

## 2 Introduction

### 2.1 Project Brief Documentation

2.1.1 The structure of this document is as follows:

- Section 1, definitions, abbreviations and acronyms;
- Section 2, (this section), provides a brief introduction to the background of the Works, supporting infrastructure & systems and the Authority;
- Section 3, provides a description of the objectives, a breakdown of the Project into its Key Stages and requirements for the main components of the Works;
- Section 4, describes the principal requirements to be undertaken on by the Solution Provider that are common to all Key Stages of the Project;
- Sections 5, 6 and 7, provide the details, requirements and deliverables for each Key Stage across Phases 2, 3 and 4;
- Section 8, details the Solution Provider requirements;
- Section 9 details the facilities, information and services to be provided;

### 2.2 The Authority

2.2.1 The Public Works Authority (Ashghal), hereafter referred to as the 'Authority,' is responsible for the tender, planning, design, construction, asset management, and delivery of infrastructure and building works in the State of Qatar.

2.2.2 The Authority contributes to the economic and social development of the State of Qatar through implementing public projects in accordance with the approved plans of the State of Qatar. In coordination with other agencies in the State of Qatar, the Authority implements and Programs the execution of public projects consistent with the approved State of Qatar objectives and allocated budget.

2.2.3 The Authority is implementing the Project as part of its efforts to improve the State of Qatar's infrastructure and public amenities for the benefit of the public.

### 2.3 Project Background

2.3.1 To fulfil the transportation strategies defined under Transportation Masterplan for Qatar (TMPQ), Ashghal has commenced the implementation of road tolling program for the State of Qatar. The primary objective of tolling is to reduce congestion; manage the high demand on transportation and aim to achieve a balance between public and private transportation.

2.3.2 The Solution shall be a "state of the art" video-based free-flow Electronic Toll Collection System (ETCS), the technologies are barrier-less and utilize a single gantry infrastructure per tolling site. The License Plate Recognition (LPR) cameras shall be supplemented with the use of Laser detectors to identify the classification of the vehicle and increase the accuracy of vehicle identification. The system shall be designed with highest possible level of automation and integrated with other transportation solutions in the State of Qatar to provide a holistic transportation experience to customers.

2.3.3 The Implementation of the ETCS Solution is divided into Four (4) Phases

- Phase 1 – consists of the installation of two (2) tolling gantries equipped with LPR cameras on 22nd February Street, in readiness for Phase 2 of the ETCS Implementation. Phase 1 has been completed and is therefore out of scope of this Contract.

- Phase 2 – addresses, but is not necessarily limited to, planning, designing, creation of business rules, operational rules, public awareness, survey of the works done in Phase 1, development and integration of the ETCS Solution back office, web portal and mobile application. The ETCS back office is expected to be installed using Commercial off the Shelf (COTS) software and customized to fulfil the full requirements of the Authority. Full testing of the ETCS Solution including ITS equipment and its integration into the ETCS solution is expected within this stage, to prove the whole solution is viable before progressing to Phase 3.
- Phase 3 – addresses designing and implementation of “go live” elements to fulfil the Authority’s requirements relating Maintenance and Operational System Support for the ETCS Operations and Maintenance (O&M) Centre. This phase includes but is not necessarily limited to; provision of furniture for the staff, workstations, IP Phones, related hardware and software for the complete operations of ETCS O&M Centre. The Authority shall provide the Solution Provider with premises, but it is the responsibility of the Provider to “fit out” these premises in order to fulfil all operational and maintenance requirements.
- Phase 4 –Includes Maintenance and Operational System Support Services (MOSS) and Commercial and Technical Operations (CTO) of the ETCS. This phase should include, but not be limited to; customer helpdesk operations, tolling system operations, tolling systems maintenance, enforcement operations, billing and payment operations and maintenance.

### 3 Project Description

#### 3.1 Project purpose and objective

3.1.1 The purpose of the project is to establish a fully operational pilot ETCS Solution in the State of Qatar in order to demonstrate positive outcomes of the solution to assist with the potential future expansion of tolling and congestion charging in the State of Qatar.

