



ACTIVITY 4. UTILITIES NETWORK ANALYSIS IN THE PILOT TERRITORIES: ROAD NETWORK

**KOSTOMUKSHA CITY AND KALEVALA MUNICIPAL
DISTRICT**

KRIMEL

**Anton Posudnevsky
Sergey Koshelev
Natalya Saharova
Elizaveta Druzhinina**

Report for WP 1. Spatial planning of remote regions

Introduction

This report is an English summary of a much wider publication about the status of the road infrastructure in the Kalevalsky National District and City of Kostomuksha, which has been published in Russian. The Russian version is available at the Russian webpage of the project at <http://greensettle.krc.karelia.ru/section.php?id=1>. The purpose of this survey has been to find out the current status of the road infrastructure in these two border areas of Republic of Karelia and what steps should be taken in order to improve them.

Analysis of engineering infrastructure areas is important and sometimes crucial to develop scenarios for the optimal spatial planning. In this respect, as one of the major infrastructure elements, the road network is a must to explore. Assessment of the state of the road network, its prospects, its impact on the ecological situation is essential for the optimal spatial planning, taking into consideration forecast scenarios of climate change, environmental issues and nature management economics. The need to establish local programs (projects) of spatial planning at the rural level and municipal areas is currently well understood at the federal level. For example, the development of such programs is strongly motivated by the recently approved by the RF Government order dated 08.11.2012 № 2071-r Concept of the federal target program "Sustainable rural development for the years 2014 - 2017 and for the period up to 2020". According to this concept, granting of subsidies to the budgets of the Russian Federation subjects is planned to be on a competitive selection of regional programs (projects) for sustainable development of rural areas, based on an integrated approach to the development of social and physical infrastructure of rural settlements and project financing. One of the criteria for competitive selection will be the presence of territorial planning program.

In view of the above, the analysis of engineering infrastructure and in particular the road network, carried out within "Green cities and settlements" project by the support of the Russian-Finnish ENPI Karelia program, is extremely important and promising for the development of the study area and the settlements (Kalevala National District and Kostomuksha city district) and may be the basis for further work to develop local programs of territorial planning, and therefore, development prospects of the Republic of Karelia and the North-West region of the Russian Federation.

Below is the brief analysis of the road network, separately for Kalevala region and the city of Kostomuksha conducted in 2012 as part of the above project by road industry experts and representatives of the Karelian regional institute of management, economics and law of PetrSU. The analysis was conducted based on information provided by the municipal administrations, data from public sources, information obtained in the meetings with the beneficiaries.

1. Kalevalsky National District

1.1. Analysis of the Road Network in Kalevalsky National District

A serious obstacle in the development of the territory is the limited transportation network on the territory of the district. The main means of transport is the automobile. The roads are mostly of local significance and two roads of national significance (Kem' - Lonka and Kepa - Borovoi). Passenger transportation is limited and is often unprofitable due to the long distances between settlements. Because of this, the analysis of the condition and perspectives for development of the road network of the district requires serious attention.

The length of asphalt roads is 86,7 km, gravel and macadam roads – 330,3 km, unpaved roads – 25 km. Roads of category IV – 127,5 km, category V – 289,7.

Due to poor development of industry and low population density in the district the road traffic is also insignificant. It includes the flow between Kostomuksha and Loukhi on the Federal highway “Kola” and the flow between the border check-point Suoperya in Loukhi district via Kalevala and Kem', which is also situated on the federal highway “Kola”.

One of the main problems related to the road network development is the fact that local authorities lack the necessary finances for repairs, maintenance and reconstruction of road network. The lack of evident needs in strategic development of the district's road network makes Republican authorities limit the allocation of funds for this sector.

The length of common roads of local significance in settlements belonging to the municipal formation is rather extensive. In total it equals 61,93 km. Considering the deficiency of funds in municipal budgets, repairs and maintenance of these parts of roads are impeded and their condition is worse than on average in the district.



1.2. Perspectives of the road network development in Kalevalsky National District

In 2012, in the list of objects for capital repairs of common roads of regional and inter-municipal significance in the Republic of Karelia and artificial structures on them, there are provisions for “Construction of a conduit pipe on 34+570 km of the road Kepa – Yushkozero – Borovoi”.

Within the program EISP PGS “Karelia” in 2011 – 2013, there are plans for repairs of the common road of regional significance of the Republic of Karelia Kem’ – Lonka via Kalevala (from Kalevala to Voinitsa) selectively in parts depending on the transport and use condition of the road. The general project partner implementing the project in the Republic of Karelia is the Suomussalmi commune (Finland). Project partners also are the Ministry of Construction of the Republic of Karelia, Swedwood Karelia and Administration of the Kalevalsky district. In Kalevalsky district, under this project in 2011 10 conduit pipes were installed. In 2012, there is planned work on the parts Kalevala – Voinitsa and Pon’gaguba – Voinitsa. The Pon’gaguba – Voinitsa part of 11,4 km also requires laying of geofabric and replacement of 10 pipes.

In accordance with the regional target program “Road Development in the Republic of Karelia until 2015”, in 2013 it is planned to replace the existing wooden bridges with capital bridge structures at km 54 of the road Tungozero – Kalevala (bridge length is 24 running meters), and km 59 of the road Tungozero – Kalevala (bridge length is 26,7 running meters).

Regulation of the Government of the Republic of Karelia № 121r-P of 24.02.2012 included “Reconstruction of the road Kem’ – Lonka via Kalevala at the part km 86 – km 105” into the list of construction and reconstruction of roads and bridge structures for 2011-2015. The start of project realization is planned for 2015.

Gradual improvement of the transport condition of regional significance roads is planned starting from 2012, due to the establishment of the road fund of the Republic of Karelia, increase of financing volumes and work on maintenance and repairs of regional roads.



1.3. Proposals for the road network of Kalevalsky National District

Based on the materials shown above, one can make the following conclusions and proposals:

- It is necessary to drastically increase the funding of repairs and construction work of the district roads. This also includes municipal roads. This is possible to do with the finances of the republican road fund.

For this purpose, the district must work out and approve its own program of local road development.

Another possible source of funding can be attraction of funds from the European Union. The common border with Finland (European Union), common cultural and national roots of the border regions' population is an exclusively positive factor in this context.

- At this stage, from 2012 to 2015 it is necessary to repair and (or) reconstruct the existing roads and bridges of the district:

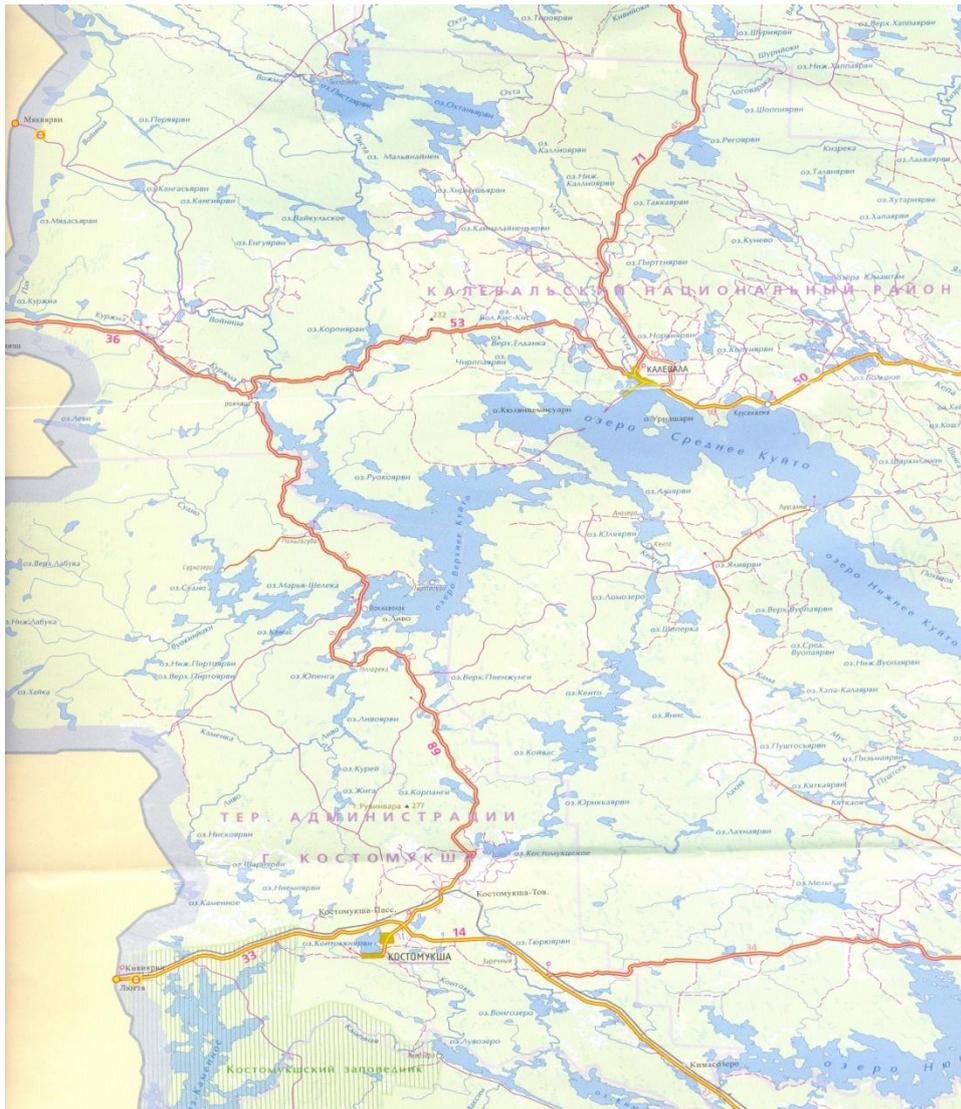
- Continue reconstruction of the main road Kem' – Lonka via Kalevala at the part of the federal road "Kola" as far as Kalevala;

- Continue repairs of the common regional road of the Republic of Karelia Kem' – Lonka via Kalevala (from Kalevala to Voinitsa).

Besides, it is necessary to pay attention to installation of additional information signs for drivers in two languages (Russian and English) and arrangement of rest areas.

One of the important moments is working out an interconnected development plan of the common road network as well as logging roads and its systematic implementation (during 2015-2020).

- During the period from 2015 to 2020 it is necessary to continue the repairs and reconstruction of roads and bridges of the district, including the directions Tungozero- -Kalevala and Borovoi – Luusalmi. Also during this period it is possible to further design new transportation ways based on the strategic plans for the district development and international cooperation in the region.



2. Kostomuksha Municipal district

2.1. Analysis of the road network condition in Kostomuksha Municipal district

The length of roads with asphalt surface is 74,8 km, gravel and macadam surface – 129,7 km, dirt roads – 48,7 km. Roads of Category IV – 117,8 km., Category V – 135,4.

Due to the presence of the largest Karelian industrial enterprise and significant number of city inhabitants for a northern region, the road traffic is rather dense. There is also transit motor traffic. This is the flow between the border crossing Lyttya and Loukhi situated on the federal Kola road, as well as the flow between the border crossing point Lyttya to the federal road Kola (crossing near Kochkoma).

The specifics of the road network of Kostomuksha is in the fact that Kostomuksha was built “from scratch” together with the ore-dressing plant during several years in the period 1978-1984. Along with construction of the city and the plant, all engineering infrastructure was created including the road network. The main road leading from the federal road Kola to the city and further to the state border with Finland was the road “Kochkoma-Tiksha-Ledmozero-Kostomuksha-state border”. 84,7 km of this road is in Kostomuksha municipality. Finnish builders also took part in the construction (reconstruction) of this road. The work was done using modern requirements and technology of the time. Nevertheless, at present many parts of the road need repairs (including capital repairs).

The second most important road for the district can be considered the road “Voinitsa-Voknavolok-Kostomuksha”. Its condition is gradually improving due to the ongoing repairs.

The length of common roads of local significance inside settlements belonging to the municipality is 72,95 km.

In general, the condition of the road network in the district can be characterized as satisfactory and in better condition than the road network of Kalevalsky district.

Unlike the vast majority of Republic’s municipalities, the local authorities have some funds for maintenance, repairs and reconstruction of road networks. Besides that, some subsidies for social and economic development of Kostomuksha, allocated by JSC “KarelskyOkatysh”, are used. Also, on the republican and even federal level the district is positioned as perspective for development. Due to this, one can forecast development of the road network in the strategic perspective.



2.2. Development perspectives of the road network in Kostomuksha municipality

In 2012, the funds of 10 million rubles shall be allocated for the repairs of municipal roads.

In 2012 the work is planned on the objects “Arrangement for a weighing station on the road Kochkoma-Tiksha-Ledmozero-Kostomuksha-state border km 210+840” and “Repairs of the part of road Voinitsa-Voknavolok-Kostomuksha, km 89”. The scope of the object is 1 km.

Within the framework of the EISP program “Karelia” in 2011 – 2013 there are plans for repairs of the common road of regional significance for the Republic of Karelia Voinitsa-Voknavolok-Kostomuksha” in selected parts based on the condition for transport and use. The general project partner implementing the project in the Republic of Karelia is the Suomussalmi commune (Finland). Project partners also are the Ministry of Construction of the Republic of Karelia, Swedwood Karelia and Administration of Kostomuksha municipal district. The project provides for the following activities on this road (in selected parts): restoration of the road dressing and correction of the transverse profile of the traffic are, addition of calcium chloride salt into the dressing to remove dust.

In accordance with the regional target program “Road Development in the Republic of Karelia until 2015”, in 2014 it is planned to perform operations on capital repairs of the road Kochkoma-Tiksha-Ledmozero-Kostomuksha-state border on the part km 244 – km 246 (arrangement of an additional lane on the approach to the customs).

2.3. Proposals for the road network of Kostomuksha municipality

It is necessary to increase financing of repair and construction work on the roads in the district. It also includes municipal roads. It can be achieved with the financing of the Republican Road Fund starting from 2012.

One of the sources of financing can be subsidies for the social and economic development of Kostomuksha municipality granted to the city pursuant to the agreement on social-economic partnership on behalf of JSC "Karelsky Okatysh".

Another possible source of financing can be attraction of funds from the European Union. The common border with Finland (European Union), and developed trade turnover, passenger and cargo transportation through the border check-point Lyttya is an exclusively positive factor in this context.

During this stage, from 2012 to 2015 it is necessary to repair the roads and bridges of the district:

- Activate the capital repairs of the district's main road Kochkoma-Tiksha-Ledmozero-Kostomuksha-state border;
- Continue the repairs of the common road of regional significance for the Republic of Karelia Voinitsa-Voknavolok-Kostomuksha;
- Pothole repairs of common roads of local significance in Kostomuksha belonging to the municipality.

Besides, it is necessary to pay attention to installation of additional information signs for drivers in two languages (Russian and English) and arrangement of rest areas.

One of the important moments is working out an interconnected development plan of the common road network as well as logging roads and its systematic implementation (during 2015-2020).

- During the period from 2015 to 2020 it is necessary to continue the repairs and reconstruction of roads and bridges of the district, including the secondary directions, roads with macadam and gravel surface of Category V. Also during this period it is possible to further design new transportation ways based on the strategic plans for the district development and international cooperation in the region.

3. Impact of the road network on the ecological situation of the adjacent territory

The low level of the technical condition of the regional road network has a negative impact on the ecological situation on the territories adjacent to the roads.

The great number of deformations of the road surface leads to the situation when the driver must break frequently and then pick up speed again. Thus, there is excessive use of fuel and there is a large amount of harmful substances emitted into the atmosphere from its burning. To improve the situation, it is necessary to repair the existing roads, especially their surfaces.

Another negative factor is a great number of abnormal curves in the road plan and longitudinal slopes. To improve the situation, it is necessary to perform the most capital-intensive operations, such as rearrangement and reconstruction of old parts of roads. First of all, it must be done on the main road network, i.e. where there is high intensity of traffic:

- road Kochkoma-Tiksha-Ledmozero-Kostomuksha-state border;
- road Kem'- Lonka via Kalevala;
- road Voinitsa-Voknavolok.

We must mention one more problem related to the roads with gravel surface. The lack of planned repair work of these roads lead to the fact that very often there is practically no dressing at all. At the same time, there is a great amount of dust. To solve this problem, it is necessary to repair the existing surface using new modern technology (adding some stabilizers and dust palliatives, etc.), allowing for ensuring the necessary transverse profile of the road excluding the water stagnation on the traffic area as well as excluding dust during transport movement. First of all, this must be done on the transit parts of regional roads passing through settlements as well as municipal roads within inhabited areas.

Also, great damage is done to the existing roads by the timber-hauling transport. Very often timber harvesters are reluctant to invest their funds in logging roads using the common roads to the maximum. Therefore, it is necessary to do work on development of the logging roads network. Those parts of common roads, which are actively used by timber-haulers must be improved first of all.

Therefore, it is necessary to work out a clear interconnected plan of developing the common road network as well as logging roads, and its systematic implementation.

Conclusions

Analysis of the engineering infrastructure in terms of the road network, its prospects, the impact on the ecological situation is an important aspect in the context of the plan of territorial planning and sustainable development of territories. The analysis on these topics in the Kalevsky national district and the city of Kostomuksha showed that there are a number of challenges and risks associated with the state of the road network. Thus there is a specificity in each territory under consideration, primarily related to the amount of investment made earlier and the current needs and opportunities for investment in the road network. At the same time, prospects and recommendations are made to reduce or eliminate these risks and to use opportunities for the development of road network areas. These recommendations are the basis of local and national spatial planning documents, could also be used to obtain federal grants under the federal target program "Sustainable development of rural areas in the years 2014 - 2017 and for the period up to 2020." Special attention was paid to the impact of the road network on the ecological situation in the surrounding areas, which showed the problems and their solutions.

References

1. RF Government Order dated 30.11.2010 N 2136-r "On approval of the concept of sustainable development in rural areas of the Russian Federation for the period up to 2020"
2. Information of the Ministry of Construction of the RK. Letter of 04.06.2012g. № 2433/19-14/MSi
3. Performance indicators for local government efficiency (municipal district) for the municipality "Kalevalsky National District"
4. The report on the activities of the Administration of Kalevalsky national district in 2010 for the development of Kalevala region
5. Socio-economic development of the municipality Kalevalsky national district for 2011-2015
6. Explanatory note for the program of socio-economic development of the municipality Kalevalsky national district for 2011-2015
7. Website of the Ministry of Construction of the Republic of Karelia (<http://stroitel.karelia.ru/section.php?docId=7466>)
8. Website of the Federal Road Agency, Ministry of Transport of the Russian Federation, (http://rosavtodor.ru/print/information_print.php?id=106)
9. Website of the Federal Road Agency, Ministry of Transport of the Russian Federation (http://rosavtodor.ru/information/dorogi_rossii/klassifikatsiya_avtodorog.html)
10. Decree of the Russian Federation of September 28, 2009 N 767 "On the classification of roads in the Russian Federation"
11. Report on the socio-economic development in the city of Kostomuksha in 2010
12. Strategic plan for socio-economic development of the city of Kostomuksha until 2020
13. The report of Kostomuksha administration head on indicators to assess the effectiveness of local government performance in the city of Kostomuksha in 2010 and projected values for a three years period.
14. Presentation material "Integrated investment plan to modernize monocity Kostomuksha in the Republic of Karelia", 2011.
15. Website of the Ministry of Construction of the Republic of Karelia (<http://stroitel.karelia.ru/section.php?docId=7466>)
16. Website of the Ministry of Construction of the Republic of Karelia (<http://stroitel.karelia.ru/section.php?docId=7469>)

