

2009

## **PINK CITY EXPRESSWAY PRIVATE LIMITED**

### Preliminary requirements for Toll & WIM

PRELIMINARY REQUIREMENT DOCUMENT FOR DESIGN,SUPPLY, INSTALLATION  
AND MAINTENANCE OF TOLL & WEIGH IN MOTION SYSTEM

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”

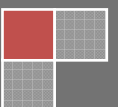
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PCEPL



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## **1. CONFIDENTIALITY**

The reader is reminded that neither this document nor its contents may be copied, transcribed or replicated in part or full, without the written permission of Pink City Expressway Private Limited.

## 2. REVISION GRID

Revision No.	Date	Revision	Remarks
00	13 Jan 2009		First issue

### 3. ABBREVIATIONS

AMC	Annual Maintenance Contract
AVC	Automatic Vehicle Classifier
BoQ	Bill of Quantities
CA	Concession Agreement <i>refers to the agreement between NHAI and PCEPL</i>
CCTV	Closed Circuit Television
DG	Diesel Generator
DVR	Digital Video Recorder
EDI	Electronic Data Interchange
ETC	Electronic toll collection
HQ	Headquarter
LCV	Light commercial Vehicle
LSDU	Lane Status Display Unit
MAV	Multi Axle vehicle
MoP	Method of Payment
MBC	Manual Booth Controller
OFC	Optic Fiber Cable
POS	Point of Sale
PTZ	Pan Tilt Zoom
PCEPL	Pink City Expressway Private Limited
QA	Quality Assurance
SWB	Static Weigh bridge
UFD	User Fare Display
URS	User Requirement Specifications
WIM	Weigh-in-Motion

#### **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 Toll & WIM on the Project Highway.

## 5. PURPOSE

The purpose of this document is to define the preliminary requirements for the Toll & WIM 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.

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 Toll & WIM:

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



## 7. PROJECT DETAILS

Broad Toll Plaza project details are as follows:

Toll Plaza (name)	Location	No of lanes				Total no. of lanes for equipment (including 2 reversible lanes)
		Normal	Extra wide	2 wheeler	POS	
Shahjahanpur	Km 115.555	24 (3.2m)	2 (5m)	2 (3.5m)	1 (3.5m)	29
Manoharpur	Km 210.700	24 (3.2m)	2 (5m)	2 (3.5m)	1 (3.5m)	29
Daulatpura	Km 241.225	10 (3.2m)	2 (5m)	2 (1.7m)	1 (3.5m)	15
<b>TOTAL</b>						<b>73</b>

### Note

- Two middle lanes in each plaza are reversible
- Scooter lanes shall not have Toll/WIM installed
- Total number of physical lanes is 73
- Total number of lane in which equipment is to be installed is 73. This includes double set for reversible lanes and none for scooter lanes.
- The island length for 3 centre island is 70m in each plaza. For other islands it is 40m.
- Equipment means Toll+WIM.
- Equipment shall be placed in the tunnel wherever possible
- Island width is min 1.8m

WIM shall be provided in each lane. Separate space for Static Weigh Bridge (SWB) and accommodation to store off-loaded goods from overloaded vehicles shall be provided after the toll barriers for each direction of travel.

## 8. PRELIMINARY URS

The following are the requirements for Toll+WIM as per CA

### 8.1 Project Agreement – Cl. 5.2 (Not for the Bidder)

### 8.2 Traffic census – Cl 22.1 Vol1 - (Not for the Bidder)

### 8.3 EDI – Cl 22.4

It is required to install, operate and maintain a computer system with round-the-clock connections to the networks of NHAI for exchange of data and information useful or necessary for efficient and transparent regulation and management of traffic. For this purpose, it shall follow such protocol for Electronic Data Interchange (EDI) as NHAI may specify.

### 8.4 Methods of payment (MoP) (Article 27)

- Exempt – no fee shall be collected from such traffic (as defined by the Govt. of India) including two wheelers, non motorized vehicles, emergency vehicles and VIP vehicles, specified government vehicles etc
- Cash
  - Cash – all vehicles , not paying through any other MoP, shall pay through cash
  - LCV/Trucks (Local Transport Operators) – Concessional fee shall be charged from local transport operators on production of proof for plying within 20km i.e. goods challan for origin and destination clearly specifying the return details of vehicle. The fee for such transports shall be Rs. 25 for trucks per entry and Rs. 15 for LCV for each entry.
- Monthly passes (Smart card)
  - Discounted fee (Local Traffic)– Discounted fee shall be collected from Local Traffic in following two categories:
    - Category 1 – users falling in 10km radius of toll plaza. A fixed monthly fee of Rs. 150 shall be charged.
    - Category 2 – users falling in 10-20km radius of toll plaza. A fixed monthly fee of Rs. 300 shall be charged.
  - Discounted fee (Others)– Discounted fee shall be collected from following categories:
    - Buses – monthly passes for State transport buses
    - School Buses – monthly passes for school buses for Rs. 1000
  - Normal fee – a monthly pass shall be issued to any person for a payment of charges equal to 30 times the rate of single trip. Such pass shall entitle the specified vehicle to cross the Toll Plaza any number of times till the end of calendar month.
- Daily passes

- Daily pass shall entitle any person, a pass for a sum equal to 150% of the single trip fee. Such pass shall entitle the specified vehicle to cross the Toll Plaza any number of times during the next 24 hours from time of issue.
- ETC – this is not a requirement as of now. However, the system shall be upgradeable to accept this MoP, as per the technology adopted by NHAI, as and when required.

## 8.5 Vehicle classes

The following are the vehicle classes for Fee Collection requirements

- Car/Jeep/Van
- LCV
- Bus/Truck
- MAV(>2Axle) including Earth Moving Equipment and Heavy Construction Machinery

## 8.6 Throughput required

The total number of Toll Booths and Lanes shall be such as to ensure the service time of not more than 10 seconds per vehicle at peak flow regardless of methodology adopted for fee collection.

- Semi automatic toll lane (cash) – 240 vehicles/hr
- Automatic toll lanes (smart card) – 360 vehicles / hr
- ETC (no stoppage) – 1200 vehicles/hr

## 8.7 Lane configuration

Lane configuration is as defined in “Project Details”

## 8.8 Service levels

- The maximum downtime allowed is 4hrs per plaza
- Minimum uptime allowed is 99% on a 3 months rolling period

## 8.9 Monitoring

It is required that a PTZ camera (CCTV) be installed in each booth to monitor the booth activities.

## 8.10 Toll /WIM Equipment

- Toll Equipment
- WIM Equipment

The Bidder is free to propose any equipment in addition to the above minimum required by the Concession Agreement.

## 8.11 Reports

The system shall provide the following reports as per CA

- Monthly fee statement (as per Schedule M)- see Annexure C

- Weekly Traffic Census ( as per Schedule N )- see Annexure D
- Weekly Report for Weigh Stations ( as per Schedule N )- see Annexure E

In addition to the above, the toll/WIM system shall also provide at least the following reports (shift wise, daily, and monthly):

- Revenue report
- Traffic count report
- Discrepancy report
- AVC accuracy report
- Operator efficiency report
- POS report for smart cards
- Daily pass report
- Exempt report
- Discounted fee report
- System configuration reports
- Event reports
- Other reports as per vendor's proposed system

#### **8.12 Items provided by PCEPL**

- Civil infrastructure (tunnel, plaza, booth etc)
- Electric /DG supply (as specified by vendor)
- UPS power points (as specified by vendor)
- Cable trays

## 9. ANNEURE 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
<b>Equipment</b>					
1	AVC sensors		Lane	73	Lane-road
2	Incident Capture Camera		nos	73	Lane -island
3	Barrier gate (exit)		nos	73	Lane -island
4	Traffic light		nos	73	Lane -island
5	OHLS		nos	73	Lane- canopy
6	TLC (with touchscreen)		nos	73	Lane - booth
7	AVC (processing unit)		nos	73	Lane - tunnel
8	Bar code reader		nos	73	Lane - tunnel
9	Smart card reader		nos	73	Lane - booth
10	Intercom (slave)		nos	73	Lane - booth
11	Panic alarm (switch)		nos	73	Lane-booth
12	Fog light		nos	73	Lane-island
13	MBC		nos	73	Lane-booth
14	Customised keyboard		nos	73	Lane-booth
15	Receipt printer (thermal)		nos	73	Lane-booth
16	UFD		nos	73	Lane-booth window
17	Software		lane	73	Lane – TLC/AVC
18	Cables & connectors		Lump		Plaza/lane
19	Plaza Server with rack		Per plaza	1	Plaza Control Room
20	LSDU		Per plaza	2	Plaza Control Room
21	Admin computers		Per plaza	2	Plaza Control Room
22	Cashup computer		Per plaza	3	Plaza Control Room
23	Report Computer		Per plaza	2	Plaza Control Room
24	Plaza computer		Per plaza	2	Plaza Control Room
25	Report printer		Per plaza	2	Plaza Control room
26	UPS (redundant)		Per plaza	1	Plaza UPS room
27	Plaza software		Per plaza	lump	Plaza computers
28	DG		Per plaza	2	Plaza Electric room
29	Panic alarm main unit		Per plaza	1	Plaza Control room
30	Intercom master		Per plaza	1	Plaza Control room
31	Network Switch		Per plaza		Plaza / lane
32	OFC Comm System		Per plaza		Plaza (if reqd)
33	POS - smart card reader		Per plaza	1	Plaza POS room
34	POS – computer & printer		Per plaza	1	Plaza POS room
35	CCTV in each booth		Per booth	73	Booth
36	Plaza monitors (for lane cameras)		Per plaza		Plaza
37	Plaza DVR for lane		Per plaza	1	Plaza control room

	cameras				
38	Camera in tunnel		Per plaza	4	Tunnel
39	Plaza monitors for tunnel camera		Per plaza	1	Plaza control room
37	Vault		Per plaza	1	
38	HQ Server with printer & software			1	HQ server room
39	WIM – scales/sensors		Per lane	73	
40	WIM – controller with software				Plaza control room
41	WIM - server		Per plaza	1	Plaza control room
41	WIM – report printer		Per plaza	1	Plaza control room
43	WIM- software		Per plaza	lump	Plaza control room
<b>Services</b>					
	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 Warranty/AMC
4. Requirements from PCEPL for equipment installation – civil requirements, control room requirements, electrical/earthing requirements and any other requirement to facilitate tolling or enhancing efficiency.
5. Reference Projects
6. QA procedures
7. Organization chart and project execution capability
8. Tentative completion schedule (from award)
9. Warranty & AMC – how shall it be supported

## 11. ANNEURE C – Report “Monthly fee Statement” (Schedule M)

**Project Highway :**

**Week ending :**

Type of Vehicle	For corresponding month of previous year		For preceding month		For the month reported upon		
	No. of vehicles	Fee collected (in lakh Rs.)	No. of vehicles	Fee collected (in lakh Rs.)	Fee per vehicle (in Rs.)	No. of vehicles	Fee collected (in lakh Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Car							
B. MiniBus/LCV							
C. Bus							
D. Mini Truck/LCV							
E. Truck							
F. Heavy Truck							
G. Total							



## 12. ANNEURE D – Report “Weekly Traffic Census” (Schedule N)

### Monthly Fee Statement

Project Highway:

Month:

Type of Vehicle	No. of vehicles using the Project highway during.		
	Corresponding week/last year	Preceding week	Week of report
(1)	(2)	(3)	(4)
<b>A.Fee Paying traffic</b>			
A1 Car			
A2 mini Bus/LCV			
A3. Bus			
A4. Mini Truck/LCV			
A5. Truck			
A6. Heavy Truck			
<b>Total (A)</b>			
<b>B Local Traffic</b>			
B1 Car			
<b>Total (B)</b>			
<b>C Exempted Vehicles</b>			
C1 Car			
C2 MiniBus/LCV			
C3 Bus			
C4 Mini Truck/LCV			
C5 Truck			
C6 Tractor			
<b>Total (C)</b>			
<b>D Total Traffic (A+B-C)</b>			
D1 Car			
D2 Mini Bus/ LCV			
D3 Bus			
D4 mini Truck/LCV			
D5 Truck			
D6 Heavy Truck			
D7 Tractor			
<b>Grand Total (E)</b>			

Remarks, if any

### 13. ANNEXURE E – report “Weekly Report for Weigh Stations” (Schedule N)

#### WEEKLY TRAFFIC CENSUS

Project Highway :

Week ending :

Type of Vehicle	Permitted Gross Vehicle Weight (Tonnes)	No. of Vehicles weighed (Sample Size)	No. of vehicles carrying load			
			Within permissible limits	Upto 10% in excess	Over 10% and upto 20% in excess	Over 20% in excess
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Mini Truck/LCV						
B. Truck						
C. Heavy truck						
D. Total						

**Note :** Sample size shall not be less than 200 trucks per week and 20 trucks per day, and should include a proportionate number of Heavy Trucks.

Remarks, if any: