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**THE CONCEPT OF “WARMIA LANDSCAPE ROAD”  
AS A METHOD OF RURAL AREAS SUSTAINABLE  
DEVELOPMENT BASED ON THE EXAMPLE  
OF OLSZTYN RURAL COUNTY**

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**Key words:** Warmia, roads, growth areas, standardization of roads, Warmia Landscape Road.

**A b s t r a c t**

The paper presents the possibility of using county roads of lesser strategic importance (others) for sustainable development of the entire area. That possibility was presented as the concept of “Warmia Landscape Road” based on the example of Olsztyn Rural County. It includes the roads planned during the 18<sup>th</sup> C. that are currently in operation connecting rural locations, residences or monumental objects (mansions-palaces-parks), lined with trees and forming avenues. Roads-avenues, as the elements of technical infrastructure are authentic elements of the landscape of Warmia (and some parts of Mazury). They may form a complementary esthetic-cultural-landscape component for visitors and represent a means for activation, and as a consequence sustainable development of rural areas.

**KONCEPCJA „WARMIŃSKIEJ DROGI KRAJOBRAZOWEJ” JAKO METODY  
RÓWNOWAŻENIA ROZWOJU OBSZARÓW WIEJSKICH NA PRZYKŁADZIE  
POWIATU OLSZTYŃSKIEGO ZIEMSKIEGO**

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**Słowa kluczowe:** Warmia, drogi, obszary wzrostu, standaryzacja dróg, „Warmińska droga krajobrazowa”.

**A b s t r a c t**

W opracowaniu przedstawiono możliwość wykorzystania dróg powiatowych o mniejszym znaczeniu strategicznym (pozostałych) do zrównoważenia rozwoju całego obszaru. Możliwość tę przedstawiono jako koncepcję „Warmińskiej drogi krajobrazowej” na przykładzie powiatu olsztyńskiego

ziemskiego. Uwzględniono w niej drogi wytrasowane w XVIII wieku, funkcjonujące obecnie, łączące miejscowości wiejskie, rezydencje lub obiekty zabytkowe (dworsko-palacowo-parkowe), obsadzone drzewami, tworzącymi aleje. Drogi-aleje, jako element infrastruktury technicznej, są autentycznym elementem krajobrazu Warmii (i niektórych części Mazur). Mogą stanowić dopełniający fragment estetyczno-kulturowo-krajobrazowy dla zwiedzających lub wypoczywających i być sposobem na aktywizację, a tym samym na równowagę rozwoju obszarów wiejskich.

## Introduction

Poland as a signatory of the European Landscape Convention is responsible for the comprehensive approach to the space from the perspective of appropriate care for the cultural elements. Roads-avenues, lined with trees are such an element as a reminder of the technological culture of Warmia and Mazury during the times of Prussian jurisdiction. The roads are a complementary element (next to buildings and land relief) of the contemporary landscape of Warmia and Mazury. In the Study of modernization of the roads of Olsztyn Rural County (2005) it was written that only ca. 1000 km of roads administered by the County fulfill (or may fulfill in the future) important economic and social functions. The remaining roads are transport connections with much lower traffic density and less important for economic development. Currently, they play a quite important economic role in the space of the County connecting localities possessing outstanding cultural and landscape values. The role of the other roads could be strengthened within the frameworks of the Warmia Landscape Road concept.

This paper aims at presenting the Concept of the Warmia Landscape Road as the method for sustainable development of the area.

## Subject and empirical bases of the concept Expert opinions prepared

Within the frameworks of the study *Local development planning* prepared in 2003 by the Polish Statistical Association in Olsztyn the basic assumptions concerning the road network development within the area of Olsztyn Rural County have been drafted. The functional division of the road network resulting from the *Warmińsko-Mazurskie Voivodship Spatial Development Plan (...)* was the starting point for analytical and design works.

