

मिरा भाईंदर महानगरपालिका

घनकचरा व्यवस्थापन विभाग

जा.क्र. मनपा/घ.व्य./४५५/2025-26

दि. ०८/०७/2025

प्रति,

1. सिस्टीम मॅनेजर
नागरी सुविधा केंद्र
2. जनसंपर्क अधिकारी
मिरा भाईंदर महानगरपालिका

विषय :- जाहिर नोटीस प्रसिध्द करणेबाबत.

मिरा भाईंदर महानगरपालिका घनकचरा व्यवस्थापन विभागातील वाहनावर देखरेख ठेवणेकामी Vehicle Tracking Monitoring System करीता GPS device खरेदी करणे व वार्षिक देखभाल व दुरूस्ती (AMC) साठी एजन्सी नियुक्त करणेकामाचे दर निश्चित नसल्याने बाजार भावामधील दर मागवुन सन 2025-26 या आर्थिक वर्षाकरिता दर निश्चित करणेकामी दरपत्रक मागविण्यात येत आहे.

उपरोक्त कामाची जाहिर नोटीस महानगरपालिका संकेतस्थळावर व वृत्तपत्रात प्रसिध्द करण्यात यावे.

(डॉ. सचिन बागरे)

उपायुक्त (घ.व्य.)

मिरा भाईंदर महानगरपालिका



मिरा भाईंदर महानगरपालिका

स्व. इंदीरा गांधी भवन, मुख्य कार्यालय, छत्रपती शिवाजी महाराज मार्ग,
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घनकचरा व्यवस्थापन विभाग

जा.क्र. मनपा/घ.व्य./४५५/2025-26

दि. ०९/०७/2025

// जाहीर नोटीस //

या नोटीसद्वारे संबंधितास कळविण्यात येते की, मिरा भाईंदर महानगरपालिका घनकचरा व्यवस्थापन विभागातील वाहनावर देखरेख ठेवणेकामी Vehicle Tracking Monitoring System करिता GPS device खरेदी करणे व वार्षिक देखभाल व दुरूस्ती (AMC) साठी एजन्सी नियुक्त करणेकामाचे दर निश्चित नसल्याने बाजार भावामधील दर मागवून सन 2025-26 या आर्थिक वर्षाकरिता दर निश्चित करणे आवश्यक आहे. सदर कामाचे तपशिल व माहिती दरपत्रक नमुना www.mbmc.gov.in वर प्रसिध्द करण्यात आले आहे.

इच्छुकांनी संस्थांनी खालील अटी-शर्तीचे अधिन राहून दर सादर करावेत.

1. दर सर्व करांसह (GST सह) सिलबंद पाकिटात दि. 16 /07/2025 रोजी सायं. ठिक 3.00 वाजेपर्यंत मुख्य कार्यालय, घनकचरा व्यवस्थापन विभागामध्ये जमा करावी.
2. दर आपल्या लेटरपॅडवर तपशिलवार व दरपत्रकधारकाचे नावाने सादर करावेत.
3. सदर दरपत्रक प्रक्रिया कोणत्याही टप्प्यावर थांबविण्याचा /रद्द करण्याचा अधिकार घनकचरा व्यवस्थापन विभागास राहिल.

(डॉ. सचिन बांगर)

उपायुक्त (घ.व्य.)

मिरा भाईंदर महानगरपालिका

Mira Bhayandar Municipal Corporation

System Integrator for Municipal Solid Waste Management System

1. Invitation for Proposals

Mira Bhayandar Municipal Corporation (MBMC) invites proposals from qualified and experienced System Integrators for the design, implementation, and maintenance of a Municipal Solid Waste Management System. The project aims to enhance operational efficiency, provide real-time monitoring, and generate comprehensive analytical insights for waste collection and management across the city.

2. Project Background

MBMC is responsible for managing waste collection in a predominantly urban environment with multiple residential buildings. Each property has been assigned a unique QR code to monitor waste segregation. The current system employs various types of waste collection vehicles that operate across designated areas. The proposed system will integrate advanced technologies for vehicle tracking, route optimization, real-time data analysis, and comprehensive reporting to improve service delivery and operational oversight.

3. Need of Technology

Information and Communication Technology (ICT) has changed the evolution of cities; the notion of “growing” cities is being replaced with the idea of making a city “Smart”. ICT has forced the think tank and compelling planners of the cities to not only consider the physical planning of a city but to also consider ICT enablement to make the economy, environment, mobility and governance more efficient and effective. Vehicle Tracking & Monitoring System (VTS) shall be the ICT platform for enabling effective reporting, Monitoring and Control of following activities through innovative web application. MBMC is interested to implement the VTS system to track and monitor their vehicles used for waste collections, segregation, transportation, dumping of waste in the dumping yard or landfills

4. Need of VTS system

MBMC is responsible for collection, segregation, transportation, dumping and processing of the city waste from door to door. MBMC has currently deployed fleet of more than 157 vehicles for collection of door to door waste (primary collection), collection of waste from community collection points (secondary collection) and then transferring the whole lot to the waste processing plant for further treatment. Also, MBMC has deployed approx. 2000 field staff which are responsible for street sweeping and collection of street waste and dumping to the nearest bins/collection points.

Existing ways of collection of Solid Waste:

- Our sweeping employees collect segregated dry and wet waste from door to door and put it into the nearest bins
- A solid waste collection vehicle traverses through the route and picks up the garbage from the bins
- Collected waste is then transferred by these vehicles to intermediate dumping areas or biogas plants
- Field supervisor (also called ‘Mukadam’) supervises the daily work

Currently, managing the people responsible for the solid waste collection activity and proper utilization of assets/resources assigned to them has become a complex job for MBMC. The main problems of the existing solid waste collection process are:

- Lack of information about the collecting time and area
- Lack of proper system for monitoring, vehicles tracking and trash bin that have been collected in real time
- There is no estimation to the amount of solid waste inside the bin and the surrounding area due to the scattering of waste
- There is no quick response to urgent cases like vehicle accident, breakdown, long idle time etc.
- Absence of proper solid waste online weight mechanism
- Absence of citizen interaction interface/ grievance redressal

MBMC intends to introduce various proven technology in the domain of Vehicle Tracking and Monitoring System to bring transparency, efficiency and accountability in the entire supply chain of Solid Waste Management system. The perceived advantages of IT enabled VTS shall be:

- Manage routes and vehicles dynamically/fixed through an automated system
- To keep history of vehicle routes, attended sites and other details
- Find out bins from where garbage is not picked up daily
- Monitor if the waste is collected in timely manner

Scope of Work

The selected System Integrator will implement a complete Municipal Solid Waste Management System, which includes vehicle tracking, route management, real-time monitoring, and advanced analytical dashboards. Below is a detailed breakdown of the required components and functionalities:

1 Information gathering

Bidder will be responsible for understanding all the requirement related to the project from Solid waste department. Bidder must conduct meetings with our officials to understand all the problems and then design a solution that will be useful to overcome all the problems

2 System Design and Development

1. System Architecture:

- Design a robust, scalable, and secure system architecture that integrates GPS, RFID, and weighing systems.
- Ensure high availability, fault tolerance, and the ability to handle large-scale data processing.

2. Data Management:

- Develop a centralized database for comprehensive data management, including vehicle details, route data, checkpoint achievements, and weight records.
- Implement secure data storage and encryption standards, ensuring compliance with data protection regulations.

3. User Interface:

- Create a user-friendly web-based portal with responsive design to support desktop and mobile access.

- Include role-based access controls with permissions tailored to different user roles (Admins, Supervisors, Field Staff, and Vendors).

Module Development

Vehicle Management

Vehicle Master Creation:

- Develop a module to add, update, and manage vehicle details such as type, capacity, assigned routes, GPS integration, and RFID tags.
- Provide functionalities for filtering vehicles by area, type, and route assignment.

Real-Time Vehicle Tracking:

- Integrate GPS tracking for live monitoring of vehicle locations.
- Display current status, location, and route progress of each vehicle on a centralized dashboard.

Route Management

1. Route Master Creation:

- Create and manage route configurations, including mapping of bin checkpoints directly onto routes with assigned visit times.
- Include options to dynamically update routes based on real-time conditions such as traffic, vehicle availability, or urgent collection needs.

2. Assign Vehicles to Routes:

- Implement a module to assign specific vehicles to routes based on vehicle type, capacity, and operational requirements.
- Allow real-time reassignment of vehicles in response to operational changes or vehicle availability or vehicle breakdown.

3. Daily Vehicle Route Tracking:

- Provide an interface for admins to select any vehicle and date to view detailed travel routes, checkpoints, and arrival timings.
- Visualize the assigned default route on the map alongside actual routes taken, highlighting any deviations.

4. All Routes Overview:

- A dedicated section for viewing all vehicle routes for the current date, displaying achieved, non-achieved, and late checkpoints with color-coded indicators.
- Allow filtering by vehicle, area, and route to provide a detailed operational view.

History tracking

MBMC should be able to see backdated route of any vehicle. We should also be able to see how vehicle traveled on selected date on map, where it was stopped, for how much time it was stopped how many beans it has missed for garbage collections.

Weighing and RFID Integration

1. Weighbridge Integration:

- Integrate with weighbridges at dumping grounds to automatically record the weight of waste collected by vehicles equipped with RFID tags.
- Ensure seamless data transfer from weighbridges to the central system for real-time weight tracking and analysis.

2. RFID Tagging:

- Equip vehicles with RFID tags to automate tracking and weight recording processes.
- Integrate RFID data with vehicle tracking and route management modules for complete traceability.

4.4 User and Access Management

1. User Management:

- Implement a comprehensive user management system that allows Super admins to create, manage, and deactivate users.
- Assign specific access permissions to different roles, ensuring security and data integrity across the system.

2. Role-Based Access Control:

- Define clear roles such as Admins, Supervisors, Field Staff, and Vendors, each with specific access levels to system functionalities.

4.5 Analytical Dashboard and Reporting

1. Advanced Analytical Dashboard:

Develop a complex, data-driven dashboard with graphical representations of key performance indicators:

- **Vehicle Presence:** Charts showing present vs. absent vehicles, categorized by vehicle type and area.
- **Route Coverage:** Visual representations of total route coverage, including bins visited vs. bins not visited, and checkpoint achievements.
- **Area-Wise Analysis:** Area-specific dashboards displaying coverage metrics, late checkpoints, and waste collection performance.
- **Weight Metrics:** Graphs showing area-wise waste weights collected at dumping grounds, with comparisons across different periods.

2. Reports:

- **Beans Arrival Report:** Detailed logs of vehicle arrivals at each checkpoint.
- **Beans Arrival Consolidated Report:** Summary report consolidating checkpoint arrival data across routes.
- **Daily All Vehicle Weight Report:** Daily reports of weights recorded at dumping grounds for all vehicles.
- **Single Vehicle Wise Weight Report (Date Range):** Detailed weight records for selected vehicles over specified date ranges.
- **Vehicle Type-wise Weight Management:** Categorizes and analyzes weight data by vehicle type.
- **Vehicle Type-wise Present and Absent Vehicle Report:** Tracks vehicle availability and categorizes data by vehicle type.
- **Date-wise Present and Absent Vehicle Report:** Summarizes vehicle attendance data by date.
- **Weight Management - Payable Amount Report:** Calculates payable amounts based on collected waste weights. This report should show all fines and total weight of garbage collected every day.

- **Distance Travel Report:** Summarizes distances traveled by vehicles each day.
- **Vehicle Overspeed Report:** Monitors and reports instances of vehicles exceeding speed limits inside working area.

4.6 Real-Time Map Section

1. Real-Time Vehicle Monitoring:

- Display live vehicle locations on a city map with color coding based on area and vehicle type.
- Provide live updates on vehicle status, including current routes, checkpoint progress, and any route deviations.

2. All Routes on Map:

- A comprehensive map view showing all active routes for the current day.
- Visualize each route with color-coded checkpoints indicating achieved, non-achieved, and late status.
- Allow users to filter routes by vehicle, area, and checkpoint status for detailed operational insights.

4.7 Find Vehicle Feature

1. Find Vehicle Module:

- Develop a unique "Find Vehicle" feature designed for commissioners, HODs, and Admins to quickly locate vehicles in response to citizen issues or for analysis purpose.
- Users can place a marker on the map at any location, and the system will automatically display the routes covering that area along with active vehicles on those routes.
- On clicking a route, details such as assigned vehicles, checkpoints, and real-time progress will be displayed.
- Allow users to select different dates to view historical route and vehicle data.

4.8 Security and Compliance

1. Data Security:

- Implement stringent data security measures, including encryption for all data transactions and secure storage solutions.
- Ensure all APIs and communication channels are secure to prevent unauthorized access.

4.9 System Maintenance and Support

1. Operation and Maintenance:

- Provide system maintenance and support for one year, including regular updates, security patches, and performance optimization.
- Conduct periodic security audits and system backups to ensure data integrity and system availability.

2. Training and Documentation:

- Offer detailed training sessions for MBMC staff on system usage, dashboard functionalities, and report generation.
- Deliver comprehensive user manuals, technical guides, and maintenance documentation for ongoing reference.

4.10 Hardware installation

Bidder is responsible of providing GPS devices, installing them in vehicles, maintenance of GPS devices. Monthly recharge of GPS devices. GPS device provided by bidder must follow following specifications.

SM Specification	
GSM frequency	850/900/1800/1900 MHz
GPRS	Class 12, TCP/IP
Memory	32+32Mb
Phrase error	RMSPE<5,PPE<20
Max output	GSM850/GSM900:33±3dBm GSM1800/GSM1900:30±3Bm
Max frequency error	±0.1ppm
GPS Specification	
GPS chipset	MTK high sensitivity chip
Frequency	L1,1575.42MHz C/A code
GPS channel	66
Location accuracy	<10 meters
Tracking sensitivity	-165dBm
Acquisition sensitivity	-148dBm
TTFF (open sky)	Avg. hot start≤1sec Avg. cold start≤35sec
Functional Specification	
Battery	60mAh/3.7V Li-Polymer battery
Working voltage/current	9-90VDC/7mA (60VDC)
Standby time	60 hours
Working time	3 hours
Operating temperature	-20°C~ 70°C
Dimension	78.0(L)*41.0(W)*13.0(H)mm

4.11 Testing and Optimization:

Test the system in a small pilot zone to ensure GPS devices, communication, and data processing work smoothly.

Gather feedback and optimize the system based on real-world performance.

4.12 Deployment:

Bidder will be responsible for procurement of server and other infrastructure on cloud and deploy the project on cloud so that it will be accessible from anywhere in the world with access to internet.

5. Technical Specifications

- The system must be developed using open-source technologies like PHP or Python within an MVC framework.
- Ensure deployment on a cloud platform with SSL certification to guarantee secure data handling and compliance with local data protection laws.
- Google maps must be integrated in software and bidder is responsible of all licenses related to google map Apis

6. Terms and Conditions

- The contract period will be 1 year, inclusive of the implementation and support phases.
- MBMC reserves the right to accept or reject any proposal without assigning reasons.
- GST Registration certificate, PAN Registration will attach for the proposal.

Sr. No.	Particular	Unit	Rate (Including All Taxes)
1	Mira Bhayandar Municipal Corporation (MBMC) invites proposals from qualified and experienced System Integrators for the design, implementation, and maintenance of a Municipal Solid Waste Management System		
A	GPS Device 64 Nos.	Per Nos.	Rs.
B	AMC, Web Hosting, Recharge Per Year 157 Vehicle	Per Nos.	Rs.

Proprietor sign and Stamp