NEW TOWN KOLKATA DEVELOPMENT AUTHORITY
(A Statutory Authority Under Government of West Bengal)
3, Major Arterial Road, New Town, Kolkata - 700 156

Memo No: 7427/NKDA/Admn-172/2011 Date:28/12/2015

Invitation of bids for Annual Operation & Maintenance Support for Existing "e-Solid Waste Disposal Monitoring System" for New Town Kolkata
E.O.I No. 08/NKDA/ADMN OF 2015-16

Bids are invited by New Town Kolkata Development Authority from experienced resourceful agencies having proven experience in successful installation and implementation of at least two similar nature of Works in last three calendar years where numbers of vehicles simultaneously tracked were more than 100 in each case in the "Vehicle Tracking", "RFID Technology", "Hand Held Terminal"system for Annual Operation & Maintenance Support for Existing "e-Solid Waste Disposal Monitoring System" for New Town Kolkata.

About NKDA
Govt. of West Bengal constituted the New Town Kolkata Development Authority; a statutory organization formed under the West Bengal Act XXX of 2007 i.e. The New Town Kolkata Development Authority Act 2007 duly passed by the West Bengal legislature and assented by Honourable President of India.

2. About the proposed work:

Solid Waste Disposal Monitoring System already running in NKDA Authority, to monitor solid waste removal from its jurisdiction and to ensure optimal utilization of vehicles deployed. Municipal Solid Waste Disposal Monitoring System is identified as a tool to achieve the above mentioned objectives.
The Advantage of the system is as follows:-

- Pictures showing garbage has been disposed.
- RF tag & unique RFID to vehicle ID. The tag can be stuck on, printed on or incorporated into a product or vehicle, providing a unique identifier for each vehicle as well as Waste Bins.
- RFID technology whether the vehicles have collected the garbage.

3. Qualifications of the bidder
Technical Criteria:

- The bidder should have experience on "Vehicle Tracking", "RFID Technology", "Hand Held Terminal" right from identifying the exact user requirements to successful implementation of the system including identification of optimum specification of computer hardware (server, network etc.) and other devices/ gadgets, development of appropriate software for at least two clients in last three calendar years where numbers of vehicles simultaneously tracked were more than 100 in each case.

- The bidder shall preferably have an established office in Kolkata. Bidders should have a registered office at Kolkata. If not, than a self declaration is required to be submitted in Non-Judicial stamp paper stating the bidder will open a setup in Kolkata within 03 months after acceptance of work order. Failure of the same will attract a penalty of 1% per week of the tendered value subjected to maximum of 10%.

- The bidder should possess a valid ISO 9001:2008 certification, a copy of which should be provided as a part of the technical bid. Bidder having SEI CMMI level 3 or higher or any other relevant certification would be awarded additional marks during evaluation of technical bid.
- The bidder should provide end to end solution which includes hardware, software and connectivity.
- At least two completed projects in providing IT solution for Solid Waste Management for govt. bodies and/or municipalities out of which one project should have a minimum value of Rs. 25 Lakhs.
- At least two completed projects in development of customized web based solution with min. project value of Rs. 25 Lakhs
- At least two project experiences in software development for municipalities / urban development authorities in West Bengal

Financial Criteria

- Average annual Turnover Rs 1 Crore during the 03 (three) financial years 2012-13, 2013-14, 2014-15.
- The company should be a profit making entity as per audited financial statement of the last financial year 2014-15.
- The bidders shall attach the audited financial statements including profit & loss, balance sheet and cash flow statements for the corresponding years mentioned above.

For each eligible assignment, bidder(s) should provide copy of work order (including complete scope of work, contract value) and completion certificate, wherever applicable issued by the appropriate authority.

