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GUVERNUL ROMÂNIEI



Instrumente structurale
2007-2013

Asistență tehnică pentru elaborarea unui
Master Plan General de Transport
CCI: 2007 RO 161 RO 003
Cod Proiect: POST/2011/4/1/0



PROGRAMUL OPERATIONAL SECTORIAL TRANSPORT
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Executive Summary for the Romanian General Transport Master Plan

Introduction

The Ministry of Transport (MT) appointed AECOM in April 2012 to produce a General Transport Master Plan (GTMP) for Romania. The General Transport Master Plan will provide a clear strategy for the development of Romania's transport sector for the next 20 years. To be of value it needs to provide implementable solutions to Romania's transport problems and challenges.

The Master Plan identifies the projects and policies which best meet Romania's National transport needs over the next 5-20 years, for all modes of transport, and providing a sound, analytical basis for the choice of those policies and projects.

The completion of the Master Plan is conditionality for European Commission approval of the Strategic Operational Programme for Transport (SOPT) for the 2014-2020 programming period and will support other decisions required for the optimal planning of transport infrastructure investment.

The Master Plan has been developed following the advice of the European Commission¹, and in co-operation with the JASPERS unit in Bucharest.

A Transport Master Plan is not an end in itself. The Master Plan must contribute to Romania's economic development in a sustainable manner. The high level outcomes that the Master Plan will produce are:

Outcome 1: A long term plan which will contribute to Romania's national economy in a sustainable way.

The Plan's duration will be 15 years, and the whole programme of projects will take longer than that to implement. This is logical since large transport infrastructure projects typically take 5-10 years from inception to implementation, and their impacts last for 50+ years, although convention assumes that the economic life of transport projects is 30 years.² This approach also implies a consistent approach to transport policy over a long period of time, which transcends political expediences.

Secondly, the primary purpose of the Plan is to define the projects and policies that will have an impact at a National level, and on the European TEN-T corridors.

Outcome 2: More efficient spending of financial resources on transport.

The key word here is "efficient". Every country in the EU has a greater perceived need for improved transport investment than the financial resources available to meet that need, and this will not change in the next 15-20 years. Therefore, given the limited financial resources available, the emphasis must be on projects and policies that give a good economic return, and which perform a useful function.

¹ See EC Letters dated 27/09/2013 and 11/12/2013

² For more details see National Guide for Transport Project Evaluation, Volume 2, Appendix A: Guidance for Economic and Financial Cost Benefit Analysis and Risk Analysis. AECOM.



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Outcome 3: Improved connections and therefore improved trade with neighbouring countries.

The Plan recognises not only that Romania is part of the European Union, which at its heart is an Economic Union with free trade and fair competition between its members, but that it also has important markets (relatively undeveloped at the moment) to the Ukraine, and Moldova.

Outcome 4: Higher productivity for Romanian industry and services, and therefore higher economic growth and improved standards of living.

Efficient transport systems reduce costs for industry and individuals. For industry, this means lower costs and increased productivity, less resource tied up in inventories, and more competitive products and larger markets for those products. For transport operators, better transport means lower costs and higher utilisation of vehicles and staff. For individuals, better transport saves time, and provides wider choice of work, consumer goods, and leisure opportunities.

The Cost-Benefit Analysis captures the majority of these productivity benefits.

Outcome 5: A sustainable transport system.

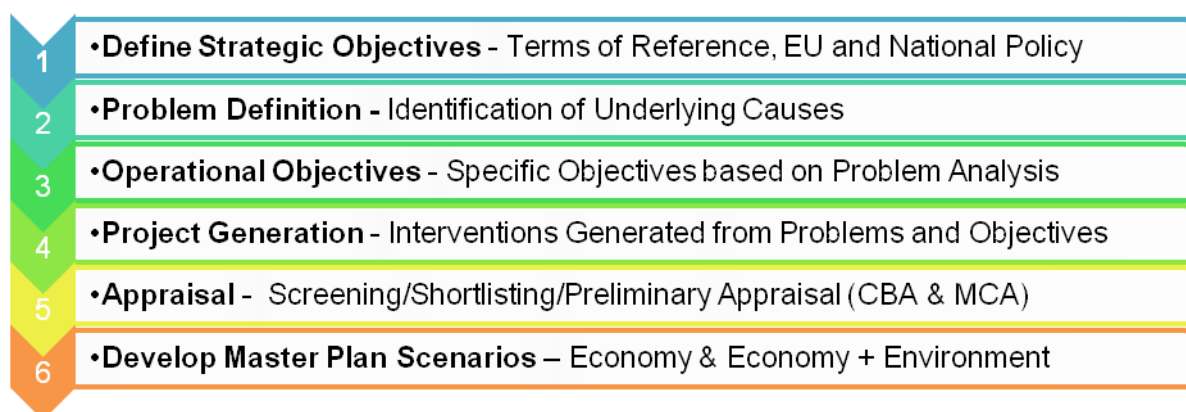
The word sustainable embraces more than environmental sustainability, although this is the context in which the word is often used. It includes the concepts of economic, financial and operational sustainability as well as environmental sustainability. The issue of financial sustainability is particularly relevant to the financing of the Romanian railways.

In summary, the Master Plan will identify the projects and policies which will best meet Romania's National transport needs over the next 5-15 years, for all modes of transport, and providing a sound, analytical basis for the choice of those policies and projects.

Methodology

The overall process for developing the Master Plan is set out in Figure 1 below:

Figure 1. Overall Process for Developing the Romanian Transport Master Plan



- **Step 1: the Strategic Objectives** are those which are defined at a Government, or Ministerial Level, and apply at a high level, as overall goals of the Government, and the Ministry of Transport. For the Master Plan, these were defined using the objectives from the Terms of Reference, various statements from the Ministry of Transport, and the European Commission's White Paper on Transport.
- **Step 2: Problem Definition** is the outcome of a diagnostic of the Transport System. We have identified the underlying causes which are responsible for the manifestation of problems, as well as identifying the problems at a spatial level so that specific objectives and interventions can be identified.



