1. Basic Information
1.1. Désirée Number: PL0008.04.03
1.2. Title: Podkarpacie - Upgrading of road infrastructure in the region
1.3. Sector: Transport
1.4. Location: Poland, Podkarpackie Voivodship

2. Objectives
2.1. Wider objective:
Creation of the conditions for achieving economic and social cohesion of the Podkarpackie Voivodship through upgrading the regional capacity for endogenous and sustainable growth.

2.2. Immediate objectives:
- developing regional level transport infrastructure necessary to reach growth targets in selected priority areas;
- creation of new jobs related to improved transport routes;
- generation of value added in local economies through increased transport flows;
- increased safety of travel;
- increased investments and inflow of tourism

2.3. Accession Partnership and NPAA Priority
The project responds to the medium term priority identified in the Accession Partnership – developing national policy for economic and social cohesion and preparing for the implementation of regional development programmes as well as Community Initiatives. It corresponds also with the NPAA priority “Regional and cohesion policy”.

2.4. Contribution to the Preliminary National Development Plan
Transport infrastructure plays a key role in efforts to reduce regional disparities in economic performance. Therefore one of the priorities for the country’s cohesion policy identified in the Preliminary National Development Plan (annexed to NPAA) is “Integration of the Polish economy through modernisation and enlargement of transport networks”. They have been described under the priority “Strengthening development potential of regions and counteracting marginalisation of certain areas”. One of the proposed measures under the priority is “Development and modernisation of infrastructure serving to strengthen competitiveness of the regions”. It defines co-financing of regional transport infrastructure as a principal element of building endogenous potential development and regional competitiveness. The project is therefore in line with both the PNPD and the operational programme for the Podkarpackie voivodship. It will be implemented under the OP priority “Support for endogenous development potential of the region”.

3. Description
3.1. Background and justification:
The Podkarpackie Operational Programme emphasises the urgency of the regional situation in terms of underdeveloped transport infrastructure. Development in this respect is viewed as an important pre-condition for attaining general economic and social cohesion targets with respect to the existing disparities with other Polish regions, and in the longer term, the EU member countries regions. The transport routes of appropriate quality are necessary for accessing markets by the businesses located in the region, for attracting new investors and businesses, creating jobs and diversifying the economic base of the region; and also for linking the local communities with quality of life determining services and opportunities available in the larger regional centres. With only limited resources at disposal a number of local priority projects of key importance for the regional transport network were selected for implementation, grouped around clearly defined areas of the region with differing developmental problems thus addressed.

South-Eastern area (sub-project 1) The south-eastern part of the region - the Bieszczady area – is characterised by economic underdevelopment and relatively high tourism development potential in the mountainous locations. These locations though are difficult to access by tourists and related business traffic. In Bieszczady Powiat there is very high level of unemployment (17.7% in 1999) and negative net migration rate (−131 people in 1998). Because the south-eastern area is at present largely inaccessible, it is poorly utilised as a regional resource. The project concerns upgrading a part of the Bieszczady Great Loop, which is the main transport system structure in this sub-region, circumventing the area. Central area (sub-project 2). The second area has concentrated much of the development of new SME businesses and investments in the region, and requires urgent action for linking the local communities with the major communication routes crossing the region in these areas.
The roads to be upgraded in the sub-project channel the business and tourism traffic as follows:

- south – east direction from Rzeszów, the capital of the region, to Dylagówka – this will allow for better access to the south-east part of the region, creating a link with the already mentioned Bieszczady “Great Loop”.
- direction from Lancut to Dylagówka is a part of the tourist route from Lezajsk (the old town with valuable organs and Jewish cemetery), through well preserved forest complex, Lancut (one of the most valuable tourist attractions of the Voivodship, with the famous Palace and Park), Dolina Strugu region, Dynów Hills, and Bieszczady Mountains.