4. Bidding Process and Submissions

a) The bid should be submitted as per two-part bid system; i.e 'Technical Bid' and 'Financial Bid'. The 03(three) envelopes shall be clearly marked "EMD", "Technical Bid" and "Financial Bid" and contain the respective proposals. The 03(three) envelopes must be enclosed in a single covering sealed envelope, which shall be clearly marked as "**Operation & Maintenance Support for Existinge-Solid Waste Disposal Monitoring System with Vehicle Tracking System in New Town Kolkata for a period of 1 year**"; this main envelope shall be submitted at the address and within the stipulated date. The details of the bidder, including full name, office address, name of authorized person and his/her contact details (telephone numbers of both office and personal cell phone and email address) shall also be written on each envelope.

b) **Document to be submitted:** bid should contain all documents required as proof of fulfilment of pre-qualifying criteria. Such documents will include but not limited to following -

i) EMD in the form of DD for Rs 25,000 (Rupees Twenty five thousand only) in favour of "New Town Kolkata Development Authority" payable at Kolkata.
ii) Certificate of Registration under Indian Companies Act.
iii) Proof of being manufacturer or solution provider of Vehicle Monitoring, Tracking System, RFID Technology, Hand Held Terminal.
iv) Proof of having in-house software development and maintenance facility.
v) Proof of turnover as per pre-qualification criteria.
vi) Copy of ISO certificate as pre- qualification.
vii) Copy of CMMI Certificate if applicable.
viii) Company Profile.
ix) Copy of power of attorney for the person signing the bid documents
x) Copy of Trade Licence, PAN, VAT and Service tax Registration
xi) Others documents, work orders, completion certificate as mentioned in eligibility criteria.

c) **Technical Bid** should comprise of following documents.

i) Understanding of requirements for the e-Municipal Solid Waste Disposal Monitoring System

ii) Technology Proposal - Technical description of the system offered

The solution includes two parts.

Part I

NKDA has deployed auto tippers to collect the garbage from the housing complexes and bring it to the compactor. All such auto tippers deployed in the colonies which pick up garbage must keep moving in their specified areas and should be fitted with GPS units. An approach paper must be enclosed indicating how the deployed solution will work.

i) Specification of hardware proposed along with catalogue(s).

ii) Implementation schedule

iii) Detailed MIS reports will be required to help NKDA staff at various levels on monitoring the garbage disposal.

iv) Snaps for Housing Complex Bins.

Part 2

All the compactor and trucks start from garage located at New Town will go to designated disposal ground. When they leave the garage, the details of compactor /trucks/Auto Tripper and drivers moving out of the workshop are automatically captured using RF Tag/Other suitable

device. On reaching community bins the loader loads the garbage which then move to the sanitary Landfill via Weigh Bridge. Movement of each vehicle will be monitored using VTS on vehicles, RF tags at Dustbin/Open site reading the location and vehicle tags. After clearance of Bins, the supervisor/Driver takes the image of the Dustbin and uploads on the server for online monitoring and audit by NKDA persons. The hardware supplied should be as per technical specifications in this tender.

- The bidder must submit the details of hardware required for such solutions.
- The bidder must submit the details of application software to be developed for this solution.
- The bidder must enclose the implementation approach.

d) **Financial Bid** should contain the 'price bid' as per the price bid format attached herewith in the tender document. The validity of the bid should be minimum 180 days from the due date mentioned on bid document or any extension thereof or date of negotiation, whichever is later.

e) **Signing of tender documents**

Copy of board resolution/Power of Attorney/ Authorization letter/any other supporting document indicating that the person signing the bid has the required authority to sign on behalf of the bidder.

5. Other Terms & conditions:

a) Late bids not accepted. NKDA shall not entertain any reason for delay in submitting the bids.

b) The bids will be opened in the order of Technical Bid & Financial bid.

c) The bids not meeting the Technical specifications may be rejected immediately.

d) The bids not submitted in the manner explained in the tender document are liable for rejection. Bids submitted without EMD will be rejected out rightly.

e) NKDA reserves the right to accept/reject any or all bids submitted.

f) The decision regarding finally selected bidder will be communicated to the respective bidder.

g) The EMD for the unsuccessful bidders' shall be returned immediately after completion of the tender process the opening of the tender. No interest shall be paid on EMD. EMD for successful bidder will be kept as the Security Deposit (SD).

h) The successful bidder will have to deploy a highly qualified & experienced expert (Project In-charge) exclusively for this project.

6. Scope of Work

The following modules to be maintained and further development to be done as required.