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- **Step 3: Operational Objectives:** these are objectives that relate to the specific problems which have been identified, and are a subset of the Strategic Objectives.
- **Step 4: Project Generation:** these are the specific interventions which will address the operational objectives, and the problems.
- **Step 5: Project Appraisal and Prioritisation:** A systemised project appraisal process is required for two main reasons. First, there may be more than one project which addresses an operational objective, so selection is required. Secondly, a project may address the problem but may offer poor value for money. In a situation like Romania's, where the funds available for transport are much less than the needs, financial resources must be allocated in an economically efficient way. A fair, independent way of appraising projects must be used for this purpose. A multi-criteria analysis (MCA) has been undertaken for this purpose.
- **Step 6: Develop Master Plan Scenarios:** the Terms of Reference require that two scenarios are developed, an "Economically Sustainable" Scenario, and an Economically and Environmentally Sustainable" Scenario. Each project was scored in the MCA according to how well it met the defined appraisal criteria. Using different weights for the scores, each project was given two scores, applying to each scenario, which gave a different set of priority projects for each scenario

The Romanian National Transport Master Plan is, as its name implies, a National Plan. There is therefore an issue of scale in the projects, policies and programmes that the Master Plan will contain. The high-level objectives will therefore be met by policies, programmes and projects of sufficient scale to which will make a difference at a National Level. These include interventions such as:

- Large infrastructure projects
- National Maintenance Programmes
- New Rolling Stock and Locomotives
- Large Scale Rehabilitation projects
- National Policies such as Rail Reform

Objective setting

Establishing objectives is fundamental to the development of any strategy or project. The objectives focus the appraisal and the outcome of the study. Furthermore, the objectives are central to the monitoring and evaluation required during the implementation stage.

The "strategic" objectives will provide clear and concise goals that the strategy will aim to deliver. They encapsulate the underlying purpose of Transport Policy, Projects and Interventions, and represent the overall aims and objectives of the Ministry of Transport, and indeed the Romanian Government, as far as transport is concerned.

It is important to stress that the Master Plan is a long term Strategy for all of Romania, not just the areas of the country that are located on European corridors. The determining factor for projects and policies in the Master Plan will be National need; clearly the availability of funding will be an important determinant of prioritisation and programming.

The concept of high-level and operational objectives, which are defined following the thorough assessment of problems, provides a hierarchy of objectives. This structure clarifies the logic of the intervention and provides a framework for future appraisal and evaluation. The appraisal process for the Master Plan contains a two level hierarchy which consists of:

- **High level or strategic objectives** – For a strategy, this may be to aid economic development of the country or, at project level, to aid the development of the Trans-European Transport Network. These are generally objectives to which transport contributes, but not always in a direct manner. Furthermore these objectives may already be predefined, for example in EU or national policy documents; and
- **Operational objectives** – These are derived from the detailed examination of problems, and the underlying causes of these problems. They are therefore specific to a corridor, route, or transport node (such as port or airport), and allow the interventions to be designed in a precise way to meet the objectives.



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It is also important to note that setting objectives implies a commitment to follow them through in actions and projects. There may be legitimate reasons for slower than desired or planned progress in implementation, but the underlying driver of transport projects in the Master Plan must be the achievement of the objectives.

The High-Level Objectives for the Master Plan are summarised below:

Economic Efficiency: the transport system should be economically efficient as far as transport operations and users themselves are concerned. Specifically, the benefits of investments in transport should exceed the cost of that investment.

Sustainability: the transport system must economically, financially and environmentally sustainable. The so-called sustainable modes of transport – rail, bus and waterways - which are more energy efficient and have lower emissions should be developed as a priority.

Safety: investment in transport should produce a safer transport system. The economic cost of accidents is monetised in the economic evaluation, but since the goals of the Government, the EU and the ToR are clearly a reduction in transport-related accidents, safety must remain as a separate objective.

Environmental Impact: Transport investment should minimise negative impact on the physical environment.

Balanced Economic Development. The transport system should be configured to enable economic development both nationally and regionally. The investment should also favour equity as far as Romanian citizens are concerned.

Funding: Availability of EC funding from the Structural Funds (CF and ERDF, Connecting Europe Facility (CEF)) and PPP will affect “buildability” and therefore the prioritisation of projects. The overall programme will have to be within a realistic estimate of national and other funds over the plan period.

Identifying the Problems and Defining the Interventions

The Problem Identification stage in the development of any plan or strategy is a key procedure, as it identifies and confirms the underlying problems of the transport system rather than merely describing the symptoms. Problem identification also provides a basis for developing operational objectives which in turn form a framework for the appraisal of measures for improving the current transport system.

This step in the process is designed to provide an understanding of the need for a transport intervention and to provide strong input into the setting of objectives through identifying existing and potential transport problems, opportunities and constraints. AECOM's Existing Conditions Report describes the current challenges on a modal basis. There is an existing identified need for improvements to transport infrastructure and services, and there is a large “backlog” of projects already identified by project sponsors. This particularly applies to maintenance of the road and rail networks.

It is crucial that the causes of the problems are investigated before solutions are generated. Focusing on problems (rather than underlying causes) as the stimulus for option development may result in solutions which address the symptoms without solving the real underlying problems.

Several sources of information have been used to support problem analysis, including:

- Statistical data on current network operations;
- Modelling of current transport network performance;
- Forecasting of future year transport demand and network performance; and
- Consultations with key stakeholders.



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The National Transport Model (NTM) provided a core component of current problem analysis, and provides forecasts for the future year “Reference Case” scenario, enabling analysis of the future year transport networks to be undertaken; identifying which problems may be exacerbated in the future.

The NTM contains a representation of the transport system, in the supply side in the form of the networks, capacities and services, and the demand side, in terms of travel between origins and destinations for each mode. The outputs are flows on each link in the network, together with statistics such as passenger and vehicle kms, freight tonnes kms, and travel times and costs by mode.

Full details of the review of existing conditions are provided in the Romania GTMP Existing Conditions Report (ECR) and problem identification process in the Problem Definition Report (PDR).

The appraisal of a transport intervention involves the comparison of the ‘with intervention’ situation against the situation which would be obtained without the intervention in place. The ‘without intervention’ scenario needs careful consideration and will involve specifying a Reference Scenario which has a very high probability of occurring. This is very important as it will affect both the identification of the need for the intervention and the assessment of the costs and benefits of the proposal.

The Reference Scenario provides a realistic view of what is likely to happen in the absence of the intervention proposals. It is based on the continuation of existing maintenance regimes plus any transport improvement commitments that have policy and funding approval and from which it would be difficult to withdraw. It corresponds to maintaining present transport facilities and implementing those aspects of national and county transport strategies that are certain. It takes into account forecast changes in demographics (population, employment and households) and car ownership factors, from European and national datasets, together with changes in land use.

