of data by year (n), we will calculate according to the following formula:

$$P = 1 - 6 \times \frac{\sum d^2}{n^3 - n} = P = 1 - 6 \times \frac{18}{6^3 - 6} = 0.49$$

Thus, based on the coefficient r=0.5 we obtained, we can say that the relationship between public transport and tourism in Balakan is at an moderate level. Moderate positive correlation (r=0.5) indicates that there is a mutual relationship between the number of passengers transported by public transport and the number of tourists accommodated in hotels. Increasing this relationship in the coming years is very important for the development of tourism in the region.

Conclusions and recommendations

The study revealed that the existing condition of public transport in the Balakan district is a significant limiting factor that prevents the region from fully capitalizing on its rich tourism potential. Inadequate transport services, limited connectivity, and outdated infrastructure hinder tourists' ability to easily access and explore the area's attractions, thereby restricting growth opportunities for the local tourism industry. However, the successful implementation of the proposed improvements and strategic measures has the potential to greatly enhance the quality, efficiency, and reliability of the transport system in the region.

Such enhancements would not only facilitate smoother and more convenient travel for visitors but also strengthen the overall attractiveness of Balakan as a tourist destination. Emphasizing sustainable transport solutions—such as environmentally friendly vehicles, improved public transit options, and better infrastructure planning—will be essential to ensure long-term viability and minimize the ecological impact of increased tourism.

Additionally, the integration of digital technologies, including smart ticketing systems, real-time travel information, and digital route planning tools, can modernize transport services, improve user experience, and optimize operational efficiency.

Together, these efforts can provide a powerful boost to the tourism sector, driving economic growth and improving quality of life in the Balakan district.

Taking into account all of the above, in order to strengthen the relationship between public transport and tourism in the Balakan region, and as a key result - for the accelerated development of tourism in the region, the following main recommendations can be proposed:
- expansion and improvement of public transport infrastructure;
- increasing the availability of information on transport services for tourists;
- coordination of tourist routes with public transport routes;
- ensuring affordable prices and high quality of transport services;
- collection and analysis of statistical data on ground public transport;
- maximum use of the potential of rail transport;
- creation of a passenger terminal and information center near the "Mazymchay" customs checkpoint;
- placement of tourist advertising and information stands at public transport stops.

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