

REPUBLIC OF CROATIA
Modernization and Restructuring of the Roads Sector

TERMS OF REFERENCE
for Maintenance Consultant

Development of National Standards for Routine and Periodic Maintenance of Public Roads

A. BACKGROUND

The Modernization and Restructuring of the Road Sector (Croatia MARS) World Bank-funded project aims to support the Croatian Government in enhancing operational efficiency and improving financial sustainability of the road sector. The project contains an investment loan portion to be used for the restructuring of road management companies *Hrvatske autoceste* (HAC), *Autocesta Rijeka Zagreb* (ARZ) and *Hrvatske ceste* (HC). In this context, consultant services will be required for performing a review of current maintenance practices used by the said road companies as well as by County Road Authorities (ŽUC) and development of national standards for routine and periodic maintenance of all public roads. Concurrently, a new Technical Road Classification is being developed, which will classify all public roads into road categories based on the traffic load and road importance. Separately, Technical Specifications for Routine Maintenance Works are also being developed. Both the road classification and technical specifications need to be taken into account while developing maintenance standards.

B. OBJECTIVES OF THE ASSIGNMENT

The detailed requirements are presented in the Scope of Services (C) and will be subject to working consultations with HAC, ARZ, HC, HAC-ONC, ŽUCs and the World Bank during the assignment. It is required that any work carried out under this contract should be closely coordinated with the Ministry of Sea, Transport and Infrastructure (MSTI) and its MARS Project Implementation Unit.

The main goal of the assignment is to develop unified and consistent national standards for routine and periodic maintenance of all public roads to be used for:

- planning of maintenance activities;
- budgeting purposes;
- procurement of maintenance works;
- determining KPI's and associated operational targets to monitor the underlying business drivers related to road asset management, and which are relevant to each company, and which could be used as a basis for reporting to MSTI;
- determining service levels and end-performance standards for maintenance works/activities;

It should be taken into account that the maintenance standards will be eventually incorporated into the Road Asset Management System (RAMS) being developed under a different assignment.

The following **principles** need to be considered in the development of standards:

- Rationalised number of indicators (for reasonable cost of monitoring).
- Basic aim is an appropriate and safe standard of service for road users; performance criteria to be set according to relative importance and affordability.
- Performance standards should be workable (in terms of achievability and measurement/control/calculation of works done) and affordable for the desired service level.

- **Additional basic aims:**
 - preservation of the road asset,
 - the basis for quality control and performance monitoring in accordance with contractual requirements (service agreements of performance-based contracts),
 - tool for defining preventive and periodic maintenance programmes.

- **Questions to be addressed**
 - Is the performance standard specific (concrete), measurable, achievable, results-oriented, time-bound?
 - Does the standard conflict with the company's standard technical specifications?
 - Is the standard in line with the company's objectives and desires?
 - Does the performance standard focus on what really matters (i.e., focus on the infrastructure/procedures which really do result in infrastructure preservation and the promotion of traffic safety)?

C. SCOPE OF SERVICES

The Consultant's tasks will include, but will not be limited to the following tasks:

- (1) **Analysis of the existing legal framework** related to road maintenance, maintenance standards (if any), contractual arrangements and maintenance practices at HAC, ARZ, HC and ŽUC.
- (2) **Development of a draft proposal** of maintenance standards for all public roads (in the form of service levels and end-performance standards), including necessary changes in relevant legal provisions (laws and implementing regulations).
- (3) **Conducting a workshop** with counterparts' participants explaining the proposals and receiving comments and proposals from the participants.
- (4) **Detailing the modifications** in relevant legal provisions (laws and implementing regulations) for submission to MSTI.
- (5) **Detailing the end-performance maintenance standards** for public road network taking into due consideration the comments/proposals received.
- (6) **Preparation of a training program** and conducting training in the use of the maintenance standards.
- (7) **Regular reporting** to the Committee for the development of public roads maintenance standards on the business activities.

The indicative (but non-restrictive) structure of the document "The Standards for Routine and Periodic Public Road Maintenance" will be as follows:

- Introduction (with a description of the standard concept and a short description of general needs for maintenance activities)
- Definitions and explanations
- Links to relevant laws/regulations
- Requirements/conditions by the level of service (for each specific element of maintenance and public road category)
- Key performance indicators (KPIs)
- References – citation of the documents (more information on routine and periodic maintenance needs).

The standards will draw upon (and review):

- existing or previously-used maintenance standards for public roads in Croatia;
- maintenance standards of comparable EU states;
- international best practices;
- the relevant recommendations of the EBRD financed Atkins study “Croatia: Restructuring of Motorway Network”;
- the conclusions of MSTI Working Group 1 as regards maintenance standards, technical classification of roads and asset management system;
the existing provisions of legal requirements, such as the Roads Act (*Official Gazette 84/11, 22/13, 54/13, 148/13 and 92/14*), Regulations on Road Maintenance (*Official Gazette 90/14*), Regulations on Patrolling of Public Roads (*Official Gazette 75/14*), as well as other regulations, if necessary, as may be proposed by the Committee for the development of public roads maintenance standards.