A. SOLID WASTE MANAGEMENT

- HR module - all office related works.
- SLA module - all service related modules.
- Transit management system (All geo tagging of bins, SMS gateway, integration with boom barriers, scanning of RFID tagged bins)
- Billing and collection - online offline payments, bill generation.
- Grievance management.
- Weigh Bridge module.

B. CONSTRUCTION WASTE MANAGEMENT

- Registration of request for construction waste management by citizens through web application.
- Construction of waste site by both citizen and department.
- Complaint and grievance management.
- Transit management.
- Waste management facilities- The application must record the clear demarcation of the waste, dump-yard and its related facilities through GIS mapping
- Billing and collection.

C. BIO MEDICAL WASTE MANAGEMENT

- Registration of request for bio-medical waste management by clinics/ path-labs through web application.
- Enable the concerned user to request NKDA services for waste removal and vehicle booking.
- Permit should have a unique ID for tracking and details of place, date and time for waste pickup
- Generation of permit for bio-medical waste removal and transport through the module
- Complain and grievance management.
- Transit management.
- Waste management facilities- The application must record the clear demarcation of the waste, dump-yard and its related facilities through GIS mapping
- Billing and collection.

D. ANIMAL WASTE MANAGEMENT

- Module should enable the registration of request for service of NKDA for unclaimed animal waste (dead body) removal by citizens through web application
- Module should enable the registration of request for service of NKDA for animal waste (dead body) removal by citizens through web application

- Application must enable integration with boom barriers at Burial site
- Module must enable the tracking of vehicles' inward and outward movement through RFID integration at Burial site.

E. MONITORING TOOL

- Design and development of a citizen centric transparency portal
- The portal should provide up-to-date information on the activities of NKDA
- System should show the Graphical view of the statistical data
- Provision of various MIS reports showcasing the work done by NKDA
- Design the Geo-fencing reporting portal
- Movement of all the vehicles will be tracked by a GPS tracker.
- The GPS device installation will be responsible of NKDA, but SI will give the specification.
- The application software should have facility to read / integrate / capture the GPS data of the vehicle
- Design the web based GIS application denoting all the graphical locations

F. Development of mobile application in open source platform for each application module

G. Road Sweeping Vehicle module.

H. OTHER ASPECTS OF APPLICATION DEVELOPMENT

- The solution, further developed, shall be operated in production, backup, test and staging environment.

System should have built in security for data capturing and transfer including devices used i.e. restricting to the authenticated devices only.

6. Existing System details (Technical & Functional)

1. End-to-End Solution for Solid Waste disposal monitoring system.
2. "Vehicle Tracking System" with the following features:
   a) Real time tracking of around 8 vehicles simultaneously every day at auto workshop community bin/ Open sites and designated disposal ground.
   b) Scalability (data refreshing) within every 1 minute.
   c) The Graphical re-presentation of vehicles movements are to be mapped in Google image. The VTS should have to be integrated with 'GIS' application in open PRP mode, for this township.
   d) Capture of GPS coordinates of trucks & garbage dumping sites.
   e) Capture of images of Bins before and after it is cleared.
   f) Audit using captured image above.
   g) Providing a mobile device to leader driver or any person specified by NKDA which has facility of RF reader, camera & connectivity.

h) Standard features of GPS Vehicle Tracking Software are supposed to be there like 'Geo-fencing Setup & Control', Playback', 'Idle Time', 'Distance Covered' etc.
i) Reports on vehicle movements.
j) Able to send e-mail/SMS alerts to authorized personnel. SMS gateway will provided by the NKDA.
k) All time availability of last 90 days' History data,
l) Incremental backup of data for future reference,
m) Only Server space will be provided by NKDA. Software and Database license willbe provided by selected agency, if required.
n) Weigh-bridge integration will be required without depending on PC. Data automatically transmit to web with registration no of vehicle.
o) The same application should be able to track other vehicle of NKDA.
p) **Providing GSM/GPRS/internet connectivity required for the system**.
q) Installation and testing of required hardware on vehicles to be monitored
r) Designing and generating reports as per requirement of NKDA.
s) Changes in Software as and when required by NKDA will be incorporated by selected agency within the time frame; no additional charges will be paid by NKDA.
t) Maintenance cost of all equipment should be borne by the bidder.
u) Providing training to the staff for using hand held device & walkthrough of supervisory staff for efficient utilization of the system for monitoring.