On the base of conducted analyses, concerning in particular the parameters and technical condition of county roads and engineering structures on those roads, the concept of activities aiming at modernization of the road network in the area of the county was proposed. It was assumed in that concept, first of all,

that actions concerning county roads classified as complementary roads in the functional classification of the roads will be undertaken. The level of generality of the studies conducted allowed only formulation of the recommendation indicating, among others, the necessity of the detailed justification for the indicated design solutions and drafting of the technical guidelines.

In the *Study on modernization of roads in Olsztyn County* (2005) studies were conducted on the potential of Olsztyn Rural County space. Determination of the areas of concentrated investment activities (growth areas) in which transformations in their scale exceeding the size of a single real property (or a few of them) are taking place (or are planned) were delineated as a result of those studies. The point was to identify the areas of extensive economic activities for which designing of new infrastructural solutions, particularly transport ones, of wider than local scale would be justified. The determined size and strength of the growth areas allowed development of the concept for reconstruction of the transport system, i.e. the roads servicing the identified areas. The schedule, i.e. the order of implementation of tasks, was determined depending on the (earlier determined) rank of the area in the County space. The assumption was made that first the areas in which offices of municipality administration are situated would be supported. The point was to rebuild the old network of connections between centers of municipalities that was historically developed and encircled the City of Olsztyn in the form of a ring. As the next step, the actions aiming at reconstruction of the road network servicing also the residential, industrial-service as well as tourism and recreation areas were planned. At that stage the notion of the "landscape road" as a technical-natural-cultural concept that could be implemented during modernization of County roads was developed.

### **Spatial scope and timeframe**

The delimitation of the area covered by the studies was carried out in line with the assumptions defined in expert papers. The area of Olsztyn Rural County was assumed for the area to be covered by the conceptual works concerning the Warmia Landscape Road. The urban areas of Olsztyn, Barczewo, Biskupiec, Dobre Miasto, Jeziorany and Olsztynek were excluded from the analyses in the assumption that as a consequence of the specificity of the space (not-urbanized) and subject of the study (roads in not urbanized areas) the areas of towns should be subject to a separate study.

The field studies were conducted during the years 2004–2005. The historical (cultural) studies covered the period from the 18<sup>th</sup> C. when for the first time notes on legal acts and standards concerning maintenance of roads in the area of historical Warmia appeared in documents.

## **Methodology of field studies**

At stage one of the study the analysis of conditions for road network development in the transport system of the entire region was conducted. In the context of the updated Warmińsko-Mazurskie Voivodship Spatial Development Plan the County roads that should be modernized within the frameworks of the concept of the Warmia Landscape Road were identified. That was followed by conducting the natural conditions analysis that included in particular the composition of species in the roadside tree alleys and their role in the ecosystem. The role of the road in the landscape of Warmia and historical conditions of roads construction as an element of technical culture of the region were the main areas of analyses, which allowed drafting the initial concept of the "Warmia Landscape Road".

At stage two field studies were conducted that involved taking a detailed inventory of thirty (30) roads with roadside alleys. During the inventory taking the main focus was on identification of the methods of the road and its environment planning and construction. Particular attention was paid to the standing timber composition, age, health status and the way of planting trees along the roads. The places of contact between roadside alleys with built up and forest areas were also measured and photographed. The major technical elements such as the cross section of the roads in three points determined along its entire length, distance of road edge (from the road center), shoulder widths, distance to the internal edge of tree trunks forming the alleys, distance to buildings and other elements related to development, distance to objects of small architecture (e.g. roadside chapels) and other elements characteristic for a given road type were also measured. During the measurements the road surface quality, shoulders status (material, preservation and other) and elements accompanying the road were also assessed. Road signage, both horizontal and vertical was also subject to particular assessment. From the measurements conducted the descriptive documentation was prepared in the form of 30 cards A and B for individual objects with graphic annexes and photographic documentation.

Cards A contain descriptions, cards B represent graphic illustration of the inventory. The complete set of cards A and B is included in the study delivered to the Mayor of Olsztyn Rural County.