Problems and Opportunities

The identification of transport problems, constraints and opportunities which affect an area and its aspirations for the future, ensures transport interventions are forward-facing and not simply reacting to current issues. Thus, both the transport problems affecting an area and the aspirations for the future – which are often broader than transport – must be the drivers of the proposals for a transport intervention.

The Master Plan is intended for the development and appraisal of proposals which either contribute to objectives relating to transport, or where the underlying opportunities are transport opportunities. This is because if transport proposals are being considered to help meet an objective that could be met by other means (rather than transport), poor decisions could easily result.

Current and Future Transport Related Problems

Problems were identified in a number of ways, including:

- Perceptions of the problems from users, both those that they encounter when travelling and those which result from other people travelling;
- Through discussions with representatives of stakeholders to gain an understanding of the transport and planning professional’s perceptions of problems with the transport system;
- Conducting audits of specific elements of the transport system in order to gain a deeper understanding of the roles performed and to analyse the extent to which the expected aims are not met;
- Analysing outputs from the National Transport Model, or analysing existing data sets, to determine the extent to which local, county and national transport and wider policy objectives are being met; and
- Benchmarking the local performance against similar situations elsewhere.

Future problems were analysed from the future travel demands and changes in the transport supply in the Reference Scenario.



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Problem Definition Report

The formal Problem Definition Report (PDR) identified the problems for each sector of the transport system, supported by an analysis of the performance of each sector and taking into account consultation with operators and providers, and users of the transport system.

The PDR is built up from the following processes:

- Analysis of Existing Transport System containing a review of available data, new data collected, existing analyses;
- Use of the National Transport Model to provide data for base year and future year Reference scenario to provide an evidence base to support the problem identification process;
- The results of consultation with key stakeholders in order to identify the root cause of problems; and
- Concise statements of the problems identified, following consolidation of all sources of evidence, which will provide an evidence-based identification of the real problems and challenges facing the Romanian Transport Sector.

The above outputs from the PDR provided the essential "operational objectives" which guide Project Identification Phase. These were brought together in working documents (the Problems/Objectives/Interventions (POI) reports) which were agreed with the MT and JASPERS.

Prioritisation of Projects

Projects prioritisation forms a critical step in producing the Master Plan programme of investments as the investment needs identified are far greater than the available financial allocations. This implies the necessity of ranking projects considering a set of predefined evaluation criteria, which will assure a fair and neutral project prioritisation. Adding the funding restrictions to the list of ranked projects leads to obtaining of the implementation calendar.

The first phase appraisal for a strategy is aimed at discarding the projects having a low economic performance, having in view one of the high-level objectives of the Master Plan, which is "Economic Efficiency". The projects which emerge from this will be strong candidates for inclusion in one or both of the development scenarios based on "Economic Sustainability" – termed "ES" - or "Economic and Environmental Sustainability" – termed "EES".

This requires a broad, but robust, appraisal of projects. The appraisal was undertaken using a Cost Benefit Analysis (CBA) and a summary Multi Criteria Analysis (MCA).

The overall process of project appraisal is illustrated in Figure 2 below.

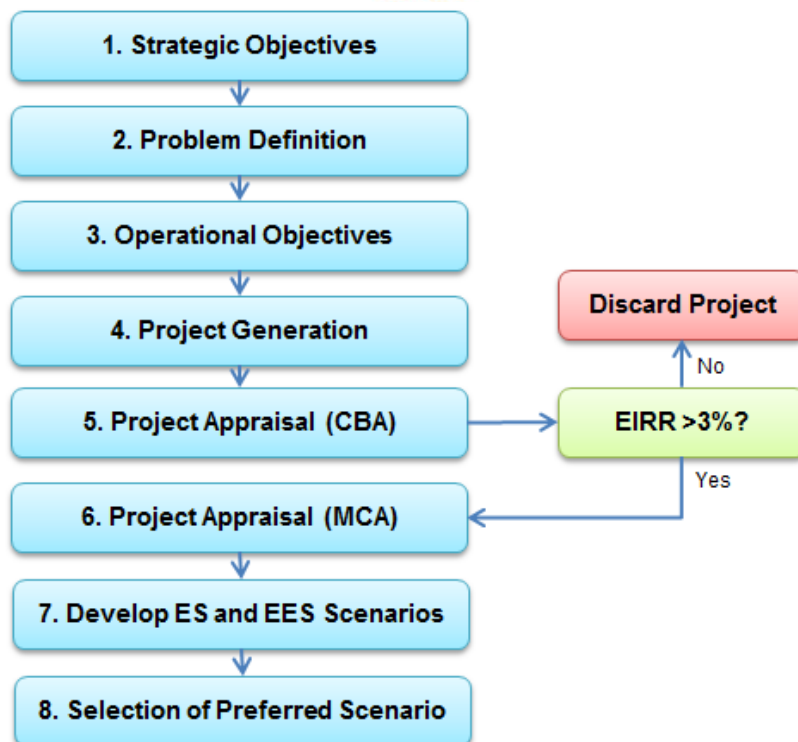


Figure 2 Project and Scenario Appraisal Process

The process of generating projects based on the problem analysis and identification of the interventions that best address the specific problems has been analyzed.

The following sections describe how projects were appraised individually and then incorporated into the “Do Something” Scenario [the Economic Sustainability Scenario (“ES”) and the Economic and Environmental Sustainability Scenario (“EES”).

Individual projects have been tested before assembly into the “ES” and “EES” scenarios. This is because it is a firm requirement of the EU that each of projects in the Master Plan must be justified in economic terms, before consolidation into scenarios. If the scenarios were assembled first there is danger that a form of “cross-subsidization” would occur, that is, while the scenario as a whole might produce economic benefits, which might disguise the fact that the economic benefits from some projects might offset disbenefits from others.

Therefore, the initial list of projects has been processed using the economic value as the sole criterion. All projects for consideration in the Master Plan will have to meet this criterion ($EIRR > 3\%$) and this is consistent with EU requirements. This minimum value for EIRR was defined considering the uncertainty margin inherent to the high level of analysis, having in mind that the economic discount rate is 5% for the next EU programming period.

The projects which pass the economic criterion have been combined into the ES and EES Scenario.

Selection of Projects for the ES and EES Scenarios

The output from the project appraisal is a list of projects with scores out of 100 for each Scenario. A critical step was then to determine which projects should then have priority and for this the approach is to assign weights to each score for each criterion to give an overall project score.