7. Security Deposit:

EMD will be kept as a Security Deposit for the entire period contact. After successful completion of the contract period SD will be refunded to Agency.

8. Payment Terms:

- Payment will be made quarterly basis.
- For supply items and adding new pages i.e static/dynamic, payment will be made quarterly basis on satisfactory installation.

9. Method of selection

a) The selection will be made through a quality and cost based method with 70% score for technical merit and 30% score for financial offer.
b) The offers will be opened in presence of representatives of the bidders and the technical proposal will be opened at the same time. The sealed financial bids will be kept inside a closed cover for future processing.
c) After evaluation and scoring on the technical proposal, the financial bids will be opened in presence of representatives of the bidders.
d) Final selection will be made on the basis of composite score of above.

10. Proposal format and scoring criteria

Process of evaluation of the proposal will be carried out in three stages as indicated in this document.
A single step two-envelop bidding procedure will be used for the evaluation. Under this process the technical proposal will be opened and evaluated prior to opening and evaluating financial proposal. The proposals will be examined and discussed as required with the bidder. The evaluation of the proposals will follow the steps outlined in this section.

Stage I - Examination of Shortlisted Technical Proposals(Weightage 55%)
Stage II - Presentation of Real Time System with Proposed Solution.(Weightage 15%)
Stage III - Examination of Financial Proposal (Weightage 30%)

The selection will be made through Quality cum Cost based method. Cut off marks for technical bid is 30 out of 55. The bidder(s) will be qualified in technical evaluation will be asked to come up with the presentations.

S.N.	Technical Evaluation Criteria	No. of Projects	Score
1	Experience of undertaking similar projects:		
	• Providing IT solution for SWM for municipalities/municipal corporations/development authorities (Completion certificate necessary)	2 or more	25
2	Experience in Development & Implementation of customized web based solution of minimum project value Rs. 25 Lakhs	2 – 3	15
		> 3	20
3	Project experience in software development for municipalities/municipal corporations/development authorities in West Bengal	2	5
		> 2	10
4	Certifications:		
	ISO 9001:2008 & ISO 27001:2005		10
	CMMi Level 3 and above		5
6	Approach & methodology • Responsiveness to TOR • Proposed Approach & Methodology • Work Plan including resource deployment schedule		30
TOTAL			100

11. Technical Specifications of existing devices:

a) Hardware Specification.

i. **Handheld mobile device with GPS, GPRS, Camera, Bluetooth, and RFID capabilities.**

- Wireless Bluetooth interface.

- In-built GPS Modem.
- In-built GPRS Modem.
- Integrated 2 Mega Pixel Camera or more.
- Rechargeable battery.
- Encrypted GPRS data transfer

i) **Tracking Device**

- Easy to install and rugged
- GPS accuracy less than 5 meter
- LED status (Power, GPS, GSM/GPRS)
- Device sends alarm when:
  - External power being cut off.
  - Panic Button (SOS) pressed.
  - Tracking and immobilize vehicle using web map or mobile phone.

- SIM board to GPS device: SIM should only be working with GPS device it is programmed with.
- Built in battery for power outage disconnection.
- Tracking Device can work by the power supply on the Vehicle.
- Built in memory for network outage, for storing at least 5,000 records.
- Backup battery.
  - Battery backup time: 6 hrs with 1 minute tracking interval 3 hrs with 10 second tracking interval

Cold/warm start Hot start aided start reacquisition	<42s <1s <1s
Radio system	○ Support GSM/GPRS 900/1800/1900 MHZ ○ Support send and receive sms message during GPRS inline session ○ Two way online TCP-IP connection to send and receive reliable data
TCP supported	○ Support two way online TCP-IP connection support to send and receive reliable data ○ ASCII based text protocol, easy to understand and trouble shooting
Flexible GPS tracking	○ Send by fixed(clock timer), dynamic time(periodic) interval ○ Send by distance travels ○ Send by user polling

