



Unpredicted Infrastructure failures (UIF)

CALL FOR PROPOSALS

Deadline: March 11, 2017

1 PURPOSE AND STRATEGIC SIGNIFICANCE

1.1 Introduction

The World Road Association (PIARC) has established a Special Projects fund to enable it to respond outside the usual four-year Technical Committee cycle to emerging issues and priorities identified by its members. This paper is a Call for Proposals for the “Unpredicted Infrastructure Failures (UIF).” Failure of infrastructures (bridges, tunnels or key road sections) in service is an exceptional event that several road administrators have experienced in the past fifteen years. The responsible authorities have responded to these failures, often associated with aging infrastructure, by adopting different measures to reduce risks and increase robustness.

1.2 Purpose

The purpose of this proposed project is to produce a report that shares the knowledge acquired by the managers of these assets by presenting recommendations based on best practices and the proposed measures.

Failures occur unpredictably and unexpectedly, without warning signs of weakness (failures caused by natural disasters are not included). The occurrence of these events is very low, but the effects on the mobility and even the safety of road users are often major. It is therefore important to document failure cases more systematically in order to improve preparation of the administration’s response and their ability to anticipate, because learning through individual experience is not guaranteed.

2 METHODOLOGY AND APPROACH

2.1 General

The objective is to improve the response of roads authorities and network managers during the failure of an infrastructure in service (communication handling requirements) and the measures proposed following these events regarding asset management, failure risk assessment and vulnerability reduction (increase of robustness of the transportation systems in place).

2.2 Approach

This project will be monitored and supervised by a Project Oversight Team (POT). At the beginning of the work, POT members will propose a series of events of loss of infrastructure occurring all over the world. Proposals in response to this Call should include a description of the approach to compile the information being transfer. The proposal should answer the following questions about the tenderer's approach:

1. How will the study collect international information regarding the response of roads authorities and network managers during the failure of an infrastructure? (i.e. surveys, experts, literature review, etc.)
2. How will the study identify UIF management successes, unsuccessful responses or areas for improvement?
3. What will be the study milestones?

2.3 Key areas

Please describe the key areas for consideration in the framework:

1. What will be the study's means of collecting information from different areas of road administration (i.e. planning, asset management, design, construction, operations, and maintenance) from international road sector?
2. How will the study collect differing approach of UIF management?
3. What will be the studies criteria used to identify if the UIF management was a success, unsuccess, or area for improvement?

3 FINAL DELIVERABLES

The final deliverables will comprise:

1. A **report** presenting recommendations based on the respective success and areas for improvement of UIF management including case studies integrating evaluation of the effectiveness and users feedback on the measures taken. The report shall include:
 - a. Description of the infrastructure.
 - b. Description of the environment and the stresses influencing behaviour of the infrastructure (seismic, wind, tides, ice, brine, extreme weather events, flash floods, etc.), although this studies is not specifically addressed to natural disasters.
 - c. Previous inspection and predictability of the failure.
 - d. Effect of the failure on mobility (society): Users, Social impacts, Trade and business groups.
 - e. Response of the network manager (disaster management, timely communication with users and use of social media).
 - f. The government's reaction. Is it possible to create an opportunity out of an unpredicted failure?
 - g. Report on public and political reaction and how broadcast and social media featured in the course of the event.
 - h. Evaluation of the effectiveness and user feedback on the reactions and measures.
 - i. Changes made to inspection processes.
 - j. Changes made to asset management practices.
 - k. Measures deployed to increase robustness.
 - l. Measures established after the experience to improve communication towards users and general public for UIF.
2. An **executive report** that will describe the rationale behind the framework, explain the methodology for your work, summarize response, and explain how this report can be used by countries.
3. The experiences and needs of low and middle-income countries (LMICs) should be addressed in the report, with possible **specific recommendations**.
4. An accompanying illustrated **presentation** for distribution and use in webinars and/or international conferences such as World Road Association's Council meeting (October 23-26, 2017) in Bonn, Germany with representatives for the 121 PIARC member countries.

The final products will be submitted in electronic form in English. The World Road Association will ensure its translation into French and Spanish and will make it available for free in its Virtual Library to ensure a large world outreach for the report.

4 KEY DATES

The proposal should also include a proposed draft of a work schedule. The schedule should identify dates or time frames for accomplishing major milestones in the project. The work schedule will include bi-monthly status reports and dates or time frame for an interim product or products that allows adequate time for review and feedback prior to the final deliverable. The schedule should also include a proposed schedule for periodic conference calls to report on progress. The schedule must be completed and all final products delivered within six months of the commencement of the project, and in any case final deliverables must be submitted prior to September 23, 2017.

5 PROPOSED BUDGET

Please provide a general budget for the project. The funding requested from PIARC should not exceed 25,000 Euros, though the total budget may be higher (using complementary funding or contributed services or resources). The budget should include a general itemization of the costs of the major work elements of the project.

6 PROPOSED EXPERTS AND INTERNATIONAL NETWORK

The proposal should also include a description of the relevant expertise that qualifies the tenderer to undertake the project. Specifically:

1. Please describe any past or current work projects that relate to the subject of this proposal.
2. Please also identify the person or persons who will be working on this project, describing their roles and estimated contribution to the project, and providing information on their backgrounds, experience and expertise.
3. Please provide information about any other international network, other than the World Road Association, from which tender could be leveraged from.

7 PROJECT OVERSIGHT

The project will be overseen by a project evaluation and steering committee called “Project Oversight Team (POT) to select the preferred supplier and assist in the development of the project. These experts will be drawn from PIARC membership, and will include representatives from Technical Committee D.3 Bridges and E.3 Disaster management and the PIARC Executive Committee.

The POT will assess tenders and select the preferred supplier on the basis of its assessment of:

- how well tenders address the project objectives and deliverables;
- the value for money offered by the tenderer, including additional contributions leveraged by the project; and
- the capacity of the tenderer to deliver the specified outputs.

The POT will oversee progress of the Project, including participating in periodic calls, bi-monthly status reports, reviewing interim and final products. The POT will also provide any relevant information from the PIARC work to the selected tenderer (e.g., information obtained from surveys) for use in the project. In addition to review and oversight by the POT, input may also be sought from the other members of Technical Committee D.3 Bridges and E.3 Disaster management and the PIARC Executive Committee, and from members of any other relevant PIARC Technical Committees.

8 PROPOSAL SUBMISSION

Proposals should include the elements identified in this Call for Proposals. Specifically, they should include:

1. An outline of the Approach to be used for the project, including responses to the questions in Section 2.2;
2. An identification of the key issues to be considered, including the information requested in Section 2.3;
3. A work schedule, as described in Section 4.
4. A budget, as described in Section 5.
5. A list of proposed experts and possible international networks, as described in Section 6.

Proposals should be submitted electronically in English to the World Road Association General Secretariat at:

info@piarc.org

no later than:

March 11, 2017

For any questions, please send E-mail to info@piarc.org