

2009

PINK CITY EXPRESSWAY PRIVATE LIMITED

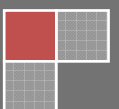
Preliminary requirements for ATMS

PRELIMINARY REQUIREMENT DOCUMENT FOR DESIGN, SUPPLY, INSTALLATION AND MAINTENANCE OF ADVANCE TRAFFIC MANAGEMENT SYSTEM (ATMS) FOR THE PROJECT

“SIX-LANING OF GURGAON-KOTPUTLI-JAIPUR SECTION OF NH-8 FROM KM 42.0 TO KM 273.00 (LENGTH – 225.60KM) IN THE STATE OF HARYANA AND RAJASTHAN TO BE EXECUTED AS BOT(TOLL) ON DBFO PATTERN UNDER NHDP PHASE-V”

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PCEPL



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1. CONFIDENTIALITY

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2. REVISION GRID

Revision No.	Date	Revision	Remarks
00	16 Jan 2009		First issue

3. ABBREVIATIONS

AMC	Annual Maintenance Contract
ATMS	Advanced Traffic Management System (<i>same as HTMS</i>)
ATCC	Automatic Traffic Counter cum Classifier
BoQ	Bill of Quantities
CA	Concession Agreement <i>refers to the agreement between NHAI and PCEPL</i>
CCTV	Closed Circuit Television
CCR	Central Control Room
DG	Diesel Generator
DVR	Digital Video Recorder
ECB	Emergency Call Box
HQ	Headquarter
Met	Metreological Station (<i>same as Weather Station</i>)
NMS	Network Management System
OFC	Optic Fiber Cable
PTZ	Pan Tilt Zoom
PCEPL	Pink City Expressway Private Limited
QA	Quality Assurance
RH	Relative Humidity
SWB	Static Weigh bridge
URS	User Requirement Specifications
UPS	Uninterrupted Power Supply
VMS	Variable Message Sign

4. PROJECT DETAILS

Pink City Expressway Pvt. Ltd. (PCEPL) has been awarded the Project “SIX-LANING OF GURGAON-KOTPUTLI-JAIPUR SECTION OF NH-8 FROM KM. 42.70 TO KM 273.00 (LENGTH-225.60KM) IN THE STATE OF HARYANA AND RAJASTHAN TO BE EXECUTED AS BOT (TOLL) ON DBFO PATTERN UNDER NHDP PHASE-V” by the NHAI under the Concession Agreement between the two parties.

Concession Period : upto 12 years

The length of the section is referred to as the Project Highway.

Under the CA, PCEPL is required to provide the ATMS on the Project Highway.

5. PURPOSE

The purpose of this document is to define the preliminary requirements for the ATMS to be installed on the Project Highway. The Bidders are required to make a presentation to PCEPL based on this document detailing their technology and how they would achieve the requirements listed out in this document. After the preliminary discussions the bidders would be registered.

The Bidder may propose a better system explaining its benefits over that required by this URS.

PCEPL shall come out with a detailed User Requirement Specification (URS) document for the final stage after the preliminary discussions are over. Registered bidders would be asked to bid for the final stage.

6. SCOPE

The document covers the following for ATMS:

- a) Project details
- b) Preliminary requirements for ATMS (technical)
- c) Tentative BoQ
- d) Information expected for preliminary discussion.

7. ATMS REQUIREMENTS

Broad project details for ATMS are as follows:

- Maximum allowed downtime = 4 hours
- Minimum system availability = 99% on a three month rolling basis.
- The following sub-systems are required as part of ATMS:
 - ECB
 - VMS
 - ATCC
 - CCTV
 - Mobile Radio
 - Weather station
 - Telephone system for sub-stations (optional)
 - OFC backbone
 - Power management system
 - NMS
 - CCR equipments
- Environmental requirements
 - The equipments supplied shall be rated for the following:
 - -3 to +62°C
 - RH of 95%
 - Vibration frequency range of 10-55Hz
- Facilities provided by PCEPL
 - Land for equipments

8. PRELIMINARY URS

The following are the preliminary requirements for the ATMS:

8.1 General

The ATMS system shall be capable of:

- Acquisition of data from various sources such as the road, the users, the maintenance and operation patrol, the ambulance and the intervention team,
- Three way communication between the data source and a central CCR, the CCR and the data sources and display units, and between the maintenance and operation teams, through a transmission, and
- A CCR to process all data and control the highway operation.

8.2 ECB

ECB shall be installed every 2km and connected to the CCR. ECB shall have loud speaker, microphone, and activation button with LED indicating conversation. It shall be housed in vandal proof casing and operate in noise levels of 95dB with built in diagnostic features for automatic detection in case of damage by any object.

8.3 VMS

The design for VMS will be modular with sign panels using LEDs/High –Gain Trans-reflective LCDs for outdoor ambient lights. The sign panel should be such that a display is legible from a distance of about 200m The panels shall have minimum dimensions of 3m length x 1.8m depth. The minimum character height shall be 300mm. The contrast ratio shall be more than 30 perpendicular to the bold face and more than 10 at angle of ± 70 degrees to the perpendicular. The equipment shall be capable of storing minimum 10 frames that can be triggered on receiving telecommand. The sign panels shall be installed on the structure in such a manner that they are aesthetically pleasing and can withstand wind pressure. The vertical clearance available at VMS shall be 5.5m from the road surface. Power supply shall be fed from integrator locations.

8.4 ATCC

The ATCC shall have in-road loop detectors and treadles. ATCC shall be capable of detecting and recording all categories of vehicles plying on the highway based on their length and number of vehicles. The system shall be robust and capable of operating with minimum maintenance and may be either piezoelectric or infrared. It shall have a minimum accuracy level of 99%. The logic units shall be micro processor based. The system should be able to record and store vehicle data for a period of at least two weeks with a daily traffic volume of upto 1,00,000 vehicles. The system shall have compatibility to transfer the data on PIJF/OFC / GSM/GPRS/landline modem/CDMA. The system shall be electric/solar power operated depending upon the availability of source.

8.5 CCTV

CCTV video cameras shall be PTZ type and installed on road to cover 2km of road for monitoring of traffic. The CCTV surveillance shall comprise video camera, its housing and pan, and tilt heads. The video camera shall be mounted at a height so as to cover the target length of highway and the housing shall be able to withstand adverse weather conditions. It shall have a 360 degree angular travel in the horizontal plane and tilt of 90 degrees down from 0 degrees horizontal. It shall have zoom lens with minimum power of 30X, auto iris and infrared filter, infrared compatibility for night operation and remotely selectable operating modes. It shall have compatibility with coaxial cable/optical fiber cable.

8.6 Mobile Radio

~~Shall be installed in patrol vehicles and ambulances. Shall communicate with CCR and among themselves. It shall comprise the radio base stations and control center equipments. It shall be mountable on ambulances, cranes and patrolling vehicles. The system shall use a pair of frequencies to be allotted to the concessionaire with the approval of wireless planning & coordination (WPC) and shall operate for full duplex mode.~~

PCEPL is in the process of procuring this system and shall install it on its own. However, **the ATMS vendor shall be required to integrate this over the OFC backbone.**

8.7 Meteorological Station (Met)

Met sensors shall include data capturing for temperature, weather, and wind. It shall comprise of thermocouple/pyrometer, humidity meter, anemometer, visibility meter and sensor for measuring pavement surface temperature. They shall be installed on a single pole with a specific attachment and power supply fed from integrator. They shall have facility to communicate on Polythene Insulated Jelly Filled (PIJF) copper cables/Optic Fiber Cable.

8.8 OFC backbone

This shall consist of a backbone Optic fiber Transmission system, cable system, interface system, NMS, repeater/amplification system and power supply system. The cables from ECBs, VMS, met system, ATCC shall be PIJF copper cables and those from CCTV cameras shall be coaxial cables. Repeaters/amplifiers shall be used to maintain the quality of signals. All cables shall have at least 20% spare capacity to allow for expansion. The interface system shall have be capable of handling the composite audio, video and data signals at various interface levels and process them.

8.9 Power Management System

A Power supply system shall have to be implemented with backup.

8.10 NMS

The system shall also have Network Management System (NMS).

8.11 CCR

The main control centre shall be designed for round the clock operations of monitoring, on-line information acquisition and processing the same for decision making. The CCR shall have equipment of central computer, call center, terminal junction box, UPS, console operator with monitors and joysticks, rack accommodation, large display board, line printer and general purpose office computer with monitor, printer, fax and telephone. The system shall also have Network Management System (NMS).

The CCR shall be the repository of all the data acquired from the field and their processing, storing, and archiving. All the information for real time monitoring oh highway shall be generated at the CCR and the relevant information shall be disseminated to the users through VMS, and to O&M teams through mobile radio.

The CCR shall have the following minimum equipment, hardware and software:

- (1) A central computer with integrated ATMS and ATMS software.
- (2) A traffic manager's terminal for operation of the integrated traffic management system.
- (3) Call system equipment comprising of operator PC with sub-systems and DVR.
- (4) Mobile radio terminal comprising Operator PC and engineering terminal.
- (5) Computers for NMS for fiber Optic Communication system.
- (6) CCTV console equipment
- (7) Computers for VMS, AVCC, Met, Traffic Control
- (8) A large size screen
- (9) A line printer
- (10) An office computer
- (11) A power supply and backup system.

9. ANNEXURE A- TENTATIVE BILL OF QUANTITIES

This should be filled by the bidder.

Indicative list is given below and should be modified by Bidder as per his proposed system

SN	Item	Spec/model/make/ country	Unit	Qty	Location
Equipment					
1	ECB system with foundation		lump	01	
2	VMS system & gantries		lump	01	
3	ATCC system		lump	01	
4	Mobile radio system connectivity through OFC		lump	01	
5	Weather station		lump	01	
6	OFC (including road crossovers)		meters		
7	Field switches		nos		
8	Power supply system		lump	01	
9	NMS		lump	01	
10	Voice logger		nos		
11	Admin. Computer		nos	01	
12	Printer		nos	01	
13	EPABX system with extensions at sub-stations		lump	01	
14	Sub-station		nos		
15					
Services					
	Installation		days		
	Warranty (1 year)		% of equipment price		
	AMC year 1				
	AMC year 2				
	AMC year 3				
	AMC year 4				
	AMC year 5				
	AMC year 6				
	AMC year 7				
	AMC year 8				
	AMC year 9				
	AMC year 10				
	AMC year 11				
	GRAND TOTAL				

10. ANNEURE B- DOCUMENTS / INFORMATION EXPECTED FOR PRELIMINARY DISCUSSION

The following documents are expected for the preliminary discussion:

1. Overall system Architecture, description of hardware/software specific to this project as per Preliminary URS.
2. Details of vendors of the bidder & their product.
3. List of items not covered under Warranty/AMC
4. List of licenses required by vendor or PCEPL for functioning of ATMS.
5. Requirements from PCEPL for equipment installation – civil requirements, control room requirements, electrical/earthing requirements and any other requirement to facilitate tolling or enhancing efficiency.
6. Reference Projects
7. QA procedures
8. Environmental ratings for equipment, especially roadside equipment.
9. Organization chart and project execution capability
10. Tentative completion schedule (from award)
11. Warranty & AMC – how shall it be supported ?