Linkage route through Dolina Strugu region; this area consists of four gminas, which through various common activities and projects are involved since 1993 in a rural sustainable development programme. Situated in the neighbourhood of Rzeszów it has developed a direct marketing system of organisation and selling of agriculture products for Rzeszów inhabitants.

North-west area (sub-project 3 and 4): This area is marked by difficult structural problems stemming from the concentration of declining industrial sectors and restructuring actions in often one-company towns. Industrial development of this area was started before the 2nd World War with the construction of the so-called Central Industrial District (including steel sector and defence industries). The sub-project 3 aims to support the creation of the bypass system for Stalowa Wola – a city previously important for defence, engineering and steel industries; and now because of the grave problems inherent in the processes of restructuring of those sectors. In Stalowa Wola Powiat there is high level of unemployment (12.6% in 1999) and negative net migration rate (−116 people in 1998). The sub-project 4 concerns the creation of the bypass for Mielec. Mielec, like Stalowa Wola, is a city with great problems resulting from the restructuring of the defence and engineering/machinery sectors. In Mielec Powiat there is one of the highest regional negative net migration rates (−266 people in 1998). The high level of unemployment (12.9% in 1999) is the reason for the undertaking of various actions connected with SME support. This resulted with setting up of new small and medium size enterprise and development of existing ones, and with increasing the traffic connected with those businesses. The upgrading and development of the regional road structure in these areas will increase accessibility for local businesses, influencing their competitiveness, and also attracting to these areas new investors. Increased transport capacity, shortened transport times and costs, as well as increased safety on roads and greater accessibility to industry and tourism areas influenced the selection of this project for priority action.

3.2. Linked activities:
A number of infrastructure projects have been carried out within the borders of Podkarpackie voivodship under the previous PHARE programmes. These included:

- PL9207 STRUDER – 50 projects, totalling 7.5 mln EUR, of which 3.5 mln EUR from Phare,
- PL9509 RAPID – 30 projects, totalling 6 mln EUR, of which 2.3 mln EUR from Phare,
- PL9609 STRUDER 2 – 8 projects, totalling 1.5 mln EUR, of which 0.58 mln EUR from Phare,
- PL 9706 INRED – 49 projects, totalling 15.4 mln EUR, of which 4.1 mln EUR from Phare.

“Regional development in Mazury and Podkarpacie regions” under Phare 99, starting this year, will finance investment projects in the voivodship. In the area of regional development, the Podkarpackie voivodship is a beneficiary of INRED programme (PL9706) and Special Preparatory Program for Structural Funds (PL9808) under the action “Elaboration of an Objective-1 type Operational Programme for Rzeszów”.

3.3. Results:
- Increased numbers of investors seeking investment opportunities in locations whose accessibility has been upgraded through project.
- Increased flow of tourists to region, travelling on upgraded road to tourist destinations.
- New jobs created in supported areas
- Transport time through areas measurably shortened
- Improvement of transport infrastructure, of particular significance from the point of view of their impact on economic and tourism development in the area of Podkarpackie Voivodship.
- Improvement of road traffic safety, numbers of accidents lowered at statistically important ratios
- Reduction of noxious impact of motor vehicle traffic on environment.

3.4. Activities:
- Upgrading the technical class of Voivodship roads, with total length 73.227 km;
- Upgrading the technical class of district and municipal roads, with total length 18.346 km,
- Upgrading the technical class of 2 bridges.
**Sub-project 1 : SOUTH – EASTERN AREA - Bieszczady “Great Loop”**

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Beneficiary/Owner</th>
<th>Task localisation/Scope of work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.</td>
<td>Podkarpackie Voivodship Road Administration in Rzeszow</td>
<td>Upgrading of Voivodship road No. 893 Lesko-Cisna from km 0+200 to km 16+164 and from km 18+200 to km 37+089 (34.9 km long) Scope of work: Road pavement strengthening with adaptation to medium traffic needs (the existing traffic is light); Upgrading of road technical class from the existing “L” to “Z”, (being the minimal target standard for voivodeship roads) through, inter alia, carriageway broadening from 5.2 m to 6.0 m.; Reconstruction of road drainage system – rehabilitation of culverts, road side ditches, and strengthening of shoulders.</td>
</tr>
</tbody>
</table>

**Sub-project 2 CENTRAL AREA**

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Beneficiary/Owner</th>
<th>Task localisation/Scope of work</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.</td>
<td>Podkarpackie Voivodship Road Administration in Rzeszow</td>
<td>Upgrading of Voivodship road No. 878. Rzeszów-Tyczyn-Hyzne from km 5+469 to km 7+970, 2.5 km long and from km 8+700 to km 24+099, 15.4 km long, with reconstruction of bridge over the Strug river in Kielmarowa Upgrading of Voivodship road No. 877 Lancut-Dyłagówka from km 29+246 to km 48+000, 18.8 km long Scope of work: road pavement strengthening so as to make them able to transmit truck traffic; improvement of road geometric parameters; carriageway broadening, construction of level bends); upgrading of water drainage; increasing of the bridge bearing capacity from 20 to 40 t together with enlarging of its span ligh to prevent river overflows</td>
</tr>
<tr>
<td></td>
<td>District Self-Government in Rzeszów</td>
<td>Upgrading of district road No. 35604, Kielnarowa – Chmielnik-Zabratówka 11.5 km long Scope of work: road pavement strengthening so as to make them able to transmit truck traffic; improvement of road geometric parameters; carriageway broadening, construction of level bends); upgrading of water drainage</td>
</tr>
</tbody>
</table>

**Sub-project 3 NORTH AREA Stalowa Wola bypass**

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Beneficiary/Owner</th>
<th>Task localisation/Scope of work</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.</td>
<td>Podkarpackie Voivodship Road Administration in Rzeszow</td>
<td>Upgrading of bridge over the San river in Brandwica locality, Voivodship road No.855 in km 37 + 137. reconstruction of bridge together with access roads upgrading it to the below parameters:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>length</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bridge width</td>
</tr>
<tr>
<td></td>
<td></td>
<td>carriageway width</td>
</tr>
<tr>
<td>3.2.</td>
<td>City of Stalowa Wola</td>
<td>Construction of Under-Slope Track from km 2+925 to km 4+645 1720 m long in Stalowa Wola Technical parameters of a new street:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>double carriageway street</td>
</tr>
<tr>
<td></td>
<td></td>
<td>width of pedestrian and cycling paths 4.00 m</td>
</tr>
</tbody>
</table>

**Sub-project 4 NORTH-WESTERN AREA – Mielec bypass**

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Beneficiary/Owner</th>
<th>Task localisation/Scope of work</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.</td>
<td>District Self-Government in Mielec</td>
<td>Upgrading of Witosa Street 2.10 km long. Upgrading of Partyzantow Street 1.80 km long. Connection Jagiellonczyka Street with Wojska Polskiego Street, distance of 0.54 km. Upgrading of Wolnosci Steet 1.56 km long and upgrading of intersection with Partyzantow Street. Upgrading of Wojska Polskiego Street, 1.386 km long. Scope of work: upgrading road capacity standard from KR2 (light traffic) to KR6 (heavy traffic) through road pavement strengthening; improvement of road geometric parameters (broadening of carriageway from 5.5 m to 7.0 m); construction of separated pedestrian and cycling paths; upgrading of roads drainage system (change of road cross-section from the existing route one into the street cross-section); reconstruction of intersections</td>
</tr>
</tbody>
</table>

All project activities will be implemented with the use of the project impact assessment guidelines developed for the Phare 2000 ESC Programme by the IA. These will include comparative benchmarking analyses of beneficiaries and non-beneficiaries to gather statistically significant data for future programming exercises.
4. Institutional framework

The project beneficiaries/owners are:

- for the Voivodship roads the Podkarpackie Voivodship Road Administration
- for the district roads the District Self-Governments and the City of the given area respectively.