## **Synthesis and processing of the result of studies**

The design of the „Warmia Landscape Road” (WLR) was the last stage of the studies. On the base of the literature review the general assumptions for the model in three aspects: nature-landscape, culture and technology were



formulated. On the base of the field studies the common characteristics of the roads found in the area of the Olsztyn Rural County were identified. The contemporary German experiences in restoration and maintenance of the network of roads with roadside alleys were also used. On the base of the collected and analyzed materials the concept of the „Warmia Landscape Road” was developed in three aspects: technical, cultural and natural-landscape.

## **The „Warmia Landscape Road” in the road network of the County**

### **The functional system of Olsztyn County road network**

The principles specified in point Warmińsko-Mazurskie Voivodship Spatial Development Plan assumed the road network division into three basic groups according to their function in space:

- the superior transport system,
- the basic transport system,
- complementary roads network.

The following roads within the area of Olsztyn Rural County were classified to the supreme transport system:

- the national road No. 7 (Gdańsk-Olsztyn-Warszawa) modernized to the technical class of the express road S, with simultaneous construction of Olsztyn bypass;

- the national road No. 16 (Grudziądz-Olsztyn-Augustów), included in the program of express roads construction coupled with construction of bypasses of Podlejski, Olsztyn and Kromerowo – currently in modernization along the sections to Barczewo and to Gietrzwałd;

- the national road No. 51 (Bezledy-Olsztyn-Olsztyn) projected for modernization in the section Olsztyn-Olsztyn to the express road class S and on the other sections to the technical class GP, including construction of bypasses of Dobrze Miasto, Dywity, Olsztyn, Dorotowo and Olsztyn – currently the construction design has been presented for the section Olsztyn – Tomaszkowo;

- the national road No. 53 (Olsztyn-Szczytno-Ostrołęka) projected for modernization to the technical class GP, including construction of bypasses of Szczytno and Klewki.

The following voivodship roads that link the county towns with the supreme transport system and centers of settlement network fulfilling wider than regional and regional functions were included in the basic transport system:

- the national road No. 57 (Bartoszyce-Biskupiec-Szczytno) with the necessity of constructing the bypass of the town of Biskupiec (location established in the local plan),
- the national road No. 58 (Olsztynek-Szczytno-Pisz),
- the voivodship road No. 527 (Olsztyn-Morąg),
- the voivodship road No. 507 (Braniewo-Dobre Miasto),
- the voivodship road No. 593 (Dobre Miasto-Jeziorany-Lutry).

The network of the supreme and basic transport system roads in the County is presented in Figure 1.

The conceptual works on construction of the City of Olsztyn ring road represent of an element of the system presented in Figure 1. The Directorate

