

**Transportation of Municipal Solid Waste
including Street Sweeping, Drain
Cleaning, Conservancy Cleaning, Bush
Uprooting and De-weeding**



2024-25

Vol-I

Brajrajnagar Municipality

1 List of Abbreviations

AT	Auto Tipper
BCC	Behaviour Change Communication
BIS	Bureau of Indian Standard
BOV	Battery Operated Vehicle
BWG	Bulk Waste Generator
COD	Commercial Operation Date
CPHEEO	Central Public Health and Environmental Engineering Organization
GIS	Geographical Information System
GPRS	General Pocket Radio Service
GPS	Global Positioning System
IEC	Information, Education and Communication
LCV	Light Commercial Vehicle
MCC	Micro Composting Centres
MRF	Material Recovery Facilities
MSW	Municipal Solid Waste
NGT	National Green tribunal
PPE	Personal Protective Equipment
SLF	Sanitary Land Fill
SMS	Short Messaging Service
SWM	Solid Waste Management
VTMS	Vehicle Tracking Management System

2 Introduction

2.1 About Brajaraj Nagar Municipality

With a projected population of nearly 1lakh (2021), Brajaraj Nagar is the city in the State of Odisha and is of economic and religious importance. The entire Brajaraj Nagar Municipality area comprises of 23 wards and for better administration Brajaraj Nagar Municipality has grouped total 23 wards out of these 21 wards under 3 zones i.e-

East North Zone-1 Area Ward No-1, 2, 3,(17 Part),(20 Part), 21, 22& 23

Central Zone-2 Area Ward No-11, 12, 13, 14, 15, 18, 19, (17 Part) & (20 Part)

East South Zone-3 Area Ward No-4, 5, 6, 7, 8 & 16

The tender is intended for supervision of Ward No. 1 to 8 & 11 to 23. Brajaraj Nagar Municipality is engaged in various activities like solid waste management, street lighting, park and recreation and plantation, maintenance of civic infrastructure such as drain, roads etc. and always have been in the forefront to deliver the services to the satisfaction of the inhabitants of the city.

The sanitation part of in solid waste management by State Government of Odisha towards decentralised solid waste management is being adopted by the city town body in all the twenty-three wards through community participation and is in advance stage of implementation. The different type of solid waste that are being managed by Brajaraj Nagar Municipality are as follows:

1. Municipal Solid Waste Collection, Transportation and Disposal
2. Street Cleaning, Drain De-silting and Disposal
3. Bush Uprooting, Collection of Horticulture Waste, Cleaning of Conservancy Lane, Road Side Berm, De Weeding and Disposal
4. Construction & Demolition Waste Collection, Transportation and Disposal
5. Mechanical Road Sweeping on Priority Road Networks

The details of corresponding number of wards in Brajaraj Nagar Municipality area are as follows:

Table 1: Total No of wards

Sl. No.	Name of Municipality	No of Wards	No of Ward O & M by ULB	RFP floated for O & M of Wards	No Of Package for RFP
1	Brajaraj Nagar	23	2	21	3

East North Zone :-1

Covered Ward: - 1, 2, 3, (20 Part), 21, 22, 23 & (17 Part)

Central Zone :-2

Covered Ward: -11, 12, 13, 14, 15, (17 Part), 18, 19 & (20 Part)

East South Zone :-3

Covered Ward: - 4, 5, 6, 7, 8 & 16

Details of population, households, number of MCC and MRF are given below.

Table 2: Population, Numbers of MCC and MRF

Brajaraj Nagar Municipality	Population as per census 2011	Projected population 2024	Number of MCC Functional	Number of MCC under construction	Number of MRF Functional	Number of MRF under construction
All wards	80403	90840	2	2	2	1

2.2 Project Scope of Work

Operators shall adhere to this document for accomplishing Scope of Work, methodology prescribed for carrying out the work, procurement and deployment of equipment and vehicles prescribed, quality and quantum of manpower to be deployed while executing the work assigned, establish monitoring system, fulfil reporting requirements and implement awareness campaign when asked to achieve desired outcome of the Project.

Project scope is transportation of Municipal Solid Waste from Bulk Waste Generator (as Notified by Brajaraj Nagar Municipality from time to time), and Commercial Areas, Drain Desilting, Bush Uprooting including Collection of Green Waste Except Root and Stem, Conservancy Cleaning, De-weeding and Street Sweeping Waste and any other solid waste specified by Brajaraj Nagar Municipality from time to time (Conforming Waste) as per 'Scope of Work and procedures laid down in this bidding document.

Major identifiable components in the 'Scope of Work':

1. Collection and transportation of Municipal Solid Waste (MSW), Drain Desilting, Bush Uprooting including Collection of Green Waste Except Root and Stem, Conservancy Cleaning, Road side de-weeding and Street Sweeping, Collection of waste in segregated manner from bulk waste generator, commercial places, and other non-residential premises, large commercial complexes, haats & daily markets, mall etc. as per Annexure II.

The Operator shall execute project based on the guidelines established by State Govt/ Central Govt/ NGT/ Pollution Control Board and in this document for effective implementation of the system in close coordination with Brajaraj Nagar Municipality and Project Consultants in different cells/ any Project Monitoring Unit (PMU) for SWM and IEC Cell if any established by Brajaraj Nagar Municipality for monitoring, reporting and advising Brajaraj Nagar Municipality and Operator.

The various components of proposed project are based on the assessment of the existing deficiencies and mandatory requirement as specified in the MSW Rules 2016. The scope of the project includes the following:

2.2.1 MSW Collection and Transportation

- a) Door to door collection of segregated MSW from vegetable/ fruit markets, slaughter house/ Abattoir, fish/ chicken/ mutton shops, commercial area, gardens, industrial area, bulk waste generators, malls, aahaar centers, shelter for urban homeless, hotels, public places, haat & daily markets and any other commercial areas not excluded elsewhere in this document from the project area.
- b) Collection and transportation of segregated MSW up to Micro Composting Centers (MCC) and Material Recovery Facility (MRF).

NB: The collection and transportation of waste will be resumed in phased manner in wards and will be finalized by the operator in consultation and direction of the Brajaraj Nagar Municipality. The Operator shall deploy their resources accordingly in phased manner to carry out different activities as per the scope of work of this document. The Operator will arrange for the collection of segregated MSW collected from door to door in such a way that it'll be taken from the tricycle/battery operated vehicle/auto tipper to designated micro composting centers without touching the ground any time. The Operator will've to deploy required number of vehicles and as much manpower as necessary for door-to-door collection and manpower and vehicles for other required operation and upon the direction of municipal authority will increase the number as much as directed to achieve the desired result. The collection of garbage will be done in pre-identified route as approved by the Brajaraj Nagar Municipality. The operator shall take approval of the route plan from Brajaraj Nagar Municipality within one month of award of the tender. As the operation goes, the routes may be changed in consultation with Brajaraj Nagar Municipality to get optimum results. For awareness generation the SWM will work along with *Swachha Sathi* and their Supervisors already identified by Brajaraj Nagar Municipality with the help of IEC Cell as per the pre-set guidelines. The PMU will make schedule of activities for the quarterly IEC plan in consultation with IEC Cell and make necessary up-dation of the same based on the feedback of the *Swachha Sathi* and the Supervisors.

- c) Removal of MSW, green garbage from the Brajaraj Nagar Municipality Area prior and/or after, in an emergency situation of the town such as any natural calamities, public meeting,

- Government functions, any other occasion, festivals etc., within 2 (two) hours or as per instructions from Brajrajnagar Municipality.
- d) The services of door-to-door collection and transportation of waste from commercial areas and from bulk waste generators shall be provided on all days of the week, irrespective of any National Holidays, Festivals, local holiday or strikes/ band.
 - e) Bidder have to settle his labour problem himself both financial and non- financial. Any Strikes/ Bands for the delinquency of bidder will attract strict action.