The Consultant will identify maintenance standards covering all road categories as defined in the Technical Road Classification (MSTI act, klasa: 340-03/17-03/08, urbroj: 530-05-3-2-2-17-1 from March 24, 2017).

The performance requirements will cover all routine and periodic maintenance elements for public roads (**motorways, state, county and local roads**) including the following maintenance elements:

1. MONITORING AND INSPECTION OF ROADS AND FACILITIES
2. PAVEMENT MAINTENANCE
3. SIDE BANKS AND BERMS MAINTENANCE
4. FRACTURES, CUTS AND EMBANKMENTS MAINTENANCE
5. DRAINAGE FACILITIES MAINTENANCE
6. ROAD EQUIPMENT MAINTENANCE
7. MOWING AND GREENERY MAINTENANCE
8. FACILITY MAINTENANCE (bridges, viaducts, overpasses, underpasses, footbridges, pedestrian tunnels, tunnels, galleries, bus stations, rest areas and the like)
9. SYSTEMS, INSTALLATIONS, DEVICES AND EQUIPMENT ON ROADS AND FACILITIES
10. ROAD AND FACILITY MAINTENANCE IN WINTER CONDITIONS
11. OTHER TASKS, EXPENSES AND SERVICES:
 - 11.1. creation of technical and other documentation for maintenance work;
 - 11.2. transportation by ferry;
 - 11.3. construction waste management;
 - 11.4. informing the public on roadside conditions;

- 11.5. development and communication of meteorological information and services for the purpose of road maintenance,
- 11.6. property/facility protection services;
- 11.7. meteorological information system maintenance;
- 11.8. automatic traffic counting system maintenance,
- 11.9. radio communications system maintenance,
- 11.10. pest control,
- 11.11. quality control and inspection of completed asphalt work,
- 11.12. quality control and inspection of ground traffic signage,
- 11.13. quality control and inspection of standing traffic signage,
- 11.14. maintenance of road maintenance facilities,
- 11.15. salt silos maintenance,
- 11.16. salt tanks maintenance.

The complete index of routine maintenance tasks will be delivered to consultants with the Request for proposal (RFP).

Note: standard requirements for periodic maintenance do not include rehabilitation/regeneration, restoration/reconstruction or other work that alters the functionality of existing road infrastructure. Such work will be considered as reconstruction/construction projects.

The standard should meet the form of specification addressing every level of service in the following indicative order:

- maintenance component;
- type of deficiency;
- conditions (signals) necessitating maintenance (according to public road category);
- specified item list (technical specification item links) of requested work;
- total time required for the intervention/repair (according to public road category);
- level of service expected after maintenance work completion (according to each public road category).

The standard should be developed for all infrastructural elements categorized by their significance for traffic safety or long-term preservation and appearance of road/facility. Service level criteria (requested result/performance and response deadlines) should be defined for each public road category (in accordance with technical public road classification) and for each pavement category.

Within this project, the consultant should determine the items of existing technical conditions to be harmonized with the new maintenance standard and make recommendations for necessary adjustments.

D. LANGUAGE

The document “The Standards for Routine and Periodic Public Roads Maintenance”, as well as all reports, should be delivered **in Croatian and English**.

E. DELIVERABLES AND TIME SCHEDULE

The following deliverables are required:

1. Inception Report – Task (1)

Within one month after the start of the assignment, the Consultant should deliver a draft inception report presenting the findings and conclusions of the Task (1). The inception report should also include a time schedule for the whole assignment. The inception report shall be finalized, taking into account comments received from the counterparts, two weeks after delivering the draft.

2. Draft proposal of maintenance standards including necessary changes in legal provisions – Task (2)

Within four months after the start of the assignment, the Consultant should deliver the document titled “Draft proposal of Standards for Routine and Periodic Public Roads Maintenance”. The document shall have the structure and content as determined in the Scope of Services.

3. Workshop – Task (3)

Within two weeks from delivery of the draft standards, a one-day workshop shall be held. It will be organized by and at the cost of the Consultant in consultation with the management of the MSTI, ARZ, HAC and HC, who will ensure participation of their maintenance experts (maximum 3 people from Ministry, 3 people from motorways, 6 from HC and 10 people from ŽUCs). The purpose of the workshop is to explain the proposed draft management standards and seek comments from the participants. The working language of the workshop shall be Croatian. The Consultant shall provide translation/interpretation as necessary, and fully facilitate the workshop and its discussions.

Within 1 week of the date of the workshop, the Consultant shall deliver a document containing conclusions of the workshop.

It is expected that the Client will provide formal comments on the draft “Maintenance Standards” within 4 weeks of receiving it, taking into consideration the conclusions of the workshop.

4. Detailed modifications in legal provisions – Task (4)

Within a month of the client's document inspection, the consultant will deliver a detailed analysis of the report with the appropriate conclusions and recommendations of necessary changes in legal definitions (laws and bylaws), in relation to coming into power of road maintenance standards (the minimum being the Roads Act, Regulations on Road Maintenance and Regulations on Patrolling of Public Roads).

5. Detailed end-performance maintenance standards – Task (5)

Within 4 months of receipt of formal comments from the Client on the draft standards, the Consultant shall deliver the final version of the “Maintenance Standard” documents (one volume for motorways and one for non-motorways), ensuring incorporation of:

- (a) outcomes of the workshop,
- (b) Clients’ comments on the draft,
- (c) modifications to relevant laws and by-laws as enacted.

In addition, the Consultant shall deliver (in a separate document) proposals for amendments to “Technical Specifications for Routine Maintenance Works”.

6. Training – Task (6)

Upon submission of the final version of the standards, the Consultant shall deliver and fully facilitate a training program and conduct training of counterparts’ experts in the use of the maintenance standards. Two half-day training sessions shall be organized by and at the cost of the Consultant in consultation with the management of HAC, ARZ, HC and ŽUCs who will ensure participation of maintenance experts (maximum 40 people). The Consultant shall explain, using examples, how the maintenance standards are to be used for planning, budgeting, road assets management and procurement purposes. Also, how the standards are to be applied in standard contracts for maintenance works or for preparation of end-performance specifications for performance-based maintenance contracts. The working language of the training shall be Croatian. The Consultant shall provide translation/interpretation as necessary.

Note: All documents mentioned above shall be delivered in the *MS Word* and *pdf* formats on electronic media plus one (1) hard copy to each manager of public roads respectively – up to 30 in total.

7. Routine reporting – Task (7)

The consultant should deliver progress reports every 15 days, as well as after each completed task, in writing (by e-mail), to the Committee for the development of public roads maintenance standards, with particular emphasis on technical difficulties and delays.

If necessary, the Consultant shall organize a meeting to discuss specific outputs/deliverables.

F. SUMMARY OF MILESTONES/ACHIEVEMENTS:

1 month from start: **Inception report**

4 months from start: **Draft proposal** incl. changes to legal provisions

2 weeks from Draft: **Workshop**

3 weeks from Draft: **Submission of workshop’s conclusions**

4 weeks from Draft: **Client’s review of Draft**

1 month from Client's review: **Detailed changes to legal provisions in relevant laws and by-laws.**

4 months from Client's review:

- **Detailed standard of routine and periodic motorways maintenance**
- **Detailed standard of routine and periodic maintenance of state, county, and local roads, in accordance with the technical classification of public roads**
- **Study of recommended changes to the technical specifications**

Upon submission of detailed standards: **Training program**

Total duration: 10 months plus training

G. QUALIFICATION REQUIREMENTS

It is expected that this project will require a team of consultants, involving construction (majority), traffic and legal experts, covering the aforementioned scope of knowledge and skill, including both international and domestic consultants.

G.1. Details on required company's capabilities requirements:

Firms (or joint ventures of firms) should be experienced in providing consulting services, with at least one [1] project in the last five [5] years in European countries, related to all of the following:

- motorway / road maintenance operations, including winter maintenance
- development of motorway / road maintenance standards

The reference value of each project must be at least 50 000 EUR, while at least one value of the project shall amount to 150 000 EUR.

(Preferential advantage: experience with projects in more countries, more projects concerning road maintenance standards, change management experience, provision of training, experience in region & language)

G.2. Details on required personal capabilities requirements:

Team leader should:

- hold a degree in civil engineering;
- have minimum 15 years of overall experience;
- have at least 8 years of experience in road maintenance in EU countries;
- have extensive experience in drafting specifications, standards or codes for road maintenance works;
- have excellent knowledge of spoken and written English.
(Working knowledge of Croatian and experience in Croatia would be an advantage.)

Civil Engineer should:

- hold a degree in civil engineering;
- have minimum 10 years of overall experience;
- have at least 5 years of experience in maintenance of road structures (bridges, tunnels) in EU countries;
- experience with performance-based delivery of maintenance activities would be an advantage;
- have excellent knowledge of spoken and written English.
(Working knowledge of Croatian and experience in Croatia would be an advantage.)

Traffic engineer should:

- have a degree in traffic engineering;
- have minimum 10 years of overall experience;
- have at least 5 years of experience in traffic safety in EU countries;
- have excellent knowledge of spoken and written English.
(Working knowledge of Croatian and experience in Croatia would be an advantage.)

Lawyer should:

- hold a degree in law;
- have minimum 10 years of experience;
- have experience in the road sector in Croatia;
- have knowledge of spoken and written Croatian.

The Consultant shall ensure that experts are adequately supported and equipped. In particular, it shall ensure that there is sufficient administrative, secretarial and interpreting provision to enable experts to concentrate on their primary responsibilities.

All information the consultant requests from the client, shall be delivered in Croatian.

H. DURATION OF THE ASSIGNMENT

The assignment is foreseen, including training, for duration of **11 months**.