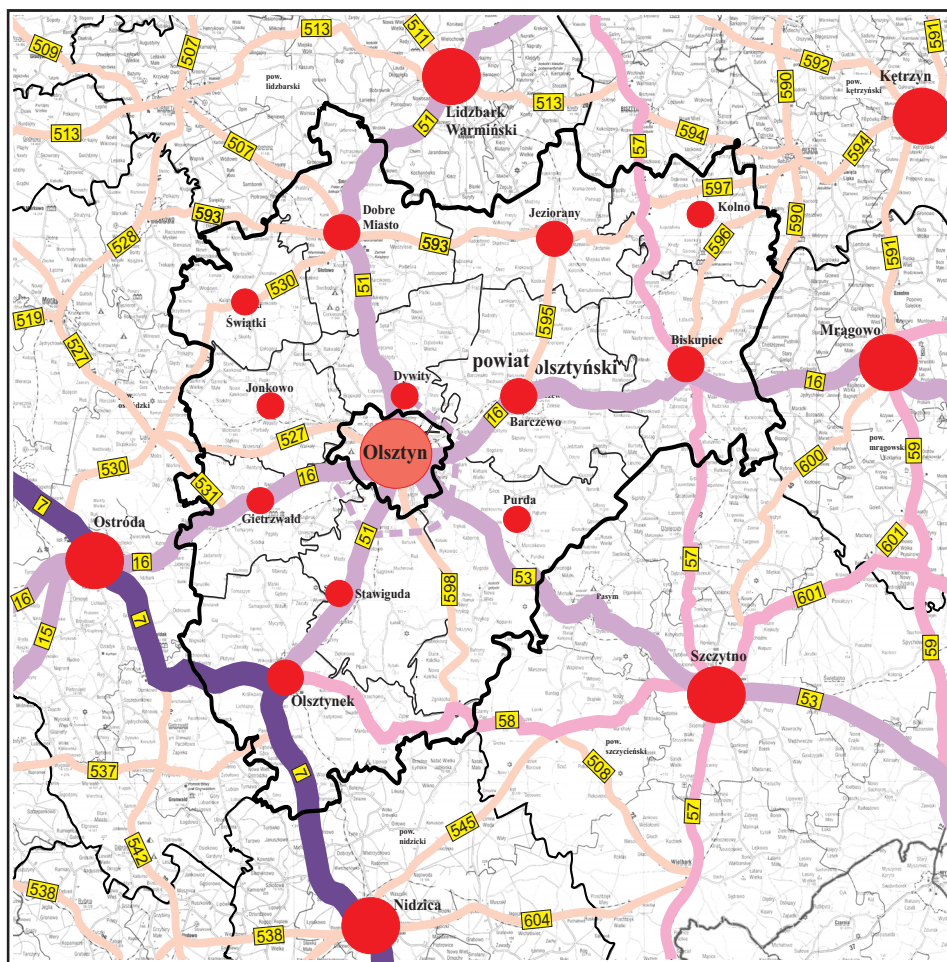


Fig. 1. The network of superior and basic roads within the area of the Olsztyn Rural County  
Source: Study ... (2005).

of National Roads and Motorways has presented proposals concerning the routing of the ring road, which is to lead from road No. 16 (on the southern side of Olsztyn) to the road No. 51 and further towards the national road No. 16. The last section of the ring road is its northern section connecting the national road No. 16 with the national road No. 51. The most animate arguments concerning the detailed routing of that road section are taking place. The other County roads represent the complementary system, immensely important from the perspective of social – economic and cultural development of the County, as the Warmia Landscape Road.

### **The network of County roads in the context of the identified growth areas**

In the *Study on modernization of roads in Olsztyn County* (2005) 34 local growth areas, mainly with typical residential as well as industrial-service and tourism-recreation functions were identified in the area of the Olsztyn Rural County. The positioning of the individual growth areas in the area of the Olsztyn Rural County is presented in Figure 2.

The county roads indicated in Figure 2 servicing the growth areas with the residential as well as industrial-service functions should be reconstructed according to the Act on public roads and technical parameters for the county roads (technical class Z or L) to connect the most important development areas in the County. For the other roads reconstruction according to the landscape road concept has been planned. Those will be the County roads connecting growth areas with tourism and recreation functions and the other County roads with low volumes of traffic generated mainly by agricultural and passenger vehicles.

The dynamic urbanization process resulting in the gradual depopulation of rural areas and uncontrolled spatial development of Olsztyn causes that new growth areas are formed in the area of the County that fulfill mainly the residential function (the suburbia). Also, the hierarchy among the already existing areas changes. Among the areas that can be identified as newly established the area along the south banks of Lake Blanki (villages of Radostowo and Orzechowo) and further southwards towards the village of Frączki should be mentioned. As concerns the areas gaining importance the areas around the town of Olsztynek should be pointed at (the concept of regional airport construction, the logistic center and other).

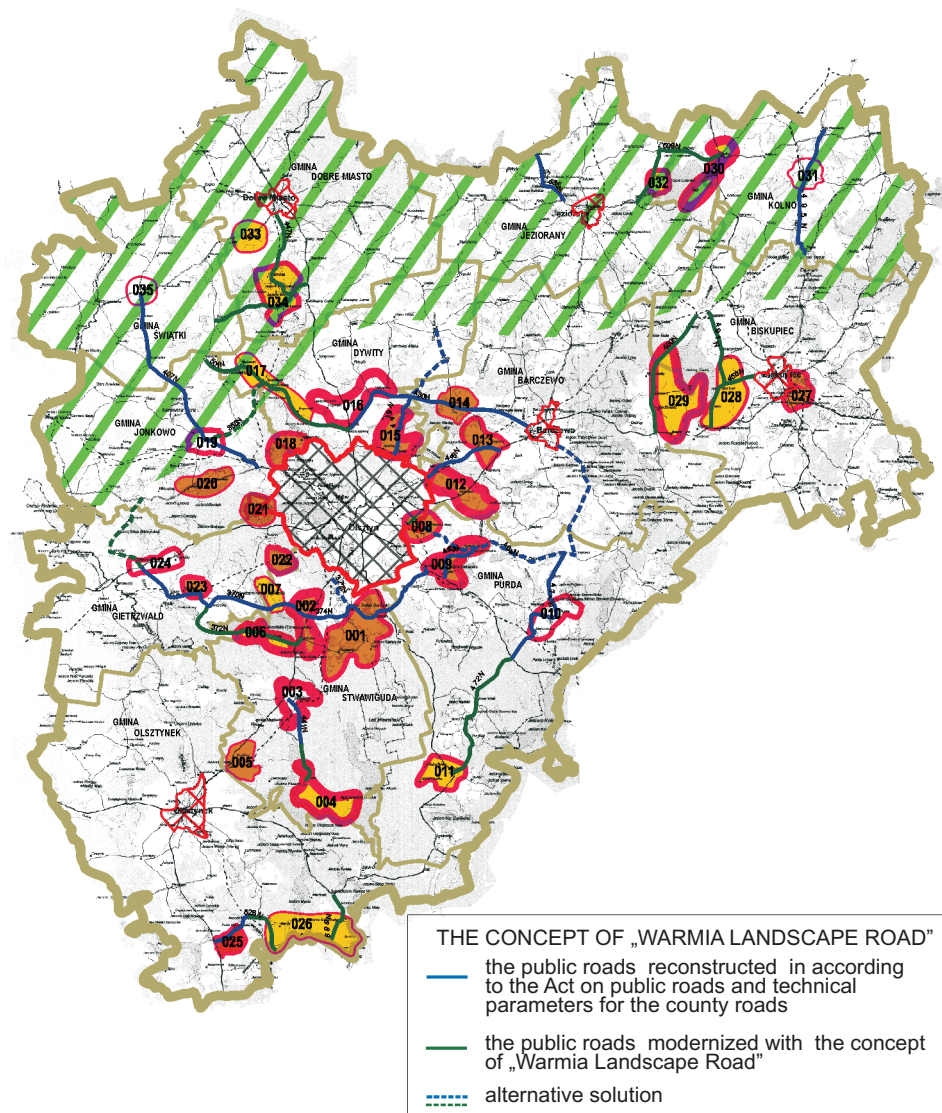


Fig. 2. The concept of the “Warmia Landscape Road”

Source: D. Łaguna

### The roads serving the other functions of the area

The recommendations contained in the study of 2005 include indications concerning residential, industrial-service as well as tourism and recreation areas.

In case of **residential and industrial-service** areas the roads (width and shoulders) should be modernized to the parameters taking into account daily travels of permanent area residents, traffic of delivery vehicles servicing the local businesses and, in justified cases of industrial functions, traffic of heavy vehicles. The particular attention in the technical solutions was paid to daily safety of travelers (commuting to schools), including the pedestrians and cyclists. Appropriate solutions are also required for merging that traffic with the traffic on higher class roads.