3.1.2 The ETCS Back-office Software Solution shall be capable of supporting multiple business rules that can be tailored to meet location specific needs. The ETCS Solution shall be integrated with the RMC Software Solution (RMCSS) to assist with a strategic transportation solution for traffic demand and congestion management. The RMCSS shall be capable of obtaining real-time road density information from numerous roadside sensors, analyse the data and activate the tolling as required. The ETC Solution shall also be able to import data from the RMCSS to enable variable tolling pricing based on traffic conditions. The RMCSS shall disseminate tolling information to road users through various modes such as Dynamic Message Signs (DMS), (Non- Tolling) Mobile Applications and Websites. The road users shall be informed of current tolling charges and presented with alternate route choices at decision points prior to the tolling charge point. The ETCS Solution shall directly assist with the following outcomes provided by the RMCSS:

- Enhanced Safety
  - Reduced traffic accidents
  - Improved accident survival
- Smoother Traffic
  - Lower congestion
  - Reliable journey times
  - Accurate, trusted travel information
- Improved Environment
  - Improved local air quality
  - Reduced greenhouse gas emissions
  - Deliver a sustainable system
- Improved Customer Satisfaction
  - Informed public
  - Enhanced driver satisfaction.

### **3.2 Overview**

- 3.2.1 In order to achieve the project goal, the Authority intends to award a Contract to a Solution Provider to design, develop, procure, install, commission, operate and maintain a “state-of-the-art” Electronic Toll Collection System (ETCS) Solution.
- 3.2.2 The overall duration of this project is 1,515 days, where 420 days is for design and implementation, and 1,095 days for operations and maintenance.
- 3.2.3 The ETCS Solution shall comprise; a fully functioning solution, installed at the Authority’s RMC with specific ITS technology deployed at Two (2) tolling sites on 22nd February Street.
- 3.2.4 As part of another contract, the two gantries to be used for tolling and an LPR camera solution have been installed. The existing installation includes telecommunication connectivity from the roadside installation to the RMC, electrical provision at the site, ITS Enclosure, field switch and all civil work required for ETCS Solution. For details on existing provisions refer to Project Data. The ETCS Solution Provider shall utilize these Two (2) gantries hosting the relevant ITS technology related to the ETCS Solution. The Solution Provider shall be responsible for all necessary modifications required to these existing gantries following surveys to ensure a fully functional ETCS solution.
- 3.2.5 Unless otherwise indicated, the Scope of Services shall be a turnkey integrated ETCS solution, which includes but not limited to detail design, procurement, manufacture, works testing, supply, delivery to site, installation, site testing, commissioning, performance testing, operate, maintain, making good any defects that occur during the Defect Liability Period (DLP), the Maintenance & Operational System Support Service (MOSS) Period, and the Commercial and Technical Operations (CTO) provision of 'As Installed' drawings and Maintenance and Operation documents, the whole of the labour and all materials necessary to form a complete installation (whether or not all the necessary components are indicated)
- 3.2.6 The Solution Provider shall engage only one tolling specialist for the delivery and duration of the complete ETCS Solution.
- 3.2.7 The Solution Provider shall provide the Engineer with all manuals, training materials, and documentation created or utilized in the project including training and Stakeholder liaisons.
- 3.2.8 The Solution Provider shall liaise with all interfacing parties (internal and external), scheme contractors, Stakeholders and related projects in order to present a single point of contact for ETCS integration into the RMC.
- 3.2.9 The Solution Provider shall establish integration management procedures for governing the project and shall cooperate with the Engineer and third parties to develop these processes and arrangements in a collaborative manner.
- 3.2.10 The Solution Provider shall manage all stakeholder engagement for ETCS interfaces arising including, but not necessarily limited to: Ministry of Interior (MOI) for vehicle ownership details, Payment Gateway provider or Banking organization, Ministry of Transportation and Communications (MOTC), and Authority Business systems such as RMCSS, Enterprise Asset Management System (EAMS) and Customer Relationship Management (CRM).

- 3.2.11 The Solution Provider shall identify any gaps in existing arrangements and make proposals for the successful integration of existing and future tolling sites within the ETCS Solution.
- 3.2.12 The responsibilities of the Solution Provider shall include the following, but shall not be necessarily limited to:
- 1) Coordination with 3rd party contractors, Authority internal departments, Stakeholders and other government agencies for successful integration of the Two (2) tolling sites at 22nd February Street into the ETCS Solution.
  - 2) The Solution Provider is responsible for executing workshops, meetings and brainstorming sessions for requirement gathering and drafting the MoUs and facilitating the signing of MoUs between the Authority and other Stakeholders.
  - 3) The Solution Provider shall be responsible for Site Acceptance Tests (SAT), and System Integration Tests (SIT) in coordination with Authority 3rd Party Contractors. This task includes producing, completing, maintaining all documentation, record keeping and document management which shall also be provided to Authority as an assurance that the work has been completed, is free of risk, is acceptable and is of the standard required for the RMC and Authority operations.
  - 4) The Solution Provider is responsible for issuing all Testing plans and other associated documentation.
  - 5) The Solution Provider must work closely with the RMC systems specialist and Stakeholders systems experts to ensure seamless integration and 100% compatibility of the ETCS Solution.
  - 6) The Solution Provider is responsible for planning and executing the Installation of the ETCS Solution servers and storage into the RMC equipment room and integrate the associated hardware.
  - 7) The Solution Provider shall propose a series of value engineering workshops based upon the detailed design. The product of these reviews and workshops shall be fully justified recommendations for value engineering options.
  - 8) The Solution Provider is responsible for creating a Web Portal/Web Site and Native Mobile Application enabling road users to create, manage and update their tolling accounts. Payment of tolling charges should be available together with the ability to pre-pay and top up their new or existing accounts. Tolling information should be available showing all relevant details of tolling locations, operating times, and charges applicable. All popular web browsers and mobile operating systems should be supported
  - 9) The Solution Provider shall work with the Authority on creating and promoting a “brand” for tolling in the State of Qatar, together with performing an ongoing public awareness campaign through all popular media channels, including, but not necessarily limited to social media, television, radio and large public events. The Solution Provider will run this public awareness exercise through the life of the project in order to keep all road users aware of any changes to the tolling strategy and inform them of new or updated tolling sites.

- 3.2.13 The Solution Provider shall provide full Maintenance and Operational System Support Services (MOSS) and Commercial and Technical Operations (CTO). This shall include, but is not limited to, tolling management, user management, customer helpdesk, fault management, payment handling and toll user account management etc.
- 3.2.14 Ongoing support and resourcing for tolling staff and others is described in this document and the Solution Provider shall provide resources, tools, learning plans and full documentation to support Authority staff with the ETCS Solution functionality.
- 3.2.15 The Resources provided shall work with and alongside Authority managers and decision makers who shall have ultimate responsibility for the work undertaken and who shall provide direction and control within the work streams involved.
- 3.2.16 The Solution Provider shall also provide staff training, support, documentation, training plans and programmes for all ETCS Solution improvements or changes during the course of the Contract.
- 3.2.17 An overview of the Scope of Services, regarding the Key Stages and Tasks along with their duration, is given in the table below:

	<b>Task Ref</b>	<b>Task Description</b>	<b>Completion Days</b>
<b>Phase 2</b>	Key Stage 1	Mobilisation	CD +30
	Task 1.1	<i>Project Mobilisation - Delivery of all initial Project documentation, and mobilisation of initial Project Team in accordance with the non-objected Mobilisation Plan.</i>	
	Key Stage 2	Planning and Design	CD + 105
	Task 2.1 to 2.9	<i>Site survey, stakeholder workshops requirement gathering, review and validation of existing business rules and drafting of new business rules, methodology of public awareness, development of detailed design, procurement plan and operational procedures</i>	
	Key Stage 3	Procurement of the ETCS Solution	CD + 135
		Procurement of ETCS equipment (hardware and software)	
	Key Stage 4	Implementation of the ETCS Solution	CD + 315
	Task 4.1	<i>Implementation and testing of roadside equipment for tolling, integration of Back Office System, internal and external system Integration</i>	
	Task 4.2	<i>Enhancement of ETCS Software Solution and development of Web portal and mobile application</i>	
	Key Stage 5	Testing of the ETCS Solution and Training	
	Task 5.1	<i>Initial Testing</i>	From the Deployment of COTS
	Task 5.2	<i>Operational Readiness Testing</i>	CD + 405
	Task 5.3	<i>Training</i>	
	Key Stage 6	Handover of the ETCS Solution	CD + 420
<b>Phase 3</b>	Key Stage 7	Survey and Design of ETCS Collection Centre	Instruction from Authority + 195
	Key Stage 8	Procurement of ETCS Collection Centre	
	Key Stage 9	Implementation and Testing of ETCS Collection Centre	
	Key Stage 10	Handover of ETCS Enablers	

	Task Ref	Task Description	Completion Days
<b>Phase 4</b>	Key Stage 11	Mobilisation of Staff	Instruction from Authority + 1095
	Key Stage 12	Commercial and Technical Operation and Maintenance Services, SLA and KPI	
	Key Stage 13	Additional Services	
	Key Stage 14	Completion and Transition of O&M Services	Instruction from Authority + 60

*Table 3.1 Overview of Key Stages*