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The weighting of the projects and their score depends on the characteristics of the two scenarios. For the ES Scenario, projects have a higher weighting for the economic criteria than for the EES Scenario. The weighting system, based on past consultations with MT and JASPERS, are presented in Table 1.

Table 1 Criteria and Weights for ES and EES Scenarios

Criteria	ES	EES
Economic Efficiency	70%	50%
Trans-European Integration/TEN-T Policy	30%	20%
Environmental Impact	-	20%
Sustainability	Not scored but dealt with the distribution of funds by mode	
Balanced Economic Development	-	10%

Source: AECOM / MT / Jaspers

Each project was scored for each scenario using the above weights. A ranking of projects within each scenario was then be made.

Based on the results of the project appraisal, there are identified projects which are strong candidates for inclusion in the two development scenarios “economic sustainability” and “economic and environmental sustainability”. Typically:

- Projects that have limited economic benefits and significant environmental disbenefits were dropped;
- Projects which have high economic benefits and significant environmental disbenefits were included in the “economic sustainability” scenario;
- Projects that have limited economic benefits but positive environmental benefits were included in the “economic and environmental sustainability” scenario; and
- Projects which have high economic benefits and are neutral or positive in environmental terms were included in both scenarios.

Appraisal of the ES and EES Scenarios: Application of Multi Criteria Analysis

The Master Plan represents the direction of the country’s transport for the next 15-20 years. It is therefore important that a broad appraisal is made at the strategic level so that the overall impact of the Master Plan is known and assessed. This assessment will be made using the following criteria.

- Economic Impacts
 - EIRR
- Transport Policy
 - On TEN-T Core/Comprehensive
- Environmental Impacts
 - Impact on Natura 2000 sites



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- Sustainability
 - Transfer of Traffic to Sustainable Modes
- Balanced Economic Development
 - Accessibility of less accessible regions

Description of the Evaluation Criteria

A. Economic Efficiency

The Transport Economic Impacts criterion relates to the direct economic impacts of the project on the efficiency of the transport system, evaluated by the EIRR (Economic Internal Rate of Return).

B. Trans-European Integration

On TEN-T Core or Comprehensive: this sub criterion reflects the fact that it is both Romania's and the EU's policy to improve the quality of the most important routes within and across the country. In addition, the routes selected for the core TEN-T have already been the subject of careful analysis and evaluation, so it is logical that the Master Plan should favour projects which improve these routes. The inclusion of a National Network criterion acknowledges the fact that the TEN-T network is not comprehensive geographically and there are many large and medium sized cities which are connected only by national roads, and lines designated "core" on the railway network.

C. Environmental Impact

Natura 2000 relates to the Natura 2000 network of sites that contain the most important habitats across Europe. Natura 2000 sites have EU legislation to protect them. This sub-objective should appraise the extent, if any, to which the strategy, or the major projects within a strategy, is likely to impact on these sites in terms of numbers and magnitude. The habitat and species in these locations are protected, so any impact from a project is likely to be seen as significant.

The assessment is also considering the extent, if any, the project is likely to impact on biodiversity features outside Natura 2000 sites, rating the importance of these features and any inter-relationships, as well as providing a description of the impact on biodiversity, including the effects on its distinctive quality and local diversity.

D. Transfer of Traffic to Sustainable Modes

Sustainability includes the transfer of traffic to sustainable modes of transport and reflects both national and EU policy towards "sustainable" modes of transport. These are those modes, which, in the long term, have lower emissions and energy consumption per passenger km, and which have better safety records. In practice this means rail and water transport, and to some extent long distance bus. The National Model provides a means of quantifying the transfer of passengers and freight to these sustainable modes of transport, as a basis for assessing the impact of each scenario.

E. Balanced Economic Development

It comprised the improvements towards areas with low accessibility both to foreign and domestic markets. A comprehensive analysis on the accessibility was produced using the National Transport Model and its results were then used to quantify this criterion.



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Selection of the Preferred Scenario

At the end of appraisal stage, the optimised strategies for the development of Romania's transport system have been developed based on "economic sustainability" and "economic and environmental sustainability" respectively. The final stage of the process was to determine an overall recommended strategy.

The recommended strategy seeks to synthesise the two scenario strategies by combining the strongest elements of both scenarios, within the likely funding available. Given that both scenarios refer to economic sustainability it is likely that there will be substantial overlap between them. Projects that are advocated under both scenarios are likely to be included in the final recommended strategy, plus some projects which are included in one but not the other.

Outputs from the CBA and MCA provide a succinct and objective assessment of the main impacts of each scenario. This allows the appraisers to consider the benefits and disbenefits of each scenario, based on a consistent, transparent and auditable approach.

Overall Strategy, 2020 and 2030

The General Transport Master Plan (GTMP) represents a unique opportunity for Romania. For the first time Romania will have a soundly-based, comprehensive plan for all the major modes of transport, for the period up to 2030. It provides a staged programme of interventions which encompass not only proposals to improve the transport infrastructure, but also dealing with maintenance, management and operations, and safety.

Providing good-quality transport is not an end in itself. Efficient transport is a critical component of economic development, globally and nationally. Transport availability affects global development patterns and can be a boost or a barrier to economic growth within individual nations. Transportation investments link factors of production together in a web of relationships between producers and consumers to create a more efficient division of production, leverage geographical comparative advantage, and provide the means to expand economies of scale and scope.



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Executive Summary of the Environmental Report for the Romanian General Transport Master Plan

In accordance with the SEA Directive 2001/42/EC, Directive 79/409/EEC on the conservation of wild birds and Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna transposed into the national legislation, the General Transport Master Plan is subject to the environmental assessment procedure, respectively to the appropriate assessment procedure.

For the purpose of the GTMP it was necessary to develop the Environmental Report and the Appropriate Assessment Study. The appropriate assessment conclusions were integrated into the Environmental Report.

The Environmental Report for the Romanian General Transport Master Plan has been elaborated in compliance with the provisions of SEA DIRECTIVE 2001/42/EC, which have been transposed in Romania by Governmental Decision no. 1076/2004 regarding the environmental assessment for plans and programs. The details related to the information included in the Environmental Report and the assessment of the GTMP effects on the environment have been discussed and agreed during the working group meetings.

Environmental assessment has an important role for the proposed plan and allows consideration of environmental impacts in developing proposals for the plan, but it doesn't focus on detailed assessment of the environmental effects of each project proposed, this assessment being actually subject to the procedure of Environmental Impact Assessment and/or Appropriate Assessment

Within the Environmental Report the following scenarios have been assessed:

- „Do nothing” - scenario that presents the existing situation with the assumption that no other project will be implemented;
- „Do minimum” - scenario that considers the approved projects for the ensured financing, some of them already in the implementation phase ;
- „Do something” (the Economic Sustainability Scenario - ES and the Economic and Environmental Sustainability Scenario EES) - scenario that includes projects which have been selected in order to be included in the GTMP

In order to assess the environmental impact, the following have been considered in terms of GTMP effects of : air, climate change, water, biodiversity, population and human health, waste and hazardous substances management, energetic efficiency, renewable resources consumption, landscape and cultural heritage, sustainable transport.

Depending on the location and the influence of the projects included in the Master Plan, the Environmental Report also assesses the possible effects in a transboundary context.

Among the projects included in the "do minimum" reference scenario, under the stage of realization/implementation, 5 projects located near the border or related to navigation on the Danube were identified.

- 2 road infrastructure projects, of which one project for rehabilitation of an existing road and one project for construction of a bridge over Danube;
- 1 rail transport infrastructure project – Railway modernization project
- 2 naval transport infrastructure projects – 1 project to improve navigation conditions on the Danube - Calarasi-Braila sector, 1 project to improve port infrastructure.

Assessing the information available at this stage, none of these projects appear to induce a significant adverse transboundary impact. Moreover, for situations in which projects will be implemented and potential impacts are detected, the neighbours will be informed with regard to the procedures for the Environmental Impact Assessment.



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Table no. 2 – Projects located in the vicinity of the border areas for the "do minimum" scenario

Transport type	Project category	Project name
Road	Modernization of the road infrastructure	Rehabilitation of DN24 Galati / Vaslui limit -Crasna and Crasna-Albita Lot 3: DN24B 22+000 - DN 24B km 47+ 881 (Albita Frontier)
Road	Bridges	Giurgiu bridge over the Danube in DN5 km 64 884
Railway	Modernization of railway infrastructure	Modernization of Border-Curtici CF Arad-Simeria Section 1: Border-Arad-km 614
Naval	Improved navigation on the fairway	Improvement of navigation conditions on the Calarasi-Braila
Naval	Rehabilitation/modernization of port infrastructure	Rehabilitation and modernization of port infrastructure in Oltenita Port



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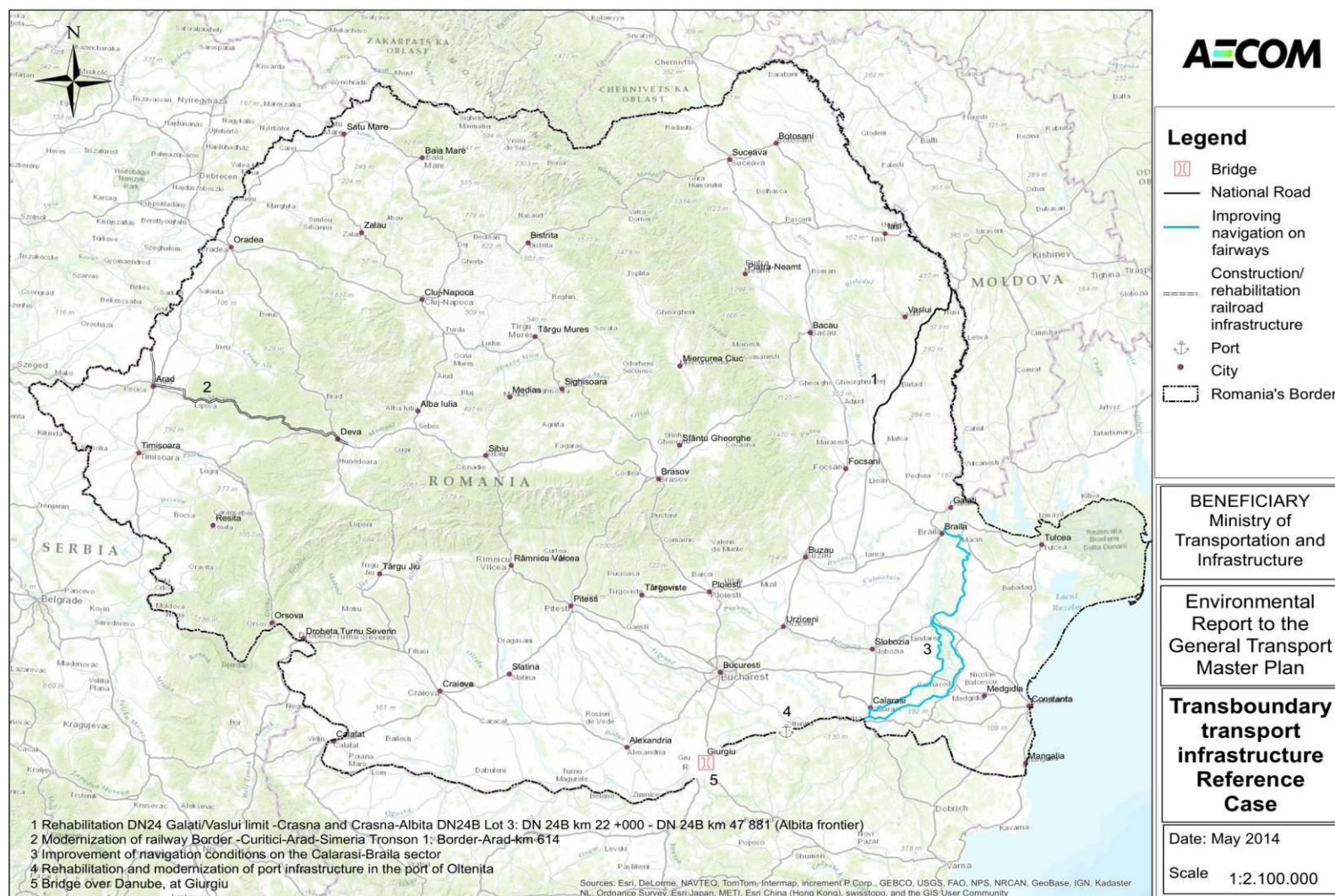


Figure no. 1 Infrastructure projects proposed near the border line," Do Minimum" scenario (Reference case)



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For the „do something” scenario and similarly, projects located near the border, projects crossing the border rivers or those related to the navigation on the Danube were considered for the analysis of the transboundary effects. In this way, a total of 19 projects were identified which are presented in Table 3 and Figure no. 2, respectively:

- 9 road infrastructure projects, of which 1 motorway construction project , 4 expressway construction projects , 4 projects for the modernization/rehabilitation of an existing road ;
- 4 rail infrastructure projects , projects for rehabilitation to design speed;
- 7 naval infrastructure: 1 project to improve navigation conditions on the Danube, on the Romanian-Bulgarian common sector (Porțile de Fier II - Călărași) and 6 projects for the development of port infrastructure.

Important for environmental impact analysis are only projects that include construction works.

These projects can be divided into 3 categories, as follows:

- Projects including construction works and involving the development of new transport corridors (construction of motorways and expressway)
- Projects including rehabilitation works and which are located on existing transportation corridors (railways and roads)
- Projects including works to improve navigation conditions on the Danube and to develop port infrastructure.

Table no. 2 Projects located in the vicinity of the border areas for the “Do something” scenario

Transport type	Indicative	Project category	Project name and Description	Neighbouring country
Road	R1	Road Infrastructure Modernization/ Rehabilitation	Timișoara- Moravița	Serbia
Road	R2	Road Infrastructure Modernization/ Rehabilitation	Bucharest - Giurgiu	Bulgaria
Road	R3	Road Infrastructure Modernization/ Rehabilitation	Craiova - Calafat	Bulgaria
Road	R4	Road Infrastructure Modernization/ Rehabilitation	Drobeta Turnu Severin - Calafat	Bulgaria
Road	OR12	Road infrastructure construction	Gilău – Borș Motorway	Hungary
Road	OR7B	Road infrastructure construction	Suceva – Siret Expressway	Ukraine
Road	OR13A	Road infrastructure construction	Pașcani- Iași-Ungheni Expressway	Moldavia Republic
Road	OR6B	Road infrastructure construction	Bacău –Focșani – Galați - Brăila – Giurgiu-lești Expressway	Moldavia Republic Ukraine
Road	OR9B	Road infrastructure construction	Turda – Halmeu Expressway and link road Livada – Petea	Ukraine Hungary
Railway	DS04	Rehabilitation railway to design speed	Bucharest to Iași via Bacău + Buzău to Galați + Pașcani to Ukraine (DS04A)	Ukraine
Railway	DS10	Rehabilitation railway to design speed	Bucharest to Giurgiu railway (DS10A)	Bulgaria



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Transport type	Indicative	Project category	Project name and Description	Neighbouring country
Railway	DS11	Rehabilitation railway to design speed	Craiova to Calafat railway (DS11A)*	Bulgaria
Railway	DS12	Rehabilitation railway to design speed	Oradea Timișoara – Stamora Moravița*	Serbia
Water (Port)	P-DB-S	Development infrastructure	Drobeta Turnu Severin Port	Bulgaria
Water (Port)	P-MV-S	Development infrastructure	Moldova Noua Port	Bulgaria
Water (Port)	P-GR-S	Development infrastructure	Giurgiu Port	Bulgaria
Water (Port)	P-OT-S	Development infrastructure	Oltenița Port	Bulgaria
Water (Port)	P-CB-S	Development infrastructure	Corabia Port	Bulgaria
Water (Port)	P-OV-S	Development infrastructure	Orșova Port	Bulgaria
Water (Waterway)	W1	Dredging and other measures to improve Danube navigation	Dredging and other measures to improve Danube navigation - sector Porțile de Fier II - Călărași	Bulgaria Serbia

* Includes section of last railway station and the border state

Susceptible projects to have potential significant adverse environmental effects are shown in blue color, in Table no. 3.

For the project "Improvement of navigation conditions on the Danube sector Portile de Fier II - Calarasi" the procedure for environmental impact assessment is ongoing, and in this context the transboundary consultation process with the neighboring states has been initiated..

For road and railway infrastructure rehabilitation (R1, R2, R3, R4, DS04, DS10, DS11, DS12) the alignment of existing corridor will be maintained. For the road infrastructure rehabilitation (R1, R2, R3, R4) there may be temporary changes in land use (associated with the work front, site organization, storage of building materials, borrow pits, temporary access roads, etc.) which will cause permanent changes of land use as a result of the new lanes, extension bands. Environmental effects are temporary, local and discontinuous thus it is unlikely to occur a significant negative impact on environment and to affect neighbor states.

Construction projects involving the development of new corridors of road (expressways and motorway - OR13A, OR7B, OR9B, OR6B and OR12) will allow improvement of transport conditions and safety, will facilitate active links between communities living on both sides of the border and directly contribute to the modernization/expansion of the trans-European (TEN-T) and pan-European corridors, helping to improve the connection between Western Europe and Eastern Europe.

Since at this stage, there is no information available on the final proposed route of new roads (expressways and motorways - OR13A, OR7B, OR9B, OR6B and OR12) and not all the specific field conditions are known, the analysis for these projects was conducted at an indicative corridor level, sometimes starting only with the preliminary information at the level of intent. The role of the strategic environmental assessment is to analyze groups and types



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of projects, while detailing the generated effects and the magnitude of expression of each individual project will be done at the project level in a later stage, in which potential effects of projects will be notified to the concerned countries.

To prevent and reduce the magnitude of these effects, since in the planning stage, the GTMP proposes a series of measures to allow further investigation in detail, avoidance, prevention and reduction of environmental impacts due to the proposed projects and a monitoring system of its potential effects.

The proposed measures cover all phases of a project (planning, construction and operation) and all environmental aspects considered (air, climate change, water, soil, biodiversity, population and human health, waste and hazardous substances management, energy efficiency and renewable resource consumption, landscape and cultural heritage, sustainable transport). These measures relate to:

- Avoiding sensitive areas (protected natural areas, densely inhabited areas, obstacles and natural barriers such as rivers, mountain areas, etc.) by choosing the best alternative route for projects included in the GTMP and provision of measures to prevent and reduce the effects on environment where these areas can not be avoided
- Starting the procedure for environmental impact assessment and appropriate assessment from the first phase of design and continue throughout the development and implementation of the projects proposed by the GTMP.
- Selecting the best design and construction methods in order to prevent and reduce the environmental impact (reduction of the direct/indirect effects on surface waters and groundwater, soil, biodiversity, air quality, climate change: reducing the amount of waste generated, noise pollution reduction measures, measures to protect human health);
- Limiting the field surfaces temporarily or permanently occupied by the projects proposed by the GTMP;
- Prevention and control of pollution both during construction and operation phase;
- Adaptation to climate change in the transport sector;
- Correlation of the proposed measures of GTMP with the measures proposed by the programs, strategies, national and European plans for the transport sector.