In case of **tourist and recreation** areas it is possible to assume the concept according to which the tourist travels the last stretch to the place of his visit (in most cases a few kilometers) on a road with cultural and landscape values exposed. Such a road, as concerns technical solutions, could deviate from the statutory principles contained in the Act on public roads. The width of the road and the shoulder should allow traffic of coaches (access to recreation centers). Retaining and exposing the elements of culture (e.g. roadside chapels as elements characteristic for Warmia) and nature (e.g. roadside alleys) as well as appropriate marking of view points and openings of the landscape as components determining the character of the road was considered important.

### **The concept of the Warmia Landscape Road**

The roads in Warmia show certain common characteristics that express the technical culture and tradition of the sub-region and determining its identity. The studies conducted confirmed that the method of the road environment development was not accidental. The specific characteristics of the area: land relief, vegetation and principles of development by construction were used and on that base the methods of adjusting the road to the current needs of the local community were developed. The spatial distribution of roads is presented in Figure 2.

None of the studied road has a function wider than local. In the majority they were roads connecting individual settlements of economic significance but only within a local system of a number of villages. The roads developed over time within the road belt defined by the alleys. Within that width, gradually, the belt of land used as the main road gradually widened (from the unhardened surface road to the asphalt surface road ca. 5 m in width) while the space of the shoulder and the belt of greenery gradually narrowed. The standing timber, at the same time, was only subject to transformations resulting from the laws of the nature. The natural growth caused that the width of the area that could be taken by the road narrowed. Among the objects studied there were alleys consisting of trees with the trunk diameter reaching 80 cm. Considering double



sided alley the width of the belt between the trees decreased in average by over 0.5 m as a result of the growth of the trees only. The trees that initially were just to mark and cover the road have become a barrier to further widening of the road (Figure 3 and 4) determining its present uniqueness.

