Track Geometry Measurement System for Transport for London

Questionnaire

**Date of Issue: 16th January 2017**

# **Introduction**

This questionnaire is issued by the London Underground (LU) Rolling Stock Renewals team to help develop the best route to market regarding the procurement of a Remote Track Geometry Measurement System. The primary focus of this questionnaire is to better understand the capacity and capability of the track monitoring market, potential delivery models, as well as perceived risks and opportunities.

LU is currently looking into a Track Geometry Measurement System that can be retro-fitted to an existing LU vehicle or that is supplied on a vehicle that can be coupled to existing LU vehicle that provides motive power. The resultant system would record the Track Geometry over the London Underground Network. These questions have been written so that London Underground can gauge the limitations of Track Geometry Measurement technology and understand the potential capabilities of Track Geometry Measurement currently existing in the industry.

# **Questionnaire**

This exercise does not form part of any formal procurement process. All responses will be carefully considered but will not bind TfL to any particular approach to the procurement, nor will responses be treated as conveying any promise or commitment on the part of the respondent.

The questions to be answered are on the following pages; please provide your responses in a clearly numbered, word document or PDF format and return them via the ProContract portal:

Track Geometry Measurement System for TfL

Please keep your responses concise, and relevant to the questions answered. Example case studies are welcomed, along with any supplementary information you wish to append to better illustrate your response and that may be of interest to us when exploring Track Geometry Measurement Systems.

# **Next Steps**

After collating and reviewing the responses received, London Underground may conduct further market engagement (at our discretion) to ensure that the current perceived requirements and expectations will be met by both LU and Bidders.

|  |  |
| --- | --- |
| **Name of Company:** |  |
|  | |
| **Contact Name:** |  |
|  | |
| **Position:** |  |
|  | |
| **Contact Details (Email):** |  |

**Project**

**For the purpose of this questionnaire and for cost estimating, please take ‘Track Geometry Measurement System’ to refer to the Track Geometry Measuring system and any additional hardware, housings, and/or equipment you propose to supply.**

1. Please describe the products/services in Track Geometry Measuring you provide and the associated benefits of your system.
2. Please highlight the top 5 Design and Implementation Risks that your organisation foresees regarding this opportunity in the table below:

|  |  |  |
| --- | --- | --- |
| Top 5 Design and Implementation Risks | | What mitigating actions do you think can be taken by TfL to mitigate these risks? |
| Risk 1: |  |  |
| Risk 2: |  |  |
| Risk 3: |  |  |
| Risk 4: |  |  |
| Risk 5: |  |  |

1. What accreditations or certifications, if any, are required for a Track Geometry Measurement System?
2. What Health & Safety considerations (e.g. laser safety etc.) have been identified in association with your products, associated designs, installation and usages?
3. What are the standard interface requirements (e.g. power, data connections, location, integration of the recording systems) and testing requirements to ensure full functionality of the Track Geometry System? Describe any perceived interface risks.
4. What is the typical lead time associated with the design and manufacturing phases of retro-fitting a Track Geometry Measurement System onto a rolling stock, or a system that is supplied as a vehicle that can be coupled to existing rolling stock that also provides motive power?
5. What is the typical life expectancy of the current Track Geometry Measurement Systems that is retrofitted onto a rolling stock, compared to a system that is supplied as a vehicle that can be coupled to existing rolling stock that also provides motive power?
6. What is the typical maintenance strategy / product support arrangements for a Track Geometry Measurement system? (E.g. Replacement of modular parts under warranty or whole unit replacements upon failure?)
7. If you have identified a need to subcontract any part of works, please provide details of the services/disciplines you would expect to subcontract e.g. design, testing or manufacturing

**Technical**

1. To explore current market capabilities, please could you provide a case study with functional descriptions of a Track Geometry Measurement system that your organisation has supplied previously, detailing characteristics such as:

* Compliance to;
  + EN13848 Part 1 and Part 2
  + BS EN 50121 Railway applications – Electromagnetic Compatibility
  + S1158 (please note Clauses 3.5.1.5 – 3.5.2.1)
  + Where absolute compliance cannot be met, please provide evidence of alternative methods of measure to ensure similar performance to stated Standards.
* Vehicle operation e.g. ability to operate unattended, vehicle mounting and equipment power arrangements
* Background information on where the system is being used and on which Rolling Stock.
* System technical information covering;
  + Overall system architecture
* Mechanical – weight, dimensions, applicable gauge, wheel profiles, etc.
* Environmental – temperature, humidity ranges, weather conditions etc.
* Functionality – measured parameters, subsequently calculated parameters, location parameters etc.
* Performance - operating speeds, location uncertainty, parameter uncertainty, achieved reliability etc.
* Maintenance and interval activities
* Repeatability and accuracy of data captured
* The System Integrity Level of the Track Geometry Measurement System for recognising the use of collected data and ensuring the completeness of said data.
* Data logging, processing, communication, viewing, reporting and analysis systems required

1. Please provide example(s) of your experience where you have fitted Track Measurement Systems to an existing Rolling Stock or relevant vehicle. Information that would be of interest includes, but is not limited to:

* Applicable Track Geometry System described in Q10.
* Design modifications that had to be made to either the Track Measurement System or the Vehicle.
* Scope of responsibility e.g. Design, assurance, build.
* What were the key risks, opportunities and main lessons learnt?
* What timescales were involved?
* What was the nature of contractual arrangement? e.g. Sale, lease, managed service
* What was the Assurance process followed and how was engineering safety management demonstrated in the example?

1. Please provide example(s) of your experience where you have supplied a Track Measurement System and Vehicle together, or any relevant case study. Information that would be of interest includes, but is not limited to:

* Applicable Track Geometry System described in Q10.
* What were the key risks, opportunities and main lessons learnt?
* What timescales were involved?
* What was the nature of contractual arrangement e.g. Sale, lease, managed service

1. Do you foresee an “off-the-shelf” product that could be easily adjusted to fulfil the opportunity as outlined within the Introduction; or a fully bespoke solution will need to be designed to fulfil this opportunity instead?
2. Track Measurement Systems could last as long as 30-40 years. Please describe how you would suggest mitigating electrical component obsolescence within a Track Measurement System.
3. Please provide example(s) of where your Track Measurement System could be supplemented with future recording methodology.

**Commercial**

1. Do you foresee any opportunities in delivering this case study (e.g. with regard to whole life cost considerations, etc.)?
2. What are some of the Professional industry memberships / accreditations that are common in Rail Track Measuring industry?