In the case of sub-projects 2 and 3 the beneficiaries/owners will authorise the Podkarpackie Voivodship Road Administration to act as Employer according to FIDIC rules. In the case of sub-projects 1 and 4 the Employers will be respectively: the Podkarpackie Voivodship Road Administration and District Self-Government in Mielec.

A clear distinction will be made between the Employer and the Engineer, the latter to be contracted on the basis of the competitive procedure.

5. Detailed Budget (M€):

<table>
<thead>
<tr>
<th></th>
<th>Support</th>
<th>Institution</th>
<th>Total Phare (=I+IB)</th>
<th>National Cofinancing*</th>
<th>IFI*</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>south-eastern area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bieszczady “Great Loop”</td>
<td>3.89</td>
<td>-</td>
<td>3.89</td>
<td>1.3</td>
<td>-</td>
<td>5.19</td>
</tr>
<tr>
<td>central area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.05</td>
<td>-</td>
<td>5.05</td>
<td>1.69</td>
<td>-</td>
<td>6.74</td>
</tr>
<tr>
<td>north area Stalowa Wola</td>
<td>2.24</td>
<td>-</td>
<td>2.24</td>
<td>3.38</td>
<td>-</td>
<td>5.62</td>
</tr>
<tr>
<td>bypass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>north-western area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mielec bypass</td>
<td>2.00</td>
<td>-</td>
<td>2.00</td>
<td>0.67</td>
<td>-</td>
<td>2.67</td>
</tr>
<tr>
<td>Total</td>
<td>13.18</td>
<td>-</td>
<td>13.18</td>
<td>7.04</td>
<td>-</td>
<td>20.22</td>
</tr>
</tbody>
</table>

*Polish co-financing includes administrative costs related to the project management.

6. Implementation arrangements

6.1. Implementing Agency

PAO: Undersecretary of State at the Ministry of Regional Development

Implementing Agency: Polish Agency for Regional Development

6.2. Twinning: n.a.


6.4. Contracts

Four contracts are planned; one for each sub-project (in M€):

<table>
<thead>
<tr>
<th>Sub-project</th>
<th>M€</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.89</td>
</tr>
<tr>
<td>2</td>
<td>5.05</td>
</tr>
<tr>
<td>3</td>
<td>2.24</td>
</tr>
<tr>
<td>4</td>
<td>2.00</td>
</tr>
</tbody>
</table>

7. Implementation schedule:


7.2. Start of project of activity: April/May 2001

7.3 Project Completion: September 2003

8. Equal opportunity:

Procedures used in project implementation will be based on the Polish law ensuring equal opportunity for all interested entities and physical persons irrespective of their sex, race and nationality. Participation of men and women in employment will be based on applied standards of the European Community concerning EOE (Equal Opportunity of Employment), which will be assured in the official advertisement in press at the recruitment of employees.

9. Environment:

Environment impact assessment for the project was prepared in March 2000. The analysis included assessment of the road traffic influence on: acoustic climate due to traffic noise, air pollution, inland water and landscape changes. The solutions minimising the negative investment impact on the environment were recommended.

10. Rates of return:

Feasibility study for the project was prepared by the team of experts from General Director of Public Roads
in March 2000. The IRR indexes for each sections and objects upgraded under the project are higher than considered as a basic level in roads engineering – 12%.

11. Investment criteria:
11.1. Catalytic effect
Phare support will be conducive to achieving economic and social cohesion goals in the Podkarpackie region, which otherwise could be attained only after a much more extended period of time and on a more modest and less efficient scale. Realisation of planned tasks on the Podkarpackie Voivodship road and district network, which is possible only with support of PHARE funds, will allow to liquidate the greatest obstacles in the region’s road transport. It will render the first and most important stage of regional road network realisation, which will be continued in future basing on funds at the disposal of self-governments. The project implementation will be a stimulating factor for economic and tourism related development of the Podkarpackie Voivodship’s three areas under the project

11.2. Cofinancing
The project demonstrates clear co-financing by the Polish partners. The funds of PHARE 2000 Programme will constitute one of the several sources of project financing. Co-financing of the project by the Polish side is assured from the national and local budgets. Contributions of complementary amounts of funds will come from the budget of Podkarpackie Voivodship self-government for tasks implemented on the Voivodship road network, and district self-government for tasks implemented on district road network.