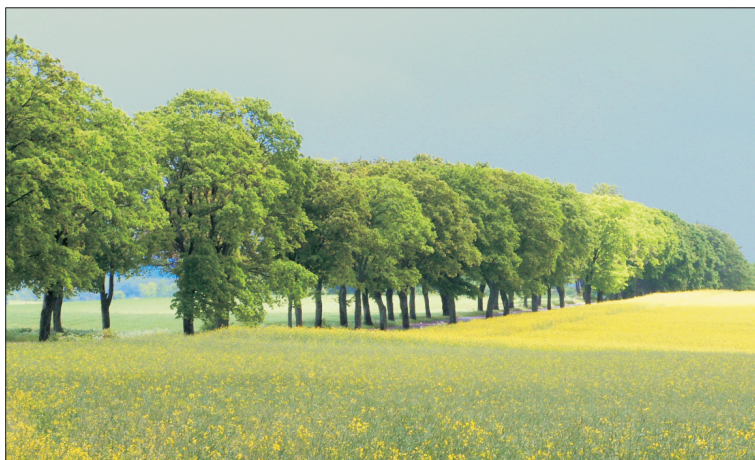


Fig. 3. The alley along the road Gietrzwałd – Tomaszkowo

Photo: D. Łaguna

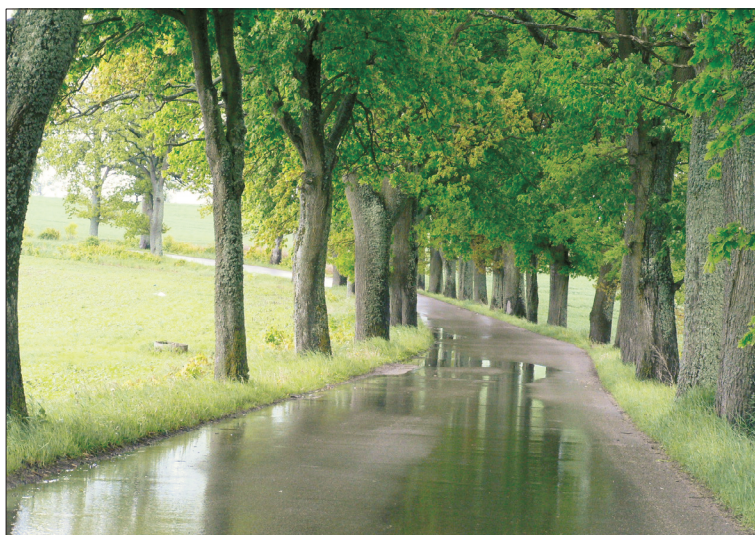


Fig. 4. The maple trees tunnel

Photo: D. Łaguna

Attention was paid to exposing the characteristics that determine the attractiveness of individual objects and at the same time represent the common element, for example – Warmia chapels. To identify and describe the common characteristics the horizontal analysis was conducted in which the objects studied were compared with each other. As a consequence, it was necessary to identify the fundamental elements of the Warmia road (common for all the objects) that were subject to the detailed assessment.

The analysis conducted allowed identification of characteristics common for all the objects studied as concerns individual elements of the road. On the base of the studies the recommendations necessary for development of the „Warmia Landscape Road” model were elaborated. For the purpose of the study only the major elements were presented in the abridged form. They contain guidelines for the future designers but also owners of the roads. They encompass recommendations for the traffic belt, road, shoulders, pedestrian and cycling routes, small architecture objects, engineering structures, development by construction, vegetation, alleys and landscape.

The analyses conducted indicate that the Warmia road was not necessarily established according to a single pattern. In the past that was not regulated by technical standards with strictly defined parameters. It was rather a set of guidelines that could be adapted to specific local conditions, which, however, were regulated in a way sufficiently consistent (in every case a spatial structure was developed clearly identified with the sub-region) and as a result of various modifications adjusting the road parameters to the technical requirements they retained their initial shape. Within the road belt the transformation occurred gradually. First the road was just made by the traffic, then it was paved and finally surface with asphalt. The width of the shoulder also changed. The roadside alleys were the element that marked the spatial borders of the road. The trees planted at the border of the road belt and lots of private owners remained unchanged for many years. Currently they also determine the spatial limits to the road widening. In the majority of cases studied they grow at the border of the road belt. Further change in the road width in around 50% of cases would require removal of the roadside trees at least on one side of the road.

## **Conclusion**

The transport system has the determining influence on multifunctional development of space. Appearance of new functions within the space and their further development are conditioned by the quality of road connections with the network of the higher ranking roads, regional and national. In that respect

the transport system within an area should create a consistent, technically efficient and economically justified system. That should be a system assuring continuity of transport connections and safety of the space users. The economy of the system means its adjustment to the requirements of the space, in particular the appropriate saturation and technical parameters depending on the distribution of growth areas in that space. The majority of transit traffic (freight transport) and passenger traffic should move along the network of the supreme and basic systems. Those networks are subject to transformation according to the policy spatial assumptions at the national and regional level. The necessity for reconstruction of transport systems results mainly from the dynamically developing market of goods haulage (increased frequency of travel) and increase in the rank of passengers transport.

Determining the priorities concerning reconstruction of some of the County roads fulfilling important social and economic function was the main goal of the studies. For the other roads reconstruction according to the concept of the Warmia landscape road was proposed. Such roads are those connecting mainly the areas with tourist and recreation functions and the other roads with low traffic generated by agricultural and personal vehicles.

In total, among ca. 1000 km of County roads only 197,7 km should be upgraded to the parameters required by technical conditions for roads carrying passenger and goods traffic. The other roads connecting mainly areas with tourist and recreation functions could be reconstructed according to the concept of the „Warmia Landscape Road”. On one hand it is necessary to assure technical parameters appropriate for the road function but on the other the scope of reconstruction is limited by the financial potential (the size of outlays that can be afforded). This will allow achievement of the effect of improving the transport system within the county to the level assuring the development of its entire area.

Translated by JERZY GOZDEK

Accepted for print 21.10.2009

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