Through compliance with the existing national and European regulations and thorough assessment and implementation of the proposed measures, it is expected that the potential negative effects on the environment and human health caused by transportation projects will have no significant amplitude in a transboundary context.

From a different perspective, border area projects, designed to develop transport infrastructure in a correlated manner will help improving public infrastructure as a whole and thus lead to a better coordination and cooperation in border areas in the spirit of border cooperation programs (programs that foresee interventions to ensure transboundary development strategies correlation and coherent interventions and investment programs for the transport sector).

In this phase, starting with the information available and analyzing the alternatives proposed by the General Transport Master Plan at a strategic level and in relation with the objectives set at European and national level, we can say that there no potential significant effects on the environment or upon human health in a transboundary context were identified .



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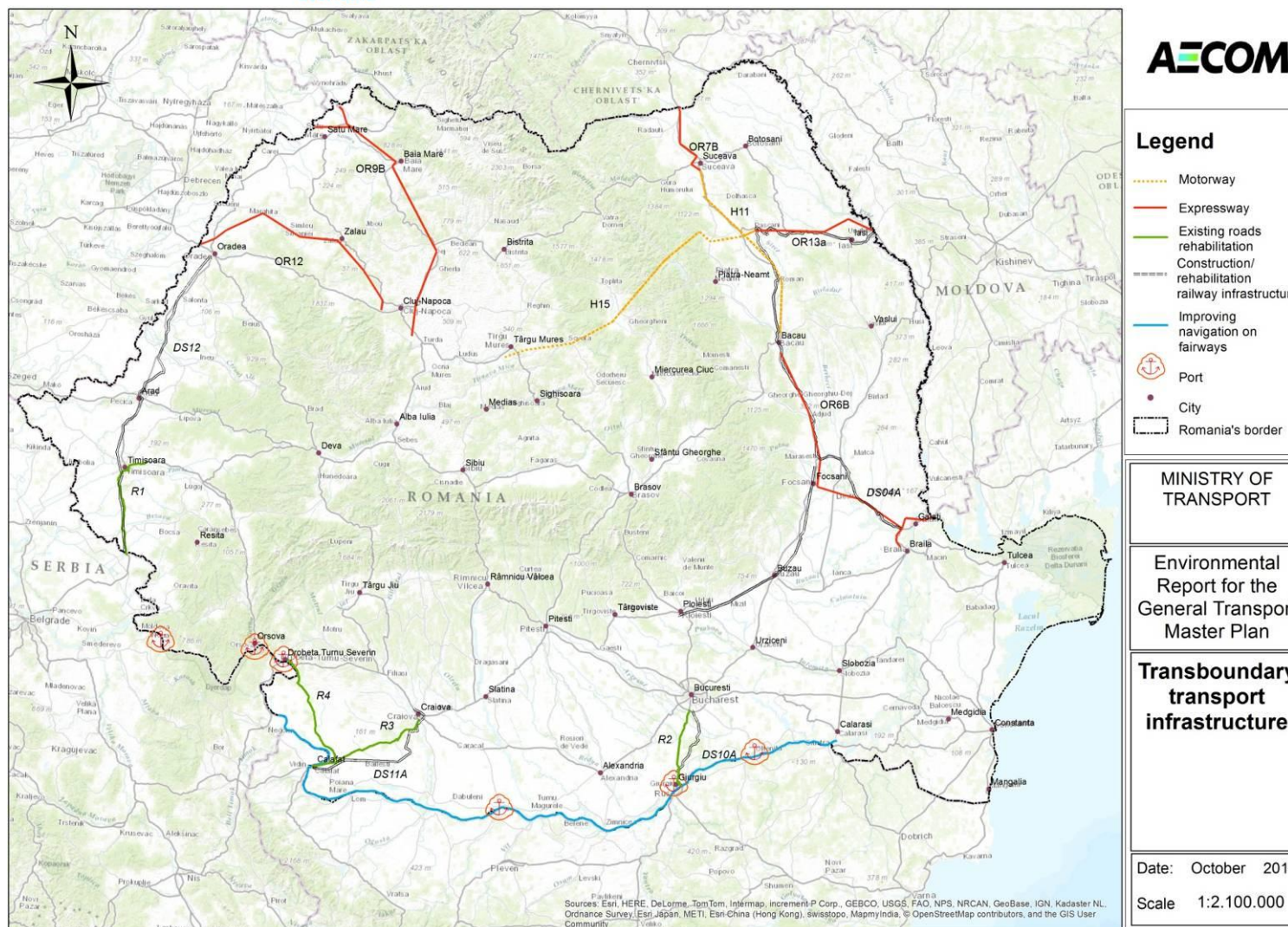


Figure no. 2 Infrastructure projects proposed near the border line," Do something" scenario



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The Appropriate Assessment Study of potential effects on Natura 2000 sites of the General Transport Master Plan (GTMP) of Romania was established under national legislation, namely according to the requirements of the Methodological Guide for the Appropriate Assessment of the potential effects of the plans or projects on protected natural areas of community interest (MMP Order no. 19/2010).

The conclusions of the Appropriate Assessment Study were included in the Environmental Report.

Similar to the Environmental Report, the Appropriate Assessment Study examines 3 proposed scenarios within the GTMP, mentioned above.

The Appropriate Assessment role was to make a preliminary identification of the potential emergence of significant impacts on the Natura 2000 network in Romania.

This study analyzed only projects that included construction works and that could be spatially localized. Also, a specific category of projects including construction works was identified, but in the absence of an indicative route provided by the GTMP owner, these projects could not be spatially located.

It should be noted that in the analysis conducted in the Appropriate Assessment Study, for an important part of the projects, the routes provided are only indicative routes that can undergo significant changes during the design phases. Also, the location of the projects (for which no data was provided by the GTMP owner in vector format) conducted in this study on the basis of the project titles, are approximate locations, and in this case significant changes may occur at the time of implementation of the individual projects.

In the Appropriate Assessment Study, out of the 5 projects related to the "do minimum" scenario identified in the Environmental Report (Table no. 2) near the border or in connection with navigation on the Danube, one, namely "Rehabilitation and modernization of port infrastructure Oltenita Port", is part of the category for which, in the absence of an indicative route provided by the GTMP owner, spatial location could not be achieved.

For the projects, for which indicative routes were available or an approximate location was identified, Table. 4 shows the nearest Natura 2000 sites which are located on the territories of the neighboring countries. These were identified using the database available on the website of the European Environment Agency (Natura 2000 sites shp format in Bulgaria and Hungary).

Of the 2 Natura 2000 sites identified, one belongs to Hungary (HUKM20010), being located at distances greater than 3500 m from the projects listed, and one to Bulgaria, BG0000534 respectively, located at a distance of approximately 7000 m. Given the distances at which these Natura 2000 sites are located towards the projects from the "do minimum" scenario located near the border or in connection with navigation on the Danube, we believe that it is unlikely to show a significant negative impact on these sites.

As mentioned before, for cases in which these projects located near the border or in connection with navigation on the Danube, are found to have potential impacts, all neighbours will be informed on the proceedings of the Environmental Impact Assessment.

Table no. 4 - Projects with location near the border areas of the "do minimum" scenario, code, name and approximate distance from the Natura 2000 sites located in neighbouring countries

Transport type	Project category	Name	Neighboring country	Code of Natura 2000 site	Name of Natura 2000 site	Approximate distance from the project location (m)
Railway	Modernization of railway infrastructure	Railway modernization Border-Curtici-Arad-Simeria, Section 1: Border - Arad- 614 km	Hungary	HUKM20010	Gyula-Szabadkígyósi Gyepek	3500
Naval	Improved navigation on the fairway	Improvement of navigation conditions on the Calarasi-Braila sector	Bulgaria	BG0000534	Ostrov Chayka	7000



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For projects included in the "Do something" scenario, for which indicative routes were available or an approximate location was identified, Table 5 presents the nearest Natura 2000 sites located on the territories of the neighboring countries. These were identified using the database available on the website of the European Environment Agency (Natura 2000 sites shp format in Bulgaria and Hungary).

Thus, on the neighboring countries territories 23 Natura 2000 sites were identified, of which one belongs to Hungary (HUHN20014), the remaining 22 being on the territory of Bulgaria. Most of the projects belonging to this scenario, which are located near the border and which cross the border rivers or those related to navigation on the Danube, are located at considerable distances (more than 3000 m) from the Natura 2000 sites identified on the neighboring countries territories. Exception is represented by the project "Improvement of navigation conditions on the Danube Portile de Fier II - Calarasi" which crosses 21 Natura 2000 sites located on the territory of Bulgaria).

As mentioned before, for the project "Improvement of navigation conditions on the Danube Portile de Fier II - Calarasi" the procedure for environmental impact assessment is ongoing, and in this context the transboundary consultation process with the neighboring countries has been initiated

For projects "Nadașel-Borș Motorway" (OR12), "Rehabilitation to design speed (DS11A) Craiova to Calafat railway", "Rehabilitation to design speed (DS10A) Bucharest to Giurgiu railway" we consider a significant negative impact on Natura 2000 sites to be unlikely.

Given the fact that the routes of the projects considered represent indicative routes that can undergo significant changes during the design phases, and that not all the projects included in the "do something" scenario will be included in the final version of the General Transport Master Plan of Romania, detailing of the generated effects and their magnitude could be achieved at project level at a later stage, when the potential transboundary effects will be notified to the neighboring countries.

According to the above mentioned, considering that almost all projects with possible transboundary impact are located at considerable distances from the Natura 2000 sites located on the territories of the neighbouring countries (those that could be identified using the database available on the website of the European Environment Agency), except for the "Improvement of navigation conditions on the Danube sector Portile de fier II-Calarasi" project (for which the environmental impact assessment procedure is ongoing, and in this context the transboundary consultation process of the neighboring states has been started), we believe that, given the fact that the routes provided are only indicative routes and that the final version of the General Transport Master Plan will not include all the analyzed projects from the "do something" scenario, it is unlikely a negative significant impact to appear on the mentioned sites .



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Table no. 5 – Projects with location near the border areas „Do something” scenario, code, name and approximate distance from the Natura 2000 sites located in neighboring countries

Transport type	Project category	Intervention	Neighboring country	Code of Natura 2000 site	Name of Natura 2000 site	Approximate distance from the project location (m)
Road	Construction of road infrastructure	Gilău – Borș Motorway (OR12)	Hungary	HUHN20014	Kismarjai Nagy-szik	7000
Railway	Rehabilitation of railway infrastructure	Craiova to Calafat railway(DS11A)	Bulgaria	BG0000552	Ostrov Kutovo	3400
Railway	Rehabilitation of railway infrastructure	Bucharest to Giurgiu railway (DS10A)	Bulgaria	BG0000529	Marten - Ryahovo	8700
Naval	Improved navigation on the fairway	Improvement of navigation conditions on the Portile de Fier II – Calarasi Danube sector	Bulgaria	BG0000199	Tsibar	0
				BG0000232	Batin	0
				BG0000237	Ostrov Pozharevo	0
				BG0000241	Srebarna	0
				BG0000334	Ostrov	0
				BG0000335	Karaboaz	0
				BG0000377	Kalimok - Brashlen	0
				BG0000396	Persina	0



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Transport type	Project category	Intervention	Neighboring country	Code of Natura 2000 site	Name of Natura 2000 site	Approximate distance from the project location (m)
				BG0000529	Marten - Ryahovo	0
				BG0000530	Pozharevo - Garvan	0
				BG0000532	Ostrov Bliznatsi	0
				BG0000533	Ostrovi Kozloduy	0
				BG0000534	Ostrov Chayka	0
				BG0002007	Ostrov Ibisha	0
				BG0002008	Ostrov Do Gorni Tsibar	0
				BG0002017	Kompleks Belenski Ostrovi	0
				BG0002018	Ostrov Vardim	0
				BG0002024	Ribarnitsi Mechka	0
				BG0002030	Kompleks Kalimok	0
				BG0002067	Ostrov Golya	0



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Transport type	Project category	Intervention	Neighboring country	Code of Natura 2000 site	Name of Natura 2000 site	Approximate distance from the project location (m)
				BG0002091	Ostrov Lakat	0