	○ Send by checking IGNITION input in periodic time interval.
GPS track recording and resending	○ Built in large flash memory to store data when out of GPRS radio coverage, data log more than 5000 points ○ Automatically resend Non-GPRS coverage data when device goes into GPRS coverage. ○ No data lost due to radio coverage problem ○ Track remote download supported ○ No data lost due to power failure
Radio signal level, network detection	○ Sends GSM radio signal level (signal strength) in every location packet to server ○ Sends GSM network provider code in every location packet ○ Sends home/roaming network info in every location packet
Air time control	○ Device offer many features to support air time control: ○ User can define upload data size (UDS), device now store data in internal flash as soon as data size reach UDS, it makes GPRS connection and send data to server. ○ Support polling only mode without auto send. ○ Adjustable parameters in protocol to send only required packet. (Disable Periodic position data, Distance based data) ○ Sends location record by checking IGNITION input in periodic time interval
Power source voltage level detection	○ Sends internal battery voltage to server ○ Sends external battery voltage to server
Internal GPS distance meter	○ Support GPS based distance meter, keep the reading value in flash memory ○ Sends Delta distance (distance between two location records) to server ○ Meter reading in every location packet ○ Reset meter reading from remote SMS/server.
Alarm Functions	Device sends alarm packets to server when:

	○ Panic(SOS) button is pressed ○ External power cut off ○ GPS Antenna cut off ○ Internal/External Battery voltage below the threshold value ○ Vehicle move/stop ○ Device goes out of user defined geo-fence region ○ Tampering of device
Battery Operation Support	○ Support auto battery charge circuit from external power source ○ Over charge protection
Protection	○ Over voltage ○ Over current ○ Reverse voltage

ii) RFID PASSIVE TAG

RFID Passive Tags are primarily intended for secure identification of vehicles. These should be optimized for mounting on vehicles, Bins, with a world-class range performance.

The tag should provide:

1) High Performance: Antenna design and label construction should be ideal fit for Windshield labels, delivering long read distances of more than 5 metres, and all possible speeds.
2) UID and Pass-code protected: The non-changeable read only Tag ID TID should be factory programmed and should include a unique identification number (UID). A pass code protected user memory should be available to store additional security, registration and vehicle information and Bins information.

Specifications

Label size as may be read by the mobile device
Quality Assurance
Inlays and labels should be 100% tested
Reliability through UV protection
Label will be used for
Vehicle identification & Bin identification
Major Features Required

Read range: 5 meters or more.	
Flat label optimization for mounting onto vehicle windshields	
In case of permanent Mounting it should break on removal	
User defined memory: up to 512 bit	
Passive tag: No battery	
Technical Features	
Data Retention	08 years
Security Features	password protection
Unique Serial Number Optionally printed (barcode) on front side of the label	
Operating Temperature	upto 70 C
Humidity	95%(non condensing)

RFID tags must be operational in extreme conditions resistant to environmental hazards

iii) Web Application:

1) Web based vehicle tracking Application.
2) Plotting of all important points i.e. Collection Points, Route points, Housing Complexes, Bins, open Sites, Bulk Points, Dump Sites and Re-Cycling Plants(if required in future).
3) The application will be able to provide the data i.e. Served.
4) The software should be designed in such a way that zone/area wise status of the solid waste collection can be tracked.
5) Various alerts such asharsh acceleration, harsh de-acceleration, panic button pressed, GPS Device Tampering, Towing etc. should be provided.
6) The dynamic route history should be provided along with various events i.e. over speed, average speed, distance travelled and stoppages taken by the vehicle.
7) Various general reports i.e. Day wise, Vehicle Summary, Stoppage, Distance Travelled, Alerts and Violations, Vehicle Idle. Trip report etc. should be provided.

8) MIS reports should also be generated on daily, weekly, and monthly basis to enable the authorities to take appropriate decision.

9) Housing Complexes/Bins wise control panel to view and approve the upload image for each point of interest.

10) Color of Housing Complexes locations/Bins will automatically change in following manner:

    a) Mid night.

    b) After taking the snap and upload to web.

    c) After approval of each image.

11) Other customized reports as per the requirement of this Authority.

12) Website to have all necessary map viewing facility such as zoom, pan, search a location, jump to any ward or zone etc.

13) NKDA shall be able to add own landmarks through the web application.

14) Reports may be obtained considering NKDA added specifications.