2.2.2 Sweeping & Cleaning Activities, Collection and Transportation

- a) Sweeping of all roads (Excluding PRN roads wherein Mechanical Sweeping is done), lanes and bi-lanes shall be taken up by the operator manually.
- b) The operator shall ensure street sweeping and collection of waste from all roads coming under scope of this RFP on daily basis within the ward.
- c) In case of road is totally closed for renovation/ reconstruction or laying utilities etc. the work shall be carried out by parking the vehicles (Auto Tipper) at the nearest accessible place and carrying MSW by handcarts up-to the point and back. The service provider in such case shall immediately convey the situation to the Health Officer/Nodal Officer/Officer-in-charge, Brajrajnagar Municipality in writing.
- d) The operator shall ensure cleaning of all the drains (including de-silting), conservancy, bush uprooting, and de-weeding within the service area, once every fortnight.
- e) Sweeping and cleaning of all public places, road signages, statues etc. including corporation properties and assets, recreation center, park, samsan ghat etc. in wards under this contract.
- f) Solid Wastes generated by sweeping, conservancy cleaning, bush uprooting including transportation of green waste except root and stem, de-weeding, and other sanitation activities are to be transferred first to the MRF where these will be segregated to green waste, soil, C & D waste etc. The wet waste from there then shall be transported to the tagged MCC on daily basis.
- g) Inert waste generated from street sweeping, drain de-silting (mud & sand and inert) and also inert from MCC and MRF should not be mixed with MSW and shall have to be transported separately **after due bio-remediation** following prevailing guidelines issued by Pollution control board/ NGT. On instruction from the employer, these wastes have to be transferred to landfill site or SLF as identified within a radius of 10 Km. from the bio-remediation point. Beyond 10 Km. transportation cost will be reimbursed as per applicable existing schedule of rates per cubic meter per Km. The operator has to maintain record regarding bio-remediation, if done and submit report monthly basis. Brajrajnagar Municipality neither have operational dump yard/ site nor allow to form such dump site violating NGT instructions.
- h) Provide separate Transportation of waste generated from vegetable/ fruit markets and fish markets/chicken shops/ slaughter house and provide such separate fleet as per the requirement and as and when required by Brajrajnagar Municipality from time to time for other generators.
- i) Collection of the silt deposited during de-silting of storm water drains and sewage lines as and when instructed by Brajrajnagar Municipality and transported to the designated landfill or disposal or processing site.
- j) Supply of necessary bins as per the requirement and tools, equipment such as Jhadu, Sura, Belcha, Spade, Angle Canta, Crow Bar, Knife, Axe and spray machine to carry out the work to the satisfaction of Health Officer/officer-in-charge.
- k) Daily/Weekly spray of bleaching powder or other suitable alternative after lifting of garbage for disinfection which will be supplied by ULB. The agency will maintain accounts of the

materials issued and submit the consumption report in the format devised by the ULB on fortnightly basis to the officer concerned and after clearance the next lot will be issued.

2.2.3 Ancillary Scope

- a) All services must conform to the provisions of Solid Waste (Management & Handling) SWM, Rules 2016, CPHEEO manual where ever applicable and any amendment thereto in future as well and as per the applicable rules/laws.
- b) The Operator shall adhere to the applicable laws/norms for the procurement and deployment of project vehicles/assets/resources etc.
- c) Deployment of manpower/human resources for successful operation of the Project.
- d) Deployment of manpower for monitoring at their end and grievance redressal, washing service requirement and ensure availability of PPE facilities for labour like gloves, masks and uniforms etc.
- e) Bear all cost of fuel, cost towards charging stations if any, vehicle maintenance including breakdowns, deploying manpower required for operating and managing the Project.
- f) In consultation with Brajrajnagar Municipality, develop and implement a public complaint redressal system operational for 24 hours a day and 365 days a year in their office. Such public complaint redressal system shall work in coordination with the Brajrajnagar Municipality complaint redressal system which might be IT based for timely resolution.
- g) Follow labour laws, the minimum wages act and other applicable laws and comply with any other direction given by the Brajrajnagar Municipality time to time.
- h) Carry out their duty 365 days throughout the year.
- i) The operator shall ensure the Operator workers (*Safai Karamchari*) are not engaged in performing any private work during the working hours.
- j) Ensure workers engaged are working wearing proper uniform (As approved by Brajrajnagar Municipality) PPE with duly attested ID Card.
- k) It is responsibility of the operator to engage workers timely for collection and transportation of waste. If operator workers don't perform their duty continuously for 7day then Brajrajnagar Municipality has the right to seize the performance security and right to terminate the agreement.
- l) The operator will provide working condition vehicles to carryout hassle-free operation and will take care of repair and maintenance of the vehicle during the period of contract.
- m) The operator will be liable to lift the silt also from the drains (Nala, Nalee), and near manhole chamber of sewerage system from the main road of the wards within 3 hours in summer and 5 hours in rainy season and in other road such as street within 24 hours.
- n) The operator has to ensure that MSW will not touch the ground once collected from commercial places and from bulk waste generators. MSW should be carried using proper channel that is through auto tipper to MCC/MRF disposal point.
- o) Operator will make effort that all containers if any in the commercial areas are removed gradually in phased manner because those containers will be of no use after the implementation of the plan.
- p) Operator will make sure all the project assets shall be painted with anti-corrosive primer & paints of best quality as per the specified colour by Brajrajnagar Municipality.
- q) Ensure the grievance helpline, public slogan, message should be promptly written on all the project assets.
- r) In case of breakdown of vehicle, operator has to make the alternate arrangement for the transportation of waste to designated site without failure.

- s) Operator will ensure the weight shall be written on every vehicle and the first aid box is kept in all vehicles.
- t) The Operator shall be exclusively responsible for undertaking primary/secondary collection and transportation from designated areas, and additional infrastructure, if deployed by the department, shall always be for the facilitation of the collection process. The primary collection vehicles shall exclusively to be deployed only for the collection and transportation of waste specified in the scope of work only and cannot be deployed for carrying other types of wastes.

2.2.4 Service Delivery Schedule

The Operator in close consultation with the employer should work out a detail time schedule and should adhere to the same timing. A tentative time schedule/work schedule is indicated below.

Table 3: Service Delivery Schedule

Sl.No.	Activities	Time Schedule
1	Road Sweeping, Drain Cleaning, Bush Uprooting, Collection of Green Waste and Conservancy Cleaning	5.00 AM to 10.00 AM &(9.00 PM to 11.00 PM at Commercial Area)
2	Collection of MSW from various Collection points, such as commercial areas, aahaar centres, shelter for urban homeless, haat & market places, parks, public places such as temples, mosques, churches and gurudwaras and from bulk waste generators and transportation in segregated manner to MCC and MRF	7.00 AM to 01.00 PM & 3.00 PM to 6.00 PM

- a) The Operator shall ensure the presence of his personnel every day at specified time.
- b) The Operator should ensure same timing as far as possible. However, the timing can be modified with prior approval of Brajrajnagar Municipality Authorities and with adequate communication to the affected customers.
- c) The Operator shall ensure operations on all seven days of the week without failure.

2.2.5 Vehicles, Equipment and Human Resources Deployment

- a) The operator shall start the work of door to door (shops) collection and transportation as per scope of work after discussing with Brajrajnagar Municipality in line with project implementation and operations plan under and in accordance with the provisions of the tender. The operator will provide working conditioned vehicles not more than 2 (two) years old which include Auto Tipper. Auto tipper shall have cumulative life of not more than 7 (seven) years. The operator will further provide the required number of bins of appropriate capacity at commercial place, and market area as required if any in different place in the city. Further, the need towards the requirement of sweeping materials, drain de-silting tools and equipment for efficient engagement of workers to be provided by the Operator. Maintenance of all the vehicles, bins, and equipment will be made by Operator on his own cost.
- b) The hardware deployed should be maintained properly including stocking adequate inventory & spares and should be replaced immediately based on requirement for continuance of hassle-free service in the most efficient manner.

Operator shall inter alia deploy manpower (workers, drivers, helpers, supervisors and managers) and operate and manage the door to door (Shop) collection and transportation of MSW, collection of green waste except root and stem, street sweeping, drain de-silting, bush uprooting, de-weeding and transport the waste up to MCC and MRF or to the designated place such as landfill or SLF as intimated by Brajrajnagar Municipality and further bear all cost of operation and maintenance of the proposed/procured vehicle, equipment, tools and bins during the Project Period. The Operator will also provide uniform and personnel protective equipment to its all-deployed manpower according to the direction of the Brajrajnagar Municipality.

2.2.6 Payment Terms

Brajrajnagar Municipality will pay the tipping fees to the operator on the basis of monthly lump sum minimum quoted rate for an estimated projected 2024 population of 90,840 for Brajrajnagar Municipality.

Monthly bill shall be checked for correctness with respect to Brajrajnagar Municipality and the progress report and MIS report before recommendation for payment. In case of natural calamities and emergency, payment mode shall be finalised mutually as agreed between Brajrajnagar Municipality and the Operator, which will be paid in addition to the tipping fees.

Payment is subject to availability of allotment and **availability of fund in Municipal fund** however payment will not be delayed more than three months in any cost.

2.2.7 Vehicle Tracking Management System (VTMS)

- a) The operator shall **compulsorily** install Vehicle tracking Management System (VTMS) hardware (e.g. GPS) on each vehicle used for collection & transportation of municipal solid waste in compatible with the requirement of the ULB. Brajrajnagar Municipality will facilitate with details of technical specifications of such tracking system and will ensure functional requirement for smooth integration with server, MIS system and Brajrajnagar Municipality server & MIS system. The operator shall cooperate with the IT Cell of Brajrajnagar Municipality to connect the VTMS. Further the unloading points to be fitted with webcam/PTZ camera to record the collection and disposal respectively. The recording of webcam/PTZ camera shall be stored with backup server for Brajrajnagar Municipality. The operator should inform that for payment of tipping fee, VTMS record is mandatory.
- b) The operator to provide Vehicle tracking Management System (VTMS) equipment and facilitate complete client site connectivity at different locations, MCC & MRF locations, Weighbridge if any etc. It may be noted that the system will have webbased application including GPS based live tracking with GIS mapping and integrated map. The hardware of the Operator to comply Brajrajnagar Municipality server requirement specifications.

2.2.8 Criteria for Key Performance Indicator (KPI)

- a) The Operator shall **cover** minimum percentage and corresponding month by month incremental if any on the number of individual shops/establishments on monthly basis for collection of municipal solid waste through door-to-door collection in each ward. The details of this target are given in Clause No. 2.2.10 of this document. Until integration of digital door numbering system with Brajrajnagar Municipality MIS server, this shall be monitored through monthly individual shop level signature taken by operator.
- b) Further the Operator shall achieve minimum percentage and corresponding month by month incremental if any of efficiency on monthly basis in **collection and transportation** from the respective ward of Brajrajnagar Municipality area to ensure the removal of complete municipal

solid waste. The details of this target are given in clause no 2.2.10 and 2.2.11 of this document and is applicable in case of weighbridge installed in future for exact weighing.

- c) The Operator shall observe minimum percentage and corresponding month by month incremental if any towards segregation of waste on monthly basis from individual shops/establishments in the respective ward. The details of this target are given in clause no. 2.2.12 of this document.
- d) **The Operator shall achieve 100% efficiency on monthly basis in Street sweeping and on daily basis, and also 100% efficiency on drain cleaning, and conservancy cleaning, bush uprooting and de weeding on monthly basis from the start of commercial date of operation.**
- e) The Operator shall resolve minimum 80% of the grievances on per day/month from the respective ward where collection is being undertaken for this project within three months from the commercial date of operation.

For estimation of the KPIs such as coverage, collection efficiency, extent of segregation, efficiency of redressal of complaints/grievances, efficiency in street sweeping, efficiency in drain cleaning, efficiency in conservancy cleaning, bush uprooting, and de-weeding subsequent Clause No.2.2.9 may be seen.

2.2.9 Guideline for Determination of Key Performance Indicator

Performance Indicator		
Indicator	Unit	Definition
Individual Shops/establishments level coverage of SWM services through door-to-door collection of waste	%	Percentage of establishments that are covered by a daily doorstep collection system. This practice to be observed at the level of individual shop in market area wherever possible.
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a. Total number of individual shops and establishments in the service area.	Number per Month	The total number of individual shops and establishments (not properties) in the service area should be calculated. The service area refers to either the ward or the zone limits.
b. Total number of individual shops and establishments with monthly doorstep collection.	Number per Month	Include doorstep collection by the operator/service providers. This can even include door-to-door collection systems operated by Malls and Bulk Waste Generators etc.
Coverage	%	Coverage = [(b/a)*100]

Performance Indicator		
Indicator	Unit	Definition
Individual shops/establishments Collection efficiency	%	The total waste collected by the operator/service providers versus the total waste generated within the zone, excluding recycling or processing at the generation point. (Typically, some amount of waste generated is either recycled or reused by the citizens themselves. This

		quantity is excluded from the total quantity generated, as reliable estimates will not be available for these.)
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a. Total waste that is generated and which needs to be collected.	Tonnes per Month	The total waste generated excluding waste processed or recycled at the generation point. This would depend on the population of the city, and the composition of economic activities.
b. Total quantum of waste that is collected by the authorised service providers.	Tonnes per Month	The total waste collected from individual shops, establishments through door-to-door collection. This should be based on actual weighing of the collected waste. Daily generation should be aggregated to calculate the total monthly quantum. This should exclude any special drives for waste collection, and waste generated from one-off activities such as demolitions, desilting canals etc.
Collection efficiency	%	Collection efficiency = $[(b/a)*100]$

Performance Indicator		
Indicator	Unit	Definition
Extent of segregation of waste	%	<p>Percentage of waste from individual shops and establishments that is segregated. Segregation should at least be at the level of separation of wet and dry waste at the source, that is, at the individual shops or establishment level. Ideally, the separation should be in the following categories: bio-degradable waste, waste that is non-biodegradable etc.</p> <p>It is important that waste segregated at the source is not again mixed, but transported through the entire chain in a segregated manner. It is therefore important that this indicator is based on measurement of waste arriving in segregated manner at the MCC and MRF centres for treatment/disposal rather than being measured at the collection point.</p> <p>This practice shall be observed both for bio-degradable waste as well as non-biodegradable waste.</p>
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a. Weight of bio-degradable and non-biodegradable waste in a representative sample.	Kg per sample	Monthly once sample shall be collected for determination of weight of bio-degradable and non-biodegradable waste in a sample at the point of disposal MCC and MRF and shall be determined through a laboratory test.
b. Total weight of the sample collected.	Kg per sample	This is for each category of bio-degradable waste and non-biodegradable waste for each sample at MCC and MRF.
Extent of segregation	%	Extent of segregation = $[(a/b)*100]$

Performance Indicator		
Indicator	Unit	Definition
Efficiency in redressal of customer complaints.	%	The total number of SWM-related complaints redressed within 24 hours of receipt of the complaint, as a percentage of the total number of SWM-related complaints received in the given time period.
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a.Total number of SWM-related complaints received per month.	Number per Month	The total number of all SWM-related complaints from consumers received during the month. Systems for receiving and logging in complaints should be effective and easily accessible to the citizens. Points of customer contact will include common phone numbers of control room, written complaints at ward offices, collection centres, drop boxes, online complaints on the website, etc.
b.Total number of complaints redressed within the month.	Number per Month	The total number of SWM-related complaints that are satisfactorily redressed within 24 hours or the next working day, within that particular month. Satisfactory resolution of the complaint should be endorsed by the person making the complaint in writing, as part of any format/proforma that is used to track complaints.
Efficiency in redressal of complaints	%	Efficiency in redressal of complaints = $[(b/a)*100]$

Performance Indicator		
Indicator	Unit	Definition
Street Sweeping	%	The total length of road sweeping covered on monthly basis as a percentage of total length of the road available for sweeping during the given time period.
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a.Total length of road sweeping covered during a month considered.	Length in meter per Month	The total length of the road sweeping covered.
b. Total length of the road available in the ward for sweeping.	Length in meter per Month	The total length of the road available in the ward. This shall include if any additional new road is included during the execution of this project.
Efficiency in street sweeping	%	Efficiency in street sweeping = $[(a/b)*100]$

Performance Indicator		
Indicator	Unit	Definition
Drain Cleaning	%	The total length of the drain cleaned on monthly basis as a

		percentage of total length of the drain available for sweeping during the given time period.
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a. Total length of drain cleaned during a month considered.	Length in meter per Month	The total length of the drain cleaned in a month.
b. Total length of the drain available in the ward for cleaning.	Length in meter per Month	The total length of the drain available in the ward. This shall include if any additional new drain is included during the execution of this project.
Efficiency in drain cleaning	%	Efficiency in drain cleaning = $[(a/b)*100]$

Performance Indicator		
Indicator	Unit	Definition
Conservancy Cleaning, Bush Uprooting, De-weeding	%	The total length of conservancy area cleaned on monthly basis as a percentage of total length of the conservancy area available for cleaning during the given time period.
Data Requirement		
Data required for calculating the indicator	Unit	Remark
a.Totallength of conservancy area cleaned during a month considered.	Length in meter per Month	The total length of the conservancy area cleaned in a month.
b.Totallength of conservancy area available in the ward for cleaning.	Length in meter per Month	The total length of the conservancy area available in the ward.
Efficiency in conservancy cleaning, bush uprooting, and de-weeding	%	Efficiency in redressal of complaints = $[(a/b)*100]$

2.2.10 Detail Guidelines for Street Level/Door to Door(Shop) Primary MSW Collection &transportation from Bulk Waste Generators

- a) Operator shall be responsible for providing time table bound street-level/door to doorprimary MSW collection service in the entire specified area for ULB.
- b) Waste generators shall be responsible to segregate and store the waste generated by them in two separate streams namely bio-degradable (wet), and non-biodegradable (dry) waste in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the Brajrajnagar Municipalityfrom time to time.
- c) E-waste& DHW shall be collected fortnightly/ (every Saturday & Sunday) through carry bag separately and shall be delivered at the MRF.
- d) Waste generators shall be responsible to deposit their segregated waste in the Auto Tipper(AT) deployed by the Brajrajnagar Municipalityor notified authorized waste collector by Brajrajnagar Municipality. Bulk waste generators (BWGs) such as offices, hotels, restaurants,

dhabas, banquet hall, schools, colleges, hostels, farm house etc. generating waste more than 100Kg per day in total shall be responsible for management of wet waste through their own system and procedure. Only dry waste from such offices, hotels and restaurants etc. may be collected by the operator from the entry gate or any other designated location by placing bins. The bins for such collection shall be provided by the BWG at a specified location near the gate accessible to operator. In case such any bulk waste generator not capable of having their own wet waste management system may hand over the same to the waste pickers. In such case Brajrajnagar Municipality shall ask them additional payment as prescribed time to time for lifting of wet waste. The tentative number of Bulk Waste Generators is attached in Annexure II.