11.3 Additionality
The Phare project is not displacing other financing sources, especially from the private sector and IFI system, it is co-financing identified priorities and not taking the place of national resources.

11.4. Project readiness and size
The technical design documentation, Environmental Impact Assessment, and Feasibility study, and documentation for necessary land acquisitions will have all been prepared.

11.5. Sustainability
The project will contribute to the long term sustainable development of the region, as described in the Podkarpackie Voivodship Operational Programme. The implemented project will be used in the long term. Project realisation does not require any additional expenditure. Road maintenance after reconstruction is assured by subsidies from state budget, provided for the local self-governments for road maintenance.

11.6. Compliance with state aids provisions
All aspects of the project will be developed with respect to the state aids provisions of the Europe Agreement.

11.7. Contribution to the Preliminary National Development Plan
The project is in line with the Preliminary National Development Plan and as such will contribute to increase of economic and social cohesion of the country and region.

12. Conditionality and sequencing:
Co-funding of specific activities will be conditional on:
- co-financing of project by the beneficiary;
- maintaining timetable set in the programme;
- all contracting, reporting and monitoring conditions are met;

Benmarks:
- The deadline for preparation of other construction designs - 31st March 2000.
- Financing memorandum signed by end of 2000
- Resources earmarked for Phare co-financing of programme reach National Fund in January 2001
- Beneficiary contracts project activities by end of March 2001
<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Title</th>
<th>Total Budget</th>
<th>Date of drafting</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Podkarpacie - Upgrading of road infrastructure in the region</td>
<td>15.8 M€</td>
<td>13.03.2000</td>
<td>2001-2003</td>
</tr>
</tbody>
</table>

### Wider Objective
Creation of the conditions for achieving economic and social cohesion of the Podkarpackie Voivodship through upgrading the regional capacity for endogenous and sustainable growth

**Indicators of Achievement**
- the level of GDP and GDP per capita in the region moving towards the national average
- density of roads of good quality moving towards the national average

**Sources of Information**
- experts reports
- statistical data on the level of economic development in the region

**Assumptions and Risks**
- continuing growth in the national economy; continuing process of the integration with the EU; ongoing financing of the project from Polish side

### Immediate Objectives
Developing regional level transport infrastructure necessary to reach growth targets in selected priority areas; creation of new jobs related to improved transport routes; generation of value added in local economies through increased transport flows; increased safety of travel; increased investments and inflow of tourism

**Indicators of Achievement**
- volume of traffic using upgraded infrastructure after one year
- lengths and density of modernised (of good quality) road
- number and value of new investments
- total journey time saved by users

**Sources of Information**
- statistical data
- experts reports

**Assumptions and Risks**
- feasibility studies and environment impact assessments accepted as basis for project co-financing by Phare; co-financing of project by the beneficiary; maintaining timetable set in the programme; all contracting, reporting and monitoring conditions are met.

### Results of Project
Improvement of transport infrastructure (Voivodship and district road networks), of particular significance on economic and tourism development; Increased numbers of investors seeking opportunities in locations whith upgraded accessibility; Increased flow of tourists to region, travelling on upgraded road to tourist destinations; new jobs created in supported areas; Transport time through areas shortened; increased business market accessibility; Improvement of accessibility for inhabitants of smaller localities to the main transport routes and economic, cultural and administrative centres; Improvement of road traffic safety; Reduction of noxious impact of motor vehicle traffic on environment; Transport flows increased without decreases in the quality of life in adjacent local communities. Road pavement strengthened allowing heavier truck traffic, increasing of the bridge bearing capacity for heavier truck traffic. Upgrading of road technical class to minimal target standard for voivodeship roads; Modernisation of water drainage systems; Reconstruction of intersections.

**Indicators of Achievement**
- density of roads of good quality
- number of people / value of goods passing the area using the destined area
- number of tourists arriving to the region number of created and safeguarded jobs after two years
- transport time index
- amount of turnover of firms
- number of visitors in economic, cultural and administrative centres.
- ESS (Equivalent Straight line Speed)
- numbers of accidents after a year
- concentration of main pollutants in air and rain water, noise level
- traffic intensity on the roads
- traffic index of roads
- number of roads of technical class “Z”

**Sources of Information**
- statistical data
- experts reports
- traffic studies and measurements

**Assumptions and Risks**
- changes in the policy towards the foreign investments

### Inputs
Construction
Annex 2: Cumulative implementation, contracting and disbursement schedule

| Date of drafting | Planning period | Budget allocation cost estimate Phare
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13.03.2000</td>
<td>01-2001 - 12.2003</td>
<td>13,18 M€</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation</td>
<td>D</td>
<td>C/I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Contracting</td>
<td>13,18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disbursement</td>
<td>1,977</td>
<td>3,954</td>
<td>7,249</td>
<td>8,567</td>
<td>11,862</td>
<td>13,18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annex 3 - Reference to feasibility/pre-feasibility studies

Feasibility study for the project was prepared by the team of experts from General Director of Public Roads in March 2000. The financial feasibility assessment was carried out, based on the methodology prepared by the Road and Bridges Research Institute from Warsaw accordingly to World Bank instructions. Methodology compares the costs of road and users (including accidents and environment costs) with and without investment. The calculations were prepared for twenty-year-period with discount equivalent (meeting the condition for per cent rate; discount rate for long term enterprises). The IRR indexes for each sections and objects modernised under the project are higher than considered as a basic level in roads engineering – 12%. Thus investment can be considered as profitable. The IRR index for the entire project equals 45,18% The NPV index for the period of 20 years equals 50 600 950 Euro. The benefits obtained through the project’s implementation include heightening of investment and tourist attractiveness of voivodeship; improvement of transport standards and logistic links of interregional significance as well as improvement of accessibility of areas more industrially and agriculturally developed.

Local authorities financial ability analysis indicates that they are able to finance its share in the project. The technical solutions to be applied meets international roads engineering standards.

Environment impact assessment

Environment impact assessment for the project was prepared in March 2000 and is in accordance with Directive on the assessment of the effects of certain public and private projects on environment 85/337/EEC. The document is available at request at the Marshall Office of Voivodship in Rzeszów.

The analysis included assessment of the road traffic influence on: acoustic climate due to traffic noise, air pollution, inland water and landscape changes. The solutions minimising the negative investment impact on the environment were proposed.

Due to the upgrading of roads, especially their surfaces, improvement of their profiles will cause natural progress with respect to the existing levels of noise pollution in the vicinity of roads. However allowed noise levels caused by traffic is going to be exceeded especially at night. Noise protection - acoustic screens - should be considered when there are housing facilities next to the road.

The predicted values of air pollution caused by traffic do not exceed allowed values specified in Ministry of Environment Protection, Natural Resources and Forestry Decree of 28 April 1998 on allowed concentration of polluting agents in the air (Dz. U. No 55 point 355). However, for the mixture of hydrocarbons, in the areas where vehicles move on slopes and hills (some sections of roads in sub-project 1 and 2) the allowed value may be exceeded. Protection measures should be undertaken e.g. passages of greenness.

The calculations prove that rain water sewage may have the concentration of suspension, COD and BOD higher than allowed. The trench covered with grass should be considered as the solution for road sewage clearing and it should be carefully isolated from the area. When such trenches are used the concentration of pollution is going to be lower that those allowed, and the removed loads minimal.