15) All the vehicles to be tracked on line and the location shall be possible on the tabular as well as map based view.

16) Real time display on Map, the status and location of garbage bins, Housing Complexes, open site and other garbage locations.

17) NKDA can add the trip details and the report shall be possible to be captured through same.

18) NKDA should be able to get the distance travelled of the each vehicle in a day.

19) Consolidated dash board shall be provided to check the vehicle activity.

20) There should be a facility for making of vehicles routes (print-to-point, point-to-multipoint, circular etc) or the vehicle trips.

21) The facility for addition/deletion of vehicle should be provided.

22) Complete with maps and facility for historical data available.

23) Remote Vehicle GPS unit configuration utility for changing frequency, deactivation of unit, etc.

24) Web based access and control of entire functionality.

25) To maintain the integrity of the system encrypted messages and constant revalidation of the firmware by the system to prevent loss of protocols and security of data.

26) Ability to receive E-mail and Mobile alerts in case of a deviation of any planned Activity.

27) The MIS reports, which are possible, are Vehicle History including the detailed start & end log time on map on real time basis and historical data on map, route travelled, and violation on map on real time basis and historical data on map, Stop hours, detailed work hour summary.

28) Ability to integrate external software like Routing/Navigation etc at a minimal cost and ability.

29) The software automatically polls and informs which unit has not communicated in excess of stipulated time.

30) Being able to see/alarm when GPS unit battery willdry out.

31) MIS report on collection of Waste per vehicles and total Daily/ Monthly/ Quarterly/ Yearly basis. weigh bridge.

12. Important timeline

Last date of submission	:	11th Jan 2016 upto 02:00 PM
Opening of technical proposals	:	11th Jan 2016 at 03:00 PM
Presentation by bidders on technical proposal	:	Will be intimated

13. Miscellaneous provisions

a. Decision of NKDA will be final in all matters

b. The entire process will be governed by the rules of NKDA and Government of West Bengal

c. The selected bidder will have to enter into an agreement before starting the actual implementation.

d. Successful bidder have a execute formal agreement before undertaking the work.

14. Operation & Maintenance Support:

Operation & Maintenance Support period in the hardware and software is for 01(one) year.

15. Software development

If any software is required during the maintenance period for the maintenance and support purpose, the software license procurement/renewal cost must be borne by the selected bidder.

Administrative Officer- I
New Town Kolkata Development Authority

Memo No: 7427/1(5)/NKDA/Admn-172/2011 **Dated: 28/12/2015**

Copy forwarded for information and necessary action to:

1. The Finance Officer, NKDA.
2. Executive Engineer-I, NKDA.
3. P.A. to Chairman, NKDA.
4. P.A. to Member Secretory, NKDA.
5. P.A. to CEO, NKDA.

Administrative Officer-I
New Town Kolkata Development Authority

Format for Financial Bid:

The financial proposal will be submitted in the following format printed on official letter head of the bidder and signed sealed by a competent official of the bidder

To Date
The Administrative Officer
New Town Kolkata Development Authority

Sub : **Financial Bid for Operation& Maintenance Support for Existing-Solid Waste Disposal Monitoring System with Vehicle Tracking System in New Town Kolkata for a period of 1 year**

Sir,
We hereby propose a total cost of Rs.<*Rupees in Figure and whole number*> (Rupees in words)only inclusive of all costs, taxes and levies for e-Waste Management with Vehicle Tracking System in New Town Kolkata and also Providing Post Implementation Support And Maintenance Services to the system for a period of 1 year.

This amount is valid for the whole period of the contract for the work. Details of cost brake-up as follows:

Sl No	Name of Electronic Device/Gadget and Application	Specification	Unit Rate* (in Rs.)	Quantity Required	Total Cost* (in Rs.)
01	Annual Maintenance of exiting Vehicle Tracking System and all related devices (VTS, Handheld Terminals, Weigh Bridge integration)				
02	**For New Items**				
a)	VTS Device			1	
b)	RFID Passive Tag			1	
c)	Mobile Hand Terminal			1	
d)	New Web Page Static Dynamic				

**** N. B: Bidder will quote rate for a single make for each item.**

Yours faithfully

.....
Signature Name:
Designation:
Office Address: