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ASSESSMENT OF THE ECONOMIC EFFECTS OF THE MODERNIZATION OF THE S16 NATIONAL ROAD

WYCENA EFEKTÓW EKONOMICZNYCH MODERNIZACJI DROGI KRAJOWEJ S16

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Abstract

Subject and purpose of work: The S16 road corridor is of particular importance for the socio-economic development of the Warmia and Mazury regions. The aim of this article is to assess the economic effects of the modernization of the S16 national road.

Materials and methods: The basic research method used in the study is the cost-benefit analysis method developed by the Road and Bridge Research Institute.

Results: The results of the study indicate economic benefits such as reduction of business costs and improvement of the quality of life of residents, reduction of travel time and vehicle operating costs, improvement of safety, and, on a macro scale, economic development of the region.

Conclusions: The modernization of the S16 national road will contribute to a faster equalization of differences between our region and other well-developed regions of the country, as well as improve the sense of security of the residents of Warmia and Mazury.

Keywords: cost-benefit analysis, economic assessment, road infrastructure, national road

Streszczenie

Temat i cel pracy: Korytarz drogowy S16 ma szczególne znaczenie w rozwoju społeczno-gospodarczym regionu Warmii i Mazur. Celem artykułu jest wycena efektów ekonomicznych modernizacji drogi krajowej S16. Problemem badawczym poruszonym w artykule jest kwestia wyceny efektów ekonomicznych uzyskanych z modernizacji drogi krajowej.

Materiały i metody: Podstawową metodą badawczą zastosowaną w opracowaniu jest metoda analizy korzyści i kosztów, opracowana przez Instytut Badawczy Dróg i Mostów.

Wyniki: Wyniki badań pokazują uzyskanie korzyści ekonomicznych dla ludności i przedsiębiorców działających wzdłuż badanej drogi krajowej. Do najważniejszych korzyści zaliczyć można obniżenie kosztów działalności gospodarczej i poprawę jakości życia mieszkańców, obniżenie kosztów czasu, oraz eksploatacji pojazdów, poprawę bezpieczeństwa, a w skali makro rozwój gospodarczej regionu.

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Wnioski: Modernizacja drogi krajowej S16 przyczyni się do szybszego wyrównania różnic między naszym regionem a innymi dobrze rozwiniętymi regionami kraju, z drugiej strony poprawi poczucie bezpieczeństwa mieszkańców Warmii i Mazur.

Słowa kluczowe: infrastruktura drogowa, wycena ekonomiczna efektów, droga krajowa, analiza korzyści i kosztów

Introduction

Road transport infrastructure is one of the most important technical systems having a direct and indirect impact on the economic development of a country, region or municipality (Karst, 1986; Kamińska, 1999; Dąbek, 2006; Brdulak, Pawlak, 2016; Zakrzewski, 2016). The development of road infrastructure has a positive impact on the creation of so-called demand and supply effects in a given area. In addition, modern transport infrastructure reduces costs in the economy, contributing to the territorially balanced development of the country (Borys, 2008) and reducing pressure on the environment[1]. Due to Poland's current geopolitical situation, transport infrastructure is becoming one of the key factors influencing national security[2]. The security of critical infrastructure is beginning to take on a national security dimension, and access to key services remains a measurable aspect of national security and a state obligation towards its citizens (Zięba, Zając, 2010).

The S16 road corridor is of particular importance for socio-economic development and is a key factor determining the development potential of the counties along which it runs, which has been recognised and taken into account in the Development Strategy for the Warmian-Masurian Province until 2030. The above-mentioned document assumes the importance of road 16 and 52 municipalities located within a 15 km radius of this road corridor for the development of the province, which has been referred to as the 'Warmian-Masurian Tiger' and is also one of the nine areas of strategic intervention of the Warmian-Masurian Province. This intervention aims to increase the dynamism of development processes and strengthen the region's competitiveness at the national and international level (Development Strategy ... 2022).

The challenge for theorists and practitioners is to assess the economic and social effects of investments in road transport infrastructure. The development of road infrastructure in a given area has a positive impact on the creation of so-called demand and supply effects. Research on the role of infrastructure in most cases confirms the impact of transport networks on the overall increase in economic efficiency in the areas where it is located (Ratajczak, 1999; Kozłowski, 2014). Demand effects are associated with an increase in consumption in a given area, resulting from increased interest in a given infrastructure, and thus an increase in the number of households, enterprises and, consequently, products and services sold. Supply effects are mainly associated with improved production efficiency, increased productivity and output in a given area (Kozłowski, 2012).

The issue addressed in this article is the valuation of the effects obtained from investments in road transport infrastructure. The aim of the article is to provide an economic assessment of the modernisation of the S16 national road, which is crucial for the Warmian-Masurian Province in both economic and social terms. Currently, the S16 national road has been classified by the Polish government as a front road[3]. The basic method used in the study is the cost-benefit analysis method.

[1] Towards sustainable land transport. Transport policy guidelines. World Bank, February 2011.

[2] Resolution No. 67 of the Council of Ministers of 9 April 2013 on the 'Strategy for the development of the national security system of the Republic of Poland 2022'. Monitor Polski, Warsaw, 16 May 2013, item 377.

[3] Act of 25 July 2025 on specific principles for the preparation and implementation of strategic investments in the scope of state defense needs or key investments in the scope of state defense needs or public safety, and the establishment of protection zones of closed areas. Journal of Laws 2025, item 1080 of 7 August 2025.

An overview of the literature

Road transport infrastructure is the foundation of modern economies and societies, and is also an important element of the security of a country, region, municipality and, above all, local community. Its links with businesses shape the assessment of industrial defence potential by institutions involved in national defence. They form the infrastructural basis for manufacturing processes and so-called security logistics (Stęplewski, 2016). Road transport infrastructure is also an important element of the country's spatial development, promoting or limiting the economic and social activity of individual regions. From a general perspective, it determines the country's economic development and the scale of its international trade, and is now also an important factor in European integration and global cooperation (Koźlak, 2012). Roads, motorways, bridges and ring roads are not just technical elements in space – they are the bloodstream that enables the efficient flow of people, goods and services. Transport accessibility is one of the key factors in the investment attractiveness of regions, affecting the quality of life of residents and promoting social integration processes (Vickerman 1974; Handy, Niemeiera 1997; Spiekermann, Neubauer 2002; World Bank, 2019).

Economically, the road network plays a key role in growth. First, it reduces transportation and logistics costs, which fosters business competitiveness (Kudłacz, 2015; Litman, 2021). Businesses located in well-connected regions have easier access to markets and trading partners, allowing them to plan their operations more effectively. Second, roads become a significant factor in attracting investment. The development of logistics centers, industrial parks, and new production plants often depends on proximity to major transportation routes (Rietveld & Bruinsma, 2018). Transport infrastructure therefore creates conditions for the creation of new jobs, supports employee mobility, and facilitates the development of entrepreneurship. The impact of roads on the tourism sector is also significant. Regions with good road access become more attractive to domestic and foreign tourists, generating additional revenue for local economies (Transport infrastructure and cohesion policy 2021-2027. Brussels 2020).

From a societal perspective, road infrastructure plays an integrative and equalizing role. Thanks to it, residents of remote towns gain better access to public services – such as education, healthcare, and administration (Zawadzka, 2021). This facilitates daily life and strengthens social cohesion. The development of the road network also translates into safety and quality of life. Modern roads reduce the risk of accidents, and efficiently designed bypasses reduce traffic congestion in city centers, reducing traffic jams, noise, and exhaust emissions[4]. Shorter commuting times to work or school mean more free time for citizens, which positively impacts quality of life. Thanks to road infrastructure, peripheral regions can overcome transport isolation, which helps to level development gaps and improve equal opportunities between the center and the countryside[5]. A key issue in these times of war is the place of road transport infrastructure in the national security process. These include military and defense security, economic security, and social security. An efficient and modern road network is crucial for the mobility of armed forces, enabling rapid movement of troops, military equipment, and support from allied states in the event of armed conflict. Above all, they are intended to serve as efficient corridors for people to escape from threatened areas (Kuliczkowski, 2013).

Technically and organizationally efficient infrastructure ensures the smooth flow of supplies, stabilizes supply chains, and helps in the event of various disasters and crises. Technically efficient infrastructure primarily reduces road accidents and strengthens territorial cohesion within a given region, municipality, or country. Transport infrastructure along the eastern border plays a special role – it serves as both a trade gateway and a potential military support corridor. According to Shladover (2022), assets flow through roads, connecting producers and consumers across vast geographic areas. Therefore, the reliability, capacity, and condition of these road networks directly impact the efficiency and profitability of asset movement and storage (Çolak, 2023; Sasidharan et al., 2022).

[4] The future of road transport. Paris: OECD Publishing. OECD/ITF. 2021.
[5] Transport infrastructure and cohesion policy 2021-2027. Brussels 2020.

Insufficient access to the transport system of national and international importance is a fundamental factor determining regional peripherality and a serious obstacle to improving the level of socio-economic development of a given region or municipality[6].From this perspective, the development of transport infrastructure is a priority for the voivodeships of Eastern Poland. Currently, research indicates that the level of road infrastructure development in the Warmian-Masurian Voivodeship is the lowest compared to other voivodeships in Poland (Jasińska, Jasiński, 2018). Transport accessibility is one of the fundamental metrics used to assess the transport system spatially, which stems from the voivodeship's geographical location and infrastructure infrastructure (Kwarciński, 2017). The accession of new countries from Central and Eastern Europe to the European Union in 2004 exposed the disparity in development levels between member states. This presented new challenges for EU regional policy, necessitating reform of transport policy. The objectives of the EU's common transport policy and the construction and modernization of road transport infrastructure are very time-consuming, so to address the challenges outlined in the White Paper by 2050 year, concrete decisions must be made today[7].

The methodology for evaluating the effects of investments in road infrastructure currently poses a challenge for researchers, both in theoretical and practical terms.

Proper road allocation brings numerous benefits, including preventing traffic congestion and increasing investment and tourist attractiveness. Transport infrastructure is a key element of logistics chain efficiency. Detailed studies evaluating road investments in terms of economic and social development have been conducted by (Meyer, 2020; Ke et al., 2020; Litman, 2021; Łukasiewicz, Świtała, 2021; Urbański, Sudyka, Grondys, 2021).

Road transport investment research encompasses numerous methodologies and spatial approaches. These include scenario-based strategic modeling (Asgarpour et al., 2023), the transport-environment Kuznets curve (Zhang et al., 2023), data envelopment analysis (Baran, Górecka, 2019), regional market potential (Rokicki, Cieślik, 2023), and decomposition analysis (Tsemekidi-Tzeiranaki et al., 2023).

The use of cost-benefit analysis dominates investment practice (Drobniak, 2008). When considering the methods of analysis and evaluation of infrastructure investments, economic, environmental, social, and strategic aspects must be taken into account. The economic valuation of the effects of infrastructure investments is complex because the economic effects obtained must be expressed in monetary terms. The valuation is based on an informal logical qualitative assessment of immeasurable inputs and benefits, expressed in terms of so-called dual prices (Kujawski, 2016). The social benefits and costs resulting from the implementation of an infrastructure investment, valued based on so-called shadow prices, constitute a fundamental element of the analysis. Common indirect benefits from a macroeconomic perspective include increased consumer demand, decreased unemployment, an increase in the number of businesses, and increased municipal income from personal income taxes (PIT), corporate income taxes (CIT), etc. Social evaluation refers to the measurement of the quality of life of the local community based on questionnaire-based techniques. The fundamental issue is the local community's assessment of the tangible benefits resulting from the implemented investments, e.g. improved quality of life, increased satisfaction, acceptance, improved health and safety, etc.

The valuation of strategic effects refers to the measurement of strategic benefits that a municipality will gain through the implementation of an infrastructure investment. The basic aspects of the analysis include the promotion of the municipality, raising its rating, perception and creation of an investment climate, and ensuring security in various dimensions (Rogowski, 2018). The final valuation of the effects of an infrastructure investment is therefore the sum of the valuations of individual areas, i.e., financial, economic, social, and strategic, expressed as a monetary value NPVpi. The development of the broadly understood social economy means that the assessment of economic efficiency is currently the main area

[6] Report of the Ministry of Regional Development entitled The impact of the construction of motorways and expressways on the socio-economic and territorial development of Poland, Warsaw 2013.

[7] White paper Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system. European Commission, Brussels, 28.3.2011,COM(2011) 144 final, s. 5-9.

of interest for theorists and practitioners. The valuation of social benefits in industrial projects creates a good climate for a given investment and is a kind of promotion for the company that implements it.

Research Methods

The issue addressed in this article is the valuation of the economic effects of investments in transport infrastructure. The aim of the article is to assess the economic effects of the modernization of the S16 national road, which is crucial for the Warmian-Masurian Province in both economic and social terms. The specific objectives are:

- Analysis of the potential of the S16 road corridor under study.
- Assessment of the economic benefits resulting from the modernization of the infrastructure under study.

The research methods used in the article are:

- Literature analysis and review studies – a review of existing scientific literature and industry reports on multi-criteria assessment methods and road infrastructure.
- Statistical method – statistical analysis of results to assess the stability and reliability of selected or planned investment solutions.

The research period covers the years 2024-2025. The subject of the study is the 395 km long national road S16, which connects Dolna Grupa in the Kuyavian-Pomeranian Voivodeship with the Polish border at Ogrodniki in the Podlaskie Voivodeship. The S16 is 285 km long within the Warmian-Masurian Voivodeship. The main towns along the road include Grudziądz, Łasin, Kisielice, Iława, Ostróda, Olsztyn, Barczewo, Biskupiec, Mrągowo, Mikołajki, Orzysz, Ełk, and Augustów. The S16 is the main transportation route in Warmia and Mazury. The current route of the S16 national road is illustrated in Figure 1.



Figure 1. Route of the S16 national road

Source: www.wikimedia.pl

The S16 national road is of strategic importance for the development of the Warmian-Masurian Voivodeship and the 52 municipalities located within a 15-kilometer radius of the road corridor, which is referred to as the „Warmian-Masurian Tiger." Despite its key role in economic and social development, modernization of the S16 national road has progressed very slowly. The road's primary problem is that most sections are single-lane, which reduces travel time and traffic congestion on some sections, reducing speed limits and increasing vehicle operating costs. Table 1 presents the capital expenditures for the modernization of the S16 road to date from 2004 to 2023.

Table 1. Total capital expenditures for the S16 road from 2004 to 2023 (PLN million)

Type of expenditure	2004-2013	2013-2020	2020-2023	Total
Road routes	935	900	1200	3035
Ring roads	-	3600	700	4300
Total	935	4500	1900	7335

Source: prepared based on data from GDDKiA and the Voivodeship Office in Olsztyn 2025.

A total of PLN 7.335 million was invested in the S16 road between 2004 and 2023, modernizing 97.9 km of the road, representing approximately 25% of the total. Considering the strategic nature of the corridor under study, the investments made so far appear insufficient.

Research Results

Analysis of the Road Corridor's Potential. The S16 road corridor is 395 km long and runs through 52 municipalities. It is also the main transportation route in Warmia and Mazury. The human resources potential located around the corridor represents 50% of the total population of the Warmian-Masurian Voivodeship and 52% of the working-age population (Table 2). In both cases, a downward trend is visible in the number of individual population groups.

Table 2. Population structure within the S16 road corridor in 2020-2023

Territorial Unit	Total population			
	2020	2021	2022	2023
Ełk County	89158	88771	88621	88343
Iława County	91087	90562	90218	89870
Mrągowo County	48860	48324	47861	47472
Olsztyn County	128530	128935	129555	129914
Ostróda County	101397	100597	99744	99069
Pisz County	53531	52946	52537	51969
City of Olsztyn	170 706	169 251	168 212	167 311
Total	683269	679386	676748	673948
Working-age population				
Ełk County	57283	56640	56261	55919
Iława County	57138	56524	56086	55807
Mrągowo County	31272	30697	30252	29804
Olsztyn County	82565	82540	82660	82910
Ostróda County	63591	62735	61931	61348
Pisz County	34160	33660	33344	32840
City of Olsztyn	101 714	99 893	98 404	97 103
Total	427723	422689	418938	415731

Source: Local Data Bank 2025.

The largest population along the S16 road corridor under study is located in the city of Olsztyn and Olsztyn County, with a total of 296,325 residents. The largest number of working-age people was also recorded in the city of Olsztyn, with 97,103 people as of December 31, 2023 (Table 2). Key road infrastructure also hosts the largest number of businesses, including those most crucial to the region's economy: agriculture, industry, construction, and trade (Table 3).

Table 3. Number of national economic entities around the S16, according to the Polish Classification of Activities (PKD), in 2020-2023

Territorial Unit	National economy entities			
	Total			
	2020	2021	2022	2023
Ełk County	2 037	2 087	2 132	2 216
Iława County	1 763	1 829	1 890	1 979
Mrągowo County	1 304	1 352	1 387	1 433
Olsztyn County	2 911	3 013	3 145	3 292
Ostróda County	2 547	2 600	2 651	2 738
Pisz County	1 151	1 160	1 203	1 237
City of Olsztyn	8 322	8 556	8 734	8 991
Total	20 035	20 597	21 142	21 886
Warmian-Masurian Voivodeship	38 299	39 357	40 234	41 460

Source: Local Data Bank 2025.

The largest number of businesses is found in the Olsztyn (3,292) and Ostróda (2,738) counties, and the city of Olsztyn (8,991). The total number of businesses located along the S16 road corridor at the end of 2023 was 21,886, representing 53% of all businesses registered in the Warmian-Masurian Voivodeship. Demand analysis for the S16 road corridor. The modernization of the S16 road is associated with a steady increase in demand and, consequently, traffic volume. In 2024, average daily traffic on the S16 road was 118,527 vehicles per day (Table 4), 67% higher than in 2023.

Table 4. Average daily traffic on the S16 road

Average daily vehicle traffic	Year			
	2023	2024	Forecast 2025	Forecast 2030
Total vehicle trips	79 322	118 368	128 148	173900
Motorcycles	547	519	747	1350
Passenger cars and minibuses	56698	88950	103079	129 800
Light trucks (vans)	6931	10140	10500	13000
Trucks without trailers	5678	5901	3977	9600
Trucks with trailers	6690	10948	8062	18400
Buses	2311	1704	1210	1300
Agricultural tractors	467	206	573	450

Source: own study based on GDDKiA 2025 data.

Given current economic and social trends, a steady increase in traffic volume on the road corridor under study is expected by 8.3% in 2025 compared to 2024, and by 36% in 2030 compared to 2025. This increase in traffic volume requires increased capacity and, consequently, a two-lane roadway.

Valuation of economic effects

The methodology of the Polish Road and Bridge Research Institute[8] was used to evaluate the benefits of modernizing the construction of National Road No. 16. It is assumed that the National Road S16 on the Augustów-Grudziądz section will be modernized as a two-lane road, thus allowing for average vehicle speeds of 80 km/h for heavy-duty vehicles and 120 km/h for passenger cars. The direct economic benefits of modernizing National Road No. 16 along its entire 385 km length are presented in Table 5.

Table 5. Analysis of Benefits from Time Savings and Fuel Consumption on the Route Augustów-Grudziądz

No.	Name of the benefit	Standard	Estimated value of economic benefits
1.	Time savings	- passenger vehicles + motorcycles - 150 minutes - trucks and trucks with trailers - 90 minutes - buses - 90 minutes - PLN	Economic benefits = time saved * driver's hourly rate * number of vehicles per year 13,042,500/year - PLN 1,845,000/year - PLN 60,000 /year-PLN
Total			14 947 500 /year-PLN
2.	Fuel consumption	Average travel speed increase for: - Passenger cars 30 km/h - average fuel consumption reduction by 8 liters/vehicle - Trucks 30 km/h - average fuel consumption reduction by 30 liters - Buses 30 km/h - average fuel consumption reduction by 30 liters	Economic benefits = amount of fuel saved * fuel cost * number of vehicles per year -Lower fuel consumption costs for passenger cars and motorcycles, average annual - PLN 7,651,600/year -Lower fuel consumption costs for trucks, total, average annual - PLN 6,765,000/year -Lower fuel consumption costs for trucks, total, average annual - PLN 214,500/year
Total			**14 631 100 zł/rok**

Source: own study based on the PIBDiM 2014 methodology.

Analyzing the benefits of time savings and reduced fuel consumption, it appears that the annual savings for businesses and individuals resulting from the road corridor change will reach PLN 29,578,600 per year. Another benefit of modernizing Route 16 is the reduction in road accident costs. In 2022, the costs of road accidents in Poland were estimated at approximately PLN 52 billion annually[9], representing 6.4% of GDP for 2022. Accidents constitute a significant socioeconomic problem due to the mass nature of the phenomenon and its tragic, traumatic consequences.

National roads managed by the General Directorate for National Roads and Motorways (GDDKiA) in the Warmian-Masurian Voivodeship comprise approximately 1,327,000 km. National Road No. 16 is 395 km long, representing 30% of all national roads in the voivodeship. A particularly dangerous section of the S16 national road, the Mrągowo-Orzysz section, is characterized by a high accident risk. In 2022, there were 249 road accidents and 4,016 collisions on the S16 national road, resulting in 26 deaths and 393 injuries. The costs of road accidents on the current S16 are presented in Table 6.

[8] Instructions for assessing the economic efficiency of road and bridge projects - verification of the research method in accordance with EU recommendations and updating of unit prices at the 2007 level. Road and Bridge Research Institute. Warsaw 03.2008.

[9] Report: Estimation of the costs of road accidents and collisions on the Polish road network at the end of 2022, with a separate analysis of the average socio-economic costs of accidents on the Trans-European Transport Network. National Road Safety Council in Poland. Warsaw 2023.

Table 6. Estimation of road accident costs on the national road S16 as of December 31, 2022

No.	Cost Name	Quantity Cost	Average cost mln PLN	Value mln PLN
1.	Road accident	249	1.8	24.9
2.	Road collisions	4016	0.04	160
3.	Fatalities in accidents	26	2.6	67.6
4.	Injuries in accidents, including serious injuries	393	1	393
	Total			645.5

Source: prepared based on the Report: Estimation of the costs of road accidents and collisions. National Road Safety Council in Poland. Warsaw. 2023.

Currently, the costs of road accidents on National Road 16 are approximately PLN 620.4 million annually, representing nearly 1% of the Warmian-Masurian Voivodeship's GDP by 2022. The nationwide costs of road accidents and collisions are estimated at PLN 55 billion, excluding costs related to human deaths and long-term hospital treatment. It is assumed that upgrading the S16 to a two-lane road will reduce the cost of accidents on this road by approximately 70%, which in real terms translates to PLN 452 million annually. In addition to direct benefits, the modernization of Road No. 16 will bring numerous indirect benefits, including (Table 7).

Table 7. Projected indirect economic and social effects of the modernization of the S16 road

Effect	Description	Estimation of effects
Increased security	- The road has been designated as a military road. - Ability to transport weapons to the eastern border. - Quick connection to the ports of Gdynia and Gdańsk. - Ability to quickly evacuate residents of the Warmian. -Masurian Voivodeship on the eastern flank.	Increased national security.
Economic development	Establishment of: - service companies such as gas stations, restaurants, and hotels, - manufacturing - logistics.	Employment growth. Increased investment attractiveness of municipalities such as Biskupiec, Mrągowo, Orzysz, Mikołajki, Ostróda, Iława, and Kisielice.
	Inflow of investments, especially in the logistics sector: logistics centers, warehouse hubs, etc.	Material investments Development of the international logistics sector
Improving the attractiveness of building plots	The areas around the modernized road will become an attractive place for people to settle due to the new job opportunities.	Rising real estate prices
Improved transport accessibility residents	Reduced costs of commuting to work and school Increased mobility of residents - reduced traffic congestion in city centers: Olsztyn, Ełk .	Reduced costs of commuting from smaller towns to urban agglomerations, e.g., Olsztyn, Ełk, etc.

Source: own study.

Most of the indirect benefits will be achieved through the snowball effect of modernizing individual road sections and may be achieved several years after the road's modernization. Therefore, there is a need for systematic and continuous monitoring and measurement of the individual benefits obtained from road renovation.

Conclusions

Modernizing the section of National Road No. 16 located in the Warmian-Masurian Voivodeship will contribute to a faster reduction of the disparities between our region and other well-developed regions

of our country. The road's expansion will improve safety, and the improved comfort and speed of travel will increase the region's tourist and economic attractiveness. Businesses and tourists will travel faster and more safely throughout Warmia and Mazury, and domestic and international carriers will use the new Route 16 to bypass congested cities, reducing travel times and increasing their profits. Indirectly, the reconstruction of National Road No. 16 could create new jobs and provide poorer municipalities with the opportunity to attract new investors. The region will significantly improve its European standing as an attractive area for direct connections to trans-European road corridors. The road's modernization will bring tangible benefits to the Warmian-Masurian Voivodeship in terms of socio-economic development, including lower travel costs, a reduction in road accidents, increased investment attractiveness, and, consequently, an increase in the number of businesses and employment. The modernization of the S16 road will indirectly contribute to the growth of the Warmian-Masurian Voivodeship's GDP, estimated at 1.5-3.5% annually. Therefore, it seems necessary to intensify the activities related to the modernization of the S16 national road, which is in the interest of many groups of institutional beneficiaries such as cities, municipalities, as well as enterprises and people living in areas close to the analyzed corridor.

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