- e) The Auto Tipper with hydraulically operated covering mechanism from top having two compartments for carrying biodegradable and non-biodegradable waste separately with a hooter to be deployed (**henceforth called Auto Tipper**).
- f) **Auto Tipper** shall collect the MSW and transfer the biodegradable (Wet) waste directly into **Micro Composting Centres(MCC); (Micro Composting Centres shall mean wet waste processing centres managed by Self Help Group or Community Based Organization.)**.
- g) Non-biodegradable (Dry) waste from **Auto Tipper** shall be transported to designated Material Recovery Facilities(MRF).
- h) Route plans for each primary collection & transportation vehicle shall be provided by Operator within 15 days from date of agreement. The route plan shall mention starting point, start time, waiting points if any and waiting time on route and end time of the specified Route. The operator shall provide time-table to all waste generators and bulk waste generators to avail the facility at prescribed time.
- i) Auto Tipper engaged in this service shall not dump the waste at any open site or any other location in any circumstances and shall transfer waste only in the specified **MCC and MRF**.
- j) Auto Tipper engaged in this service shall collect waste only from premises and not from any other source viz. Open sites, ground, bins and drains etc.
- k) The vehicles engaged shall transport the wet waste directly to Micro Composting Centres and the dry waste directly to the Material Recovery Facilities as designated by Brajrajnagar Municipality.
- l) There should be no inter-mixing of waste from various sources during the transportation of waste.
- m) The services of street level collection and transportation of waste shall be provided on all 365 days in a year irrespective of any National Holidays, Festivals and Sundays.
- n) Operator shall be responsible to cover all the bulk waste generators of each zone for the primary collection. Failure to achieve target collection target of 100% waste generated from the bulk waste generators after 3 months from COD shall attract penalty as prescribed in PIM.

Table 4: Coverage Target for the Operator failing which Penalty shall be levied

S. No.	Target	Time Period
1	Operator shall ensure that 70% of the bulk waste generators are covered through street level or door-to-door collection activity.	With effect after 1 months from COD

2	Operator shall ensure that 85% of the bulk waste generators are covered through street level or door-to-door collection activity.	With effect after 2 months from COD
3	Operator shall ensure that 100% of the bulk waste generators are covered through street level or door-to-door collection activity.	With effect after 3 months from COD

Table 5: Street Level/Door to Door Collection Target for the Operator failing which Penalty shall be levied

S. No.	Target	Time Period
1	Operator shall ensure that 70% waste generated from the bulk waste generators is collected through street level or door-to-door collection activity	With effect after 1 months from COD
2	Operator shall ensure that 85% waste generated from the bulk waste generators is collected through street level or door-to-door collection activity	With effect after 2 months from COD
3	Operator shall ensure that 100% waste generated from the bulk waste generators is collected through street level or door-to-door collection activity	With effect after 3 months from COD

Table 6: Details of Prohibited Activity & Action against

S. No.	Prohibited Activity	Action
1.	Auto Tipper engaged in this service shall not lift waste from open sites, ground, drains etc.	Refer Annexure-III

2.2.11 Detail Guidelines for Collection and Transportation of MSW from All Markets (Vegetable Market, Fruit Market, Daily Market, Fish Market, Street Vendors etc.), & Other Commercial Establishments

- a) Providing "Time-Table" bound primary MSW collection service total Markets (Vegetable Market, Fruit Market, Daily Market, Fish Market, Street Vendors), & Other Commercial Establishments (as directed by Brajrajnagar Municipality).
- b) "Time-Table" shall be prepared by Operator and Brajrajnagar Municipality to approve it.
- c) Four types of strategy for collection waste from market shall be deployed. Areas having adequate connectivity by internal roads that allow movement of vehicles shall be deployed with door-to-door (Shops) collection strategy and areas with absence of such connectivity such as daily haats/markets shall be deployed with strategy of collection of waste through bins separately for biodegradable waste and non-biodegradable waste.
- d) To achieve efficient collection, the operator shall arrange necessary meetings, engagement with the haat/market committee and if required will deploy person to oversee initially for 3 months. Further necessary IEC activities will be carried out to achieve the desired results.

- e) Operator shall be responsible to cover all accessible establishments through door to door (shop) primary collection system and shall collect 100% of total waste generated from all market places after 3 months from COD, to avoid being penalized as per PIM.
- f) Route plan with time table for each vehicle shall be provided by the Operator to Brajrajnagar Municipality within 30 days of award for approval. Route plan shall also clearly mention Ward, Area/Locality and sATEet etc. Route plan shall be provided in tabular form.
- g) **Auto Tipper** shall be used to lift waste from 150 litre bin if any placed in commercial areas which shall collect the MSW and transfer the wet waste directly into **MCC**. Dry waste from **Auto Tipper** shall be transported to the designated Material Recovery Facilities.
- h) **Auto Tipper with bin lifting capacity** shall collect the MSW from areas where bins of capacity are installed and transfer the wet waste directly into **MCC**. Dry waste from **Auto Tipper with Bin lifting Capability** shall be transported to the designated Material Recovery Facilities.
- i) Operator shall plan to collect waste from Markets & other Commercial Establishments in coinciding with opening time of these establishments.
- j) Auto Tippers engaged in this service shall not collect the waste from any other source viz. Open site, ground, and drain etc.
- k) Auto Tippers engaged in this service shall not dump the waste at any open sites or on the ground in any circumstances.
- l) **Auto Tipper** shall transfer the biodegradable waste directly to Micro Composting Centres designated by Brajrajnagar Municipality.
- m) This service shall be provided on all 365 days in a year irrespective of any National Holidays, Festivals and Sundays.

Table 7: Coverage Target from Market and Commercial Areas for the Operator failing which Penalty shall be levied

S. No.	Target	Time Period
1	Operator shall ensure that 70% of the market, and commercial establishments are covered through street level or door-to-door collection activity.	With effect after 1 months from COD
2	Operator shall ensure that 85% of the market, and commercial establishments are covered through street level or door-to-door collection activity.	With effect after 2 months from COD
3	Operator shall ensure that 100% of the market, and commercial establishments are covered through street level or door-to-door collection activity.	With effect after 3 months from COD

Table 8: Street Level/Door to Door Collection Target for the Operator failing which Penalty shall be levied

S. No.	Target	Time Period
1	Operator shall ensure that 70% waste generated	With effect after 1 months from COD

	from the bulk waste generators is collected through street level collection activity	
2	Operator shall ensure that 85% waste generated from the bulk waste generators is collected through street level collection activity	With effect after 2 months from COD
3	Operator shall ensure that 100% waste generated from the bulk waste generators is collected through street level collection activity	With effect after 3 months from COD

2.2.12 Segregation of Waste from all types of Collection

The operator shall ensure segregation of waste at the source by the waste generators and collect them separately in dry and wet form through door-to-door(shop) collection from bulk waste generators as well as collection from market place. It is the responsibility of the operator to inform Brajrajnagar Municipality about the requirement of IEC/BCC activities in any particular ward to increase awareness among different stakeholders. Waste without segregated form shall not be collected from point of generation and the operator shall inform Health Officer/Officer-in-Charge, Brajrajnagar Municipality or any other Officer authorized by Executive Officer, Brajrajnagar Municipality about this incident with bulk waste generator/commercial complex/market name/shop name/institution name etc. for compliance purpose.

Table 9: Segregation Target for the Operator failing which Penalty shall be levied

S. No.	Minimum Target to avoid being Penalized	Time Period
1	Operator shall ensure that minimum 70% waste generated from door-to-door(shop) collection in case of bulk waste generator, market and commercial establishment is collected in segregated form through street level collection activity	With effect from start of 2 nd month from COD
2	Operator shall ensure that minimum 85% waste generated from door-to-door collection in case of bulk waste generator, market and commercial establishment is collected in segregated form through street level collection activity	With effect from start of 3 rd month from the COD
3	Operator shall ensure that minimum 100% waste generated from door-to-door collection in case of bulk waste generator, market and commercial establishment is collected in segregated through street level collection activity	With effect from start of 4 th month from the COD till project completion date.

2.2.13 Detail Guidelines for Collection and transportation of Street Sweeping Waste

- a) The Operator is responsible for the manual sweeping of all roads and streets except the priority network roads as identified by Brajrajnagar Municipality in the assigned wards within Brajrajnagar Municipality jurisdiction.
- b) Sweeping of main roads, minor roads, narrow roads, lanes and bi-lanes shall be taken up manually.
- c) Street sweeping and collection from all type of roads on daily basis within the ULB area.
- d) All sweeping waste shall be collected and transported from the place of cleaning with the help of pushcart/handcart or wheel barrow and then through auto tipper.
- e) The Operator's *safaikarmachari* shall load the mix waste to the collection vehicle and transport to the designated MRF, wherein it will be segregated to different category such as bio-degradable, non-biodegradable and inert.
- f) Operator's *safaikaramchari* shall be responsible to transfer the segregated 'street sweeping waste' into specified location such as MCC or the landfill site within a radius of 15 Km. as identified and informed by Health Officer/officer-in-charge, Brajrajnagar Municipality time to time.
- g) Operator shall in a time bound plan transport road sweeping waste from **main roads, minor roads, narrow roads, lanes and bi-lanes** to the designated MCC using initially pushcart/handcart/wheel barrows up to collection point identified in wards and then using **Auto Tipper** up to MCC/landfill site. Brajrajnagar Municipality is having a future plan to transport these waste for bio-gas generation. When such options are available, the operator shall load the segregated waste to the vehicles of the plant operator at strategic locations as informed by Brajrajnagar Municipality.
- h) Time-table for clearing from the collection points shall have approval of Brajrajnagar Municipality.
- i) At no stage the street sweeping waste shall be mixed with any other type of waste.

Table 10: Sweeping Target for the Operator failing which Penalty shall be levied

S. No.	Minimum Target to avoid being Penalized	Time Period
1	Operator shall ensure that 100% waste generated from sweeping is collected from all the wards.	With effect from COD

2.2.14 Detail Guidelines for Collection and transportation of Drain Cleaning Waste

- a) Collect separately silt from all road drains, lane, bye-lane surface drains up to the depth of 45 - 120cm depth.
- b) Collect floating waste from 14 locations in major drains where screens are installed by Brajrajnagar Municipality. If there is increase in such collection points in future in the city, the same shall be paid based on mutual discussion between the operator and Brajrajnagar Municipality.
- c) Transport the silt from surface drains of 45 - 120cm depth through Auto Tipper up to the designated landfill location as identified and informed in consultation with the officer-in-charge of Brajrajnagar Municipality time to time.
- d) Transport floating waste through Auto Tipper up to the MCC/MRF based on type of material bio-degradable and non-bio degradable.

- e) The silt collected from surface drains should not be allowed to stay on open roads or footpaths beyond 3 hours. Wet silt should be removed from the main roads in less than 3 hours in summer and 5 hours in rainy season and, in other areas, within 24 hours and should be transported to the designated landfill location as identified and informed in consultation with officer-in-charge of Brajrajnagar Municipality time to time in co-ordination with drainage division. The location for such site shall be intimated to the Operator within a radius of 10 Km. Beyond 10 Km. Transportation cost will be reimbursed as per applicable existing schedule of rates per cubic meter per Km. This waste is not amenable for composting given the possibility of high contaminants and inert content in the silt.

Table 11: Desilting Target for the Operator failing which Penalty shall be levied

S. No.	Minimum Target to avoid being Penalized	Time Period
1	Operator shall ensure that 100% waste generated from drain de-silting is collected from all the wards.	With effect from COD

Note:

Drain means all surface drains of depth up to 45-120 cm coming under the jurisdiction of Brajrajnagar Municipality. Drains coming under PWD, NHAI, Railway, OPM and MCL are out of the scope of this RFP. However, in future in the case of transfer of any area to Brajrajnagar Municipality from any department, the operator shall be obliged to carry out the necessary cleaning of drains including other sanitation activities as per this RFP and as directed by Brajrajnagar Municipality.

2.2.15 Details of cleaning of conservancy, bush uprooting and de-weeding

The operator shall ensure cleaning of all conservancy, bush uprooting including wall to wall cleaning along road length, de-weeding & other activities pertaining to sanitation, within the service area, once every fortnight. The operator shall ensure achievement of 100% target in this head.

Table 12: Conservancy cleaning, bush uprooting and de-weeding target for the Operator failing which Penalty shall be levied

S. No.	Minimum Target to avoid being Penalized	Time Period
2	Operator shall ensure that 100% cleaning of conservancy lance, bush uprooting and de-weeding	With effect from COD

2.2.16 Implementation Arrangement

At present one agency is working in twentyone (21) wards of Brajrajnagar Municipality, whereas the rest two (2) wards are being self-managed by Brajrajnagar Municipality own employee. The Municipality Waste management of solid waste in Brajrajnagar Municipality area being planned in two ways; first door to door collection from households by Brajrajnagar Municipality managed NGO/SHGs and second, engagement of new operator in line with the scope of work as pre-defined in this document. Since there are one parties involved including the existing agencies, there will be a gradual handing over of the wards to the new operator. The Operator has to ensure smooth engagement of vehicles and human resources for the intended purpose (door to door collection from

bulk waste generators, markets, commercial establishments, and street sweeping, drain de-silting, conservancy cleaning, bush uprooting, de-weeding from all the wards as per scope of work) without affecting the as usual day to day collection and transportation activities. On issue of the LOA, if required Brajarajnagar Municipality may fix up a meeting with the existing agencies, wherein the operator will be present to understand the requirement of resource mobilization and according a mutual date will be intimated to the new operator to carry out the activities in the respective wards. The new operator will co-operate with Brajarajnagar Municipality if anything required at all point of time in smooth handing over and taking over from the existing agencies and further handing over to itself to ensure a complete synchronization of the processes and procedures towards management of solid waste as per the scope of work outlined in this document. Collection of waste from the shops/streetvenders/business organisations in market areas as identified by Brajarajnagar Municipality will be carried out by the operator at the closure time of the market. The time of collection will be decided in consultation with the businessman and their association.

2.2.17 Workshop for maintenance of C&T vehicles

- a) Dedicated workshop for repair and maintenance including the servicing of Collection & transportation vehicles shall be set-up by Operator.
- b) Land for the workshop, parking shall be arranged by the Operator at its own cost. The workshop area should have adequate space for parking of vehicles used for collection and transportation.
- c) Workshop site should be maintained properly and be fully equipped to provided services at par with Good Industry Practice and should have all arrangements to meet emergency situations as per applicable Laws.

2.2.18 General Conditions- Manpower Deployment

- a. All manpower deployed on the project shall wear prescribed dress comprising of:
 - a. For Men: Cap, T-shirt/Shirt, fluorescent Jacket, trouser, Shoes, hand gloves, mask
 - b. For Women: Cap, Salwar Suit/Saree, fluorescent jacket, shoes, hand gloves, mask
- b. Operator shall provide at least 2 sets of dress to the workers every six months.
- c. Colour code of dress to be finalized in discussion with Brajarajnagar Municipality. Dress colour may be different for different activities.
- d. This document prescribes minimum number of employees, supervisory and managerial staff to be deployed.
- e. Operator has to provide identity cards with photo signed by the concerned authority of Operator.
- f. Operator shall deploy the bio-metric attendance system for keeping attendance of all the staff. Daily attendance shall be made available to Brajarajnagar Municipality on daily basis.

Other Conditions

- g. All services must conform to the provisions of Solid Waste (Management & Handling) SWM, Rules 2016, CPHEEO manual where ever applicable and any amendment thereto in future as well as per the applicable rules/laws.
- h. The Operator shall adhere the applicable laws/norms for the procurement and deployment of project vehicles/assets etc.
- i. All the project assets shall be painted with anti-corrosive primer & paints of best quality as per the specified colour by Brajarajnagar Municipality.

- j. Complaint number, public slogan, message should be promptly written on all the project assets.
- k. Tare weight shall be written on every vehicle for each specified waste.
- l. First aid box needs to be put at all the vehicles.
- m. The Operator shall be exclusively responsible for undertaking primary and secondary collection and transportation and additional infrastructure, if deployed by the department, shall always be for the facilitation of the collection process. The primary collection vehicles shall exclusively to be deployed only for the collection and transportation of waste specified in the scope of work only and cannot be deployed for carrying other types of wastes. The primary collection vehicles engaged by the Department such as Auto Tippertrucks, Auto tippers and bullock carts etc. will be totally discontinued from the work for collection of MSW, coming under scope of the Operator.

2.2.19 Management Information System (MIS)

Brajrajnagar Municipality shall set-up a "Secure ScheduleProgram" and "application for customer care centre/control room" that facilitate effective monitoring of the project. This system shall be as per below mentioned methods or with further improvements to the methods suggested. There shall be provision to feed the information "manually", in case information is not obtained automatically. There are three major components of this system:

- a. MIS Reports that shall be delivered by the System
- b. Application to receive public, Brajrajnagar Municipality staff complaints, requests on phone calls, SMSs or emails.
- c. Automation using GPS, Photo & Request Update using "Mobile Applications", SMS, Bio-Metric Machines etc.

Please note that the recommended requirements are:

- i. Minimum that the Brajrajnagar Municipality requires at this stage. There can be more reports/automation that can be suggested by Brajrajnagar Municipality from time to time to enhance effective monitoring of the project.
- ii. Derived from Brajrajnagar Municipality perspective. Operator is free to use data from system for monitoring projects and resources at their end and can increase any reports/database that they deem fit for their purpose (at their own cost).
- iii. The Operator shall be responsible to provide information that is required for generating reports and project monitoring. Following sections describes the minimum system and reporting requirements.

2.2.19.1 MIS Reporting System

The MIS reports proposed in this section are classified into following categories:

- a) Street level/door to door Collection & transportation from Bulk Waste Generators.
- b) Collection and transportation from individual shops, markets & all other commercial and establishments.
- c) Collection and transportation of Street Sweeping Waste, Drain Cleaning Waste, Green Waste from Bush Uprooting and Conservancy Cleaning.
- d) Cleaning of Sweeping Waste Collection Points.

To the extent possible, aggregating the data using automated method and minimal manual intervention shall generate reports e.g. GPS feed, SMS from field, Real Time Bio-Metric Attendance etc. These reports are submitted to Brajrajnagar Municipality in printed format monthly duly signed by the authorized person. (However, on the real time basis, reports shall be viewable on the server, so that Brajrajnagar Municipality has a clear view about the status of ongoing work). Report indicating summary overview of current operation shall be made available in formats mentioned in Annexure-I.

2.2.19.2 Procedure for Generating MIS Reports

- a) Before the Start of the project the Operator has to upload the File containing information about Action Plan for smooth operation. This will form base for Master information for automatically generating MIS reports.
- b) Daily, Biometric Attendance shall be taken of staff deployed and data pushed into the System. The Biometric Attendance Equipment shall be kept at Ward Office and MCC and shall be supplied by the Operator. The supervisor shall ensure attendances are marked by all the staff on daily basis. The Operator to ensure proper functioning of the Biometric Attendance all the time.
- c) At the Start of an Activity (such as primary collection vehicle starting a route; or door to door waste collector starting a beat etc.) the concerned person will send a START SMS to the system. System will acknowledge the receipt of such message to confirm logging.
- d) Thereafter GPS system will take-over to see the progress of the activity and shall automatically prepare the process reports.
- e) At the end of the Primary Collection Route (routes end at MCC/MRF/C&D site); the vehicle operator, at when reaching the MCC/MRF/C&D site shall deliver the 'waste' to the Centre; and send a FINISH SMS to the system after which the information about the number of bulk waste generators/individual shops from where waste has been collected will be recorded. GPS will automatically detect stoppage at the MCC/MRF/C&D site station to close the route. System will acknowledge close of route by sending SMS.
- f) For deployment of vehicle, each supervisor of a service area shall, check the number of vehicles sent out and send SMS of number of vehicles deployed on a particular day. System shall acknowledge. When a vehicle carried and delivers waste at the MCC/MRF/Landfill Site/SLF, the operator at the MCC/MRF/C&D site shall send SMS to system regarding the number of vehicles that unloaded the waste at the centre.
- g) When a secondary collection vehicle clears waste/lift waste from a collection point or a bin, the operator shall, through a mobile application, click a photo of the cleared/lifted item. The application shall automatically upload the clearing information & photo through GPS system. In addition, the mobile application shall allow the operator to record the type of waste cleared.
- h) For Auto Tipper with bin lifting capacity, since the vehicles/ containers are connected to GPS, the system shall automatically note clearance / arrival at disposal site.
- i) For Bin-washers, same method as (c), (d) and (e) above; except the fact that the bin washing vehicle will not be required to end at disposal point.
- j) For Inspection Reports, the concerned inspectors shall be provided with a mobile application through which he can feed and upload his inspection report in the system. The application will be GPS based, so that inspector only needs to record his observations, and/or upload photo.

- k) Operator shall also be provided view (and down load) access to the data and reports generated through this system for his use. Operator shall get access to data/information only in respect of his own Ward and other ward.
- l) Since of Brajrajnagar Municipality will be generating the MIS reports, Operator shall be allowed such reports from the prescribe format of Brajrajnagar Municipality. Operator need not create additional system to produce MIS reports. His duty will be to ensure that proper logging of activities/reporting are taking place in the Brajrajnagar Municipality's system.
- m) However, in case or times of IT system of Brajrajnagar Municipality not functional, for such period, certain basic monitoring reports (as may be prescribed by Brajrajnagar Municipality from time to time) will be required to be generated by Operator and Brajrajnagar Municipality on paper format to Brajrajnagar Municipality.

2.2.19.3 Customer Care Center/Control Room

Public Complain address system shall have following key components:

- a) Dedicated phone lines or Mobile and staff to receive complain or request from public and Brajrajnagar Municipality staff.
- b) Mobile phone's short code number to receive complaint's SMS and Web-Interface for customer to directly feed complaints.
- c) Workflow to track the work that is reported and report back to person originating the complaint.
- d) Customer Care Center/Control Room shall be manned by Brajrajnagar Municipality recruited operator's staff.

2.2.19.3.1 Dedicated Phone Line

- a) An office equipped with a control room will be operated by the agency for grievance redressal.
- b) A dedicated phone number for voice message indicating that complains can be logged by SMS in addition to general greetings.
- c) A dedicated mobile number with SMS, whatsapp and mobile app will be kept operational so that complains can be logged in addition to general greetings.
- d) All calls shall be recorded and shall be reviewed for the quality of interaction of the staff with the customers/Brajrajnagar Municipality. This recording shall be made available to Brajrajnagar Municipality officer-in-charge, as and when required for auditing purpose.
- e) Report received from customer shall be stored online directly. Unique ticket number shall be generated and communicated to caller along with expected time for correcting the issue.
- f) Control Room shall be staffed adequately (i.e. at least 2 nos of manpower in two shifts) to receive and process the complaints. Control room shall be operational from 6.00AM till 7.00PM on all days.

2.2.19.4 Hardware & Other Components need to be placed by Operator to meet the MIS/IT Requirements Proposed by the IT Cell

Brajrajnagar Municipality established IT cell shall be prescribing the system and type of the Hardware to be installed. Since Brajrajnagar Municipality shall anchor the main MIS software at its own cost, the Operator shall be responsible for installing compatible Hardware. It is expected following types of automation and monitoring Hardware shall be installed.

2.2.19.4.1 Unique numbering System for Project Assets

As a precursor for automation, a unique numbering system should be followed for marking all Collection Points/Assets in such a manner so that all such points are uniquely identified across the

Brajrajnagar Municipality area. This numbering shall be referred in all time-table/customer complainant redressal systems and other communications.

Following are some examples for unique numbering:

- a) For uniquely identify the vehicle such as Auto Tipper10 in Municipality all Ward:
BRJN/JHS/W02/AT10

The Operator shall submit the details of numbering of the assets within 30days from the date of award. The final numbering mechanism shall be approved by the Brajrajnagar Municipality.

2.2.19.4.2 GPS in All Vehicles

Operator shall install GPS system in all the vehicles with following device specification or better:

General Specifications:

- a) Dual band GPRS (900/1800 Mhz).
- b) On-board Storage of at least 2 days of data.
- c) Internal battery to sustain operation for at least 10 hours with a minimum recording at interval of 30s and reporting at intervals of minimum of 120s.
- d) A minimum reporting interval of 30s.
- e) Alerts on external power disconnection.
- f) Internal antenna or antenna wire enclosed in metal sheath.
- g) IP 65 enclosure (i.e. water proof for occasional sprays of water and dust proof).
- h) Device should be hidden – minimum of -161db gain for GPS antenna.
- i) Ability to work against sustained external voltage of up to 33v and handle transient of as high as non-spike 55v/6000 Joules spikes (To work in presence of hydraulics, falling battery).
- j) Digital Input: 2 minimum. Changes to digital input must be communicated immediately – i.e. changes should not be missed because it falls in between recording interval. On the other hand, transients (< 1-2s) must be discarded.
- k) Analog Input: 1 minimum

GPS Running Requirement

- a) 100% of installed GPS shall be operational all the time.
- b) Any non-operational GPS shall be replaced within 24 hours of time of non-functioning.
- c) If any GPS is not operational (within the above limits), driver shall be provided with android/Mobile Application enabled phone with location tracking capability and same shall be monitored separately by Operator.

2.2.19.4.3 Mobile Application for Reporting from site

IT Cellestablished by Brajrajnagar Municipality shall provide robust mobile applications to report the site conditions. Following are minimum requirements:

- a) Mobile application shall be able to send information to control room about the ground situation along with "Photo", "Geo-Tag (latitude-longitude) and Status update.
- b) This mobile application shall work even when GPRS connectivity is not there and the moment GPRS connectivity is available, data shall be uploaded to the servers.

- c) Data collected from this application shall not be alterable by the originator. Adequate encryption shall be supplied for the same.
- d) This application shall be used for (but not limited to):
 - i. Report Arrival of Street to Street/Door to Door Collection (Commercial area vehicle by sending photograph of street (along with marked timetable on ground) about the arrival.
 - ii. Report Lifting of sweeping waste from Wards
 - iii. Reporting of any site condition that is required to be reported by Brajrajnagar Municipality from time to time.
- e) Operator shall be responsible for providing Android phone, SIM with data connection to all its drivers, supervisors and any other staff who is designated for reporting from ground with application. Non-reporting will be automatically treated as no work completed.
- f) Operator shall also train all their staff to use the application.

2.2.19.4.4 Bio-Metric Attendance

Operator shall deploy robust biometric attendance system to report staff attendance both at ward office and MCC location. Following are minimum requirements:

- a) Bio-Metric Attendance System that is fitted with GPRS/any other mechanism to relay each record instantaneously to the central server shall be deployed by the Operator.
- b) For staff who have missing finger prints (at times reported by few workers), alternate fool proof system shall be deployed.
- c) Machines shall be deployed at all offices and attendance points (mobile-bio-metric devices for open points)
- d) Only records received from bio-metric attendance shall be treated as valid records for staff reporting – in reports generated from servers.

2.2.19.4.5 MIS Reporting Formats

Formats for the MIS reporting system are mentioned in the Annexure-I.

2.3 General Conditions- Resource Estimation and Requirement – Vehicles

2.3.1 Primary Collection

The Operator will have to provide all vehicles and equipment necessary for service delivery in the designated service area. The Municipal authority will withdraw all vehicles and equipment currently in operation in the designated service area. The operator shall procure minimum number of vehicles and equipment as per the standard norms given hereunder. This rule for calculation of resources is for minimum requirement but in case of additional requirement of resources the operator will deploy in suitable numbers to for smooth and timely operation and for desired outcomes:

- Motorised partitioned Light Commercial Vehicles (LCV)/Auto Tipper @ One per 500 Shops
- Containers to be replaced/Waste to be removed within 24 hours or when container is 3/4th Full whichever occurs earlier.

2.3.2 Secondary Storage

The operator will mark storage points at identified location in the ward for storage of street sweeping and green waste. The waste shall be collected in containerised handcarts/pushcart/wheel barrows and taken to storage points. From the storage points waste will be lifted to the designated place as informed by Brajrajnagar Municipality. The operator shall procure minimum number of handcarts/pushcart/wheel barrows as per this PIM. This rule for calculation of resources is for

minimum requirement but in case of additional requirement of resources the operator will deploy in suitable numbers to for smooth and timely operation and for desired outcomes without any additional payment from Brajrajnagar Municipality.

2.3.3 Transportation

The Operator will have to provide all vehicles and equipment necessary for service delivery in the designated service area. Operator will also be responsible for procurement of spares, accessories, tyres, tubes, hydraulicoil, lubricants, diesel, petrol etc. for day to day running, operation and maintenance of collection and transportation vehicles and equipment.

Operator shall procure minimum number of light commercial vehicle to lift the container hydraulically as per the guidelines of resource estimation vide clause no. 4.5 and also follow as per the standard norms given in CPHEEO Manual or in any other relevant guidelines. This rule for calculation of resources is for minimum requirement but in case of additional requirement of resources the operator will deploy in suitable numbers to for smooth and timely operation and for desired outcomes without any additional payment from Brajrajnagar Municipality.

2.3.4 Street Sweeping, Drain Cleaning, Bush Uprooting and Conservancy Cleaning

The Operator will have to provide all equipment necessary for service delivery in the designated roads as required. The operator shall ensure cleaning of public drains (irrespective of deptt) up to 120 cm depth along the listed roads and internal roads in the service area. The operator shall procure required number of Wheel Barrow/ seamless hand carts as per the standard norms given hereunder. This rule for calculation of resources is for minimum requirement but in case of additional requirement of resources the operator will deploy in suitable numbers to for smooth and timely operation and for desired outcomes without any additional payment from Brajrajnagar Municipality.

- Pushcart/seamless hand cart/wheel barrow for road sweeping/green waste collection @ 1 for one sweeper
- Long handed broom, metal plate and spade = as required
- Grass cutting machines = one per 2ward

2.3.5 Disposal Of Dead Bodies

A) The Operator will have to provide minimum required man for burial of power all unidentified human dead bodies referred by the police at samsan ghat, Brajrajnagar as per by instruction of Sanitary Inspector/ Officer-in charge. The municipality will pay Rs.1000/- extra special wages to the labours engaged for this burial purpose. The service provider will submit the muster roll of labour, duly certified by Sanitary Inspector/ officer-in-charge along with the requisition letter of Police for Payment.

B) All animal dead bodies will be disposed at specified site after receiving the requisition letter/complain from public/official, the labour engage by service provider will dispose the dead bodies. For the purpose the following special wages will be paid to the labour engage by the service provider.

- | | | |
|-----|-------------|------------|
| I) | Big Cow/ox | :Rs 1000/- |
| II) | Calf etc... | :Rs 600/- |

The service provider will submit the muster roll duly certifier by Sanitary Inspector/ Officer-in-charge with the requisition letter for Payment.

2.3.6 Spraying Of Mosquito Larvacidal Oil In Drains

The Service Provider will engage required no. of manpower with spraying machine for spraying of mosquito larvicidal oil in different drains of Brajaraj Nagar Municipality in an interval of one week regularly. The mosquito larvicidal oil will be supplied by the municipality.

2.4 General Conditions- Resource Estimation and Requirement – Human Resources

The operator shall deploy adequate number of human resources to carry out the work effectively. The operator shall engage sanitation workforce/sweepers preferably local residing area distributing evenly in all wards in consultation with officer-in-charge of Brajaraj Nagar Municipality.

2.4.1 Primary Collection and Transportation

For primary collection and transportation the manpower estimation shall be done as per the following guidelines given hereunder. This rule for calculation of resources is for minimum requirement but in case of additional requirement of resources the operator will deploy in suitable numbers to for smooth and timely operation and for desired outcomes.

- Manpower requirement @ 2 persons per Light Commercial Vehicle (LCV)/Auto Tipper

2.4.2 Street Sweeping, Drain Cleaning and Conservancy Cleaning & Bush Uprooting

For street sweeping, drain cleaning, bush uprooting and conservancy cleaning the manpower estimation shall be done as per the following guidelines given hereunder or any standard norms as per CPHEEO manual. This rule given hereunder for calculation of resources is for minimum requirement but in case of additional requirement of resources the operator will deploy in suitable numbers to for smooth and timely operation and for desired outcomes without any additional payment from Brajaraj Nagar Municipality.

Same manpower shall be used for street sweeping and drain cleaning. Street sweeping shall be conducted on daily basis whereas the drain cleaning shall be conducted once in a fortnight.

2.5 Ward Wise Information Details

2.5.1

The MSW such as green garbage from the all ward through the specified vehicles finally shall be disposed to tagged Micro Composting Centre and Material Recovery Facility. Waste specified other than green garbage MSW viz. street sweeping waste and drain cleaning waste or inert waste shall be transported to the identified landfill site/SLF. Inert waste generated from street sweeping, drain de-silting (mud & sand and inert) and also inert from MCC and MRF should not be mixed with MSW and shall have to be transported separately **after due bio-remediation** following prevailing guidelines issued by Pollution control board/ NGT. Brajaraj Nagar Municipality at its discretion can change the site for disposal of such bi-product after discussion with the Operator.

2.5.2 Service Area

The Brajaraj Nagar Municipality consists of 23 ward. 2 no ward are to be self-maintained & rest 21 no wards are divided 3 no Zone.

2.5.3 Per Capita Waste Generation

The per capita waste generation for the purpose of waste quantification may be taken as per the guidelines of the CPHEEO manual for solid waste management. It may be noted that the per capita waste given in this document are for reference, however the operators/bidders may do their own survey to ascertain the quantity of waste generated in a particular zone.

2.5.4 Population profile

Brajrajnagar Municipality had a population of 80,403 souls as per Census 2011 with decadal growth rate of 10% in the decade 2001-2011 for Brajrajnagar. The projected population of wards for the year 2025 in Brajrajnagar Municipality is shown in the table below considering a decadal growth rate %. This is an indicative figure only and may vary.

Table 13: Ward Wise Details of Population, Road Length and Drain Length of Brajrajnagar

Sl. No.	Ward No.	Projected Population 2024	Road Length (Km.)	Drain Length (Km.)
1.	1	4432	10.847	2.535
2.	2	5472	13.320	4.860
3.	3	6201	13.012	5.535
4.	4	4807	6.850	3.320
5.	5	4482	7.977	2.769
6.	6	3109	2.710	1.525
7.	7	3234	6.050	2.520
8.	8	3602	9.450	1.525
9.	9	4260	4.780	5.380
10.	10	3184	16.40	6.530
11.	11	3926	3.405	2.900
12.	12	5532	6.350	5.930
13.	13	3478	7.523	2.093
14.	14	3017	4.120	5.375
15.	15	2151	5.450	2.950
16.	16	3482	12.558	2.558
17.	17	4043	6.800	3.050
18.	18	3366	4.325	1.070
19.	19	3951	10.378	4.310
20.	20	3008	12.010	2.008
21.	21	4324	9.090	1.828
22.	22	4505	10.150	3.100
23.	23	3274	9.950	5.520
	Total	90,840	172.325km	79.191 Km

Table 14: Ward-wise Projected Population of Brajrajnagar up to AD 2025

Sl. No.	Ward No	Number of Household (2011)	Population As per census 2011	Projected Population (Ward wise)	
				2024	2025
1.	1	812	3923	4432	4472
2.	2	1103	4843	5472	5521
3.	3	1201	5488	6201	6256
4.	4	876	4254	4807	4849
5.	5	911	3967	4482	4522
6.	6	576	2752	3109	3137
7.	7	606	2862	3234	3262
8.	8	705	3188	3602	3634

9.	9	784	3770	4260	4298
10.	10	651	2818	3184	3213
11.	11	715	3475	3926	3961
12.	12	984	4896	5532	5581
13.	13	650	3078	3478	3508
14.	14	608	2670	3017	3043
15.	15	448	1909	2151	2176
16.	16	674	3082	3482	3513
17.	17	744	3578	4043	4078
18.	18	712	2979	3366	3396
19.	19	809	3497	3951	3986
20.	20	647	2662	3008	3034
21.	21	798	3827	4324	4362
22.	22	928	3987	4505	5135
23.	23	689	2898	3274	3303

East North Zone -:1

*Details of Population, Road Length and Drain Length under Zone-1

Covered Ward: - 1, 2, 3, (20 Part), 21, 22, 23 & (17 Part)

Sl. No.	Ward No.	Projected Population 2024	Road Length (Km.)	Drain Length (Km.)
1.	1	4432	10.847	2.535
2.	2	5472	13.320	4.860
3.	3	6201	13.012	5.535
4.	20 (Part)	2557	11.410	1.928
5.	21	4324	09.090	1.828
6.	22	4505	10.150	3.100
7.	23	3274	9.950	5.520
8.	17 (Part)	1011	1.900	1.076

Central Zone -:2

*Details of Population, Road Length and Drain Length under Zone-2

Covered Ward: -11, 12, 13, 14, 15, (17 Part), 18, 19 & (20 Part)

Sl. No.	Ward No.	Projected Population 2024	Road Length (Km.)	Drain Length (Km.)
1.	11	3926	3.405	2.900
2.	12	5532	6.350	5.930
3.	13	3478	7.523	2.093
4.	14	3017	4.120	5.375
5.	15	2151	5.450	2.950
6.	17 (Part)	4043	4.900	1.974
7.	18	3366	4.325	1.070
8.	19	3951	10.378	4.310
9.	20 (Part)	084	0.600	0.080

East South Zone -:3

*Details of Population, Road Length and Drain Length under Zone-3

Covered Ward: - 4, 5, 6, 7, 8 & 16

Sl. No.	Ward No.	Projected Population 2024	Road Length (Km.)	Drain Length (Km.)
1.	4	4807	6.850	3.320
2.	5	4482	7.977	2.769
3.	6	3109	2.710	1.525
4.	7	3234	6.050	2.520
5.	8	3602	9.450	1.525
6.	16	3482	12.558	2.558

*Before submitting proposal, the agency are advised to visit their proposed zone in any difficulty doubt Sanitation Expert Mob No- 94371 74514 may be contacted during working hour.

2.5.5 Number of Vehicles and Manpower Required

ULB has estimated the minimum number of vehicles, manpower, supervisory and managerial staff requirement for the handling of waste generated from the streets, drain and conservancy cleaning etc; in Brajrajnagar ULB. Operator has to deploy minimum number of vehicles/equipment and manpower as mentioned in the Table below. It is necessary for the operator to submit Brajrajnagar Municipalityit the deployment plan and mobilization schedule within 30 days of award and get it approved from the concerned officer-in-charge. This process in no case freezes the deployment, quantitatively or qualitatively and give relaxation towards set service level indicators/KPIs. Extra deployment to improve the performance criteria if needed at any time during the contract period shall have to be done in consultation with officer-in-charge, **Brajrajnagar** without any further compensation.

Table 15: Tentative requirement of the Manpower and Vehicle

ZONE-I (East North)

Sl No	Nature of Work	Auto Tipper (Nos) & Back Hoe Loaders machinery etc	Manpower (Nos)	Puch Cart
1	Cater Commercial (Market) Waste	2	4	
2	Collection & transportation of Sweeping Waste	3	6	----
3	Grass Cutting Machine and	2	3	-----

	manpower collection bush uprooting and conservancy cleaning waste			
4	Pushcart/seamless Handcart/Wheel Barrow and collection sweeping waste	-----	66	21
5	Transportation of drain silt	2	4	-----
6	Back Hoe Loaders	1	1	-----
	Total		84	21

ZONE-II (Central)

Sl No	Nature of Work	Auto Tipper (Nos) & Back Hoe Loaders machinery etc	Manpower (Nos)	Puch Cart
1	Cater Commercial (Market) Waste	2	4	
2	Collection & transportation of Sweeping Waste	4	8	----
3	Grass Cutting Machine and manpower collection bush uprooting and conservancy cleaning waste	2	3	-----
4	Pushcart/seamless Handcart/Wheel Barrow and collection sweeping waste	-----	62	22
5	Transportation of drain silt	2	4	-----
6	Back Hoe Loaders	1	1	-----
	Total		82	22

ZONE-III (East South)

Sl No	Nature of Work	Auto Tipper (Nos) & Back Hoe Loaders machinery etc.	Manpower (Nos)	Puch Cart
1	Cater Commercial (Market) Waste	2	4	
2	Collection & transportation of Sweeping Waste	3	6	----
3	Grass Cutting Machine and manpower collection bush uprooting and conservancy cleaning waste	2	3	-----
4	Pushcart/seamless	-----	58	18

	Handcart/Wheel Barrow and collection sweeping waste			
5	Transportation of drain silt	2	4	-----
6	Back Hoe Loaders	1	1	-----
	Total		76	18

3 NNEXURE-I

3.1 MIS Report formats

Proposed monthly & other MIS Report formats are provided below. There may be some changes in the information required, based on requirement projected by IT Cell to make the automatic system function properly.

Action Plan

Action Plan of work for a month to be initially submitted to by the Operator. It is to be submitted in soft form and to be uploaded into the computer system so that MIS reports can be generated automatically. Any change in the action plan need to be intimated to the Health Officer/officer-in-charge of Brajrajnagar Municipality before 15 days.

3.1.1 Street level/Door-to-Door (Shop) Primary MSW Collection Service from Bulk Waste Generators

Table 13: Deployment of Waste Collection Vehicles

Route No. :			Route No. :		
Vehicle type:			Vehicle Type:		
Ward:			Ward:		
SATeet No./Lane No./Halt Point/BWG	Time	Area to be serviced	Street No./Lane No./Halt point/BWG	Time	Area to be serviced
		Ward No./Block No.			Ward No./Block No.
		Ward No./Block No.			Ward No./Block No.
MCC		ID of MCC:	MCC		ID of MCC:
MRF		ID of MRF:	MRF		ID of MRF:
End point		Compactor Location ID:	End point		Compactor Location ID:

Table 14: Deployment of Auto Tipper/Light Commercial Vehicle

Ward / Beat ID	Beat: Service Area/ Street	Shop/Establishment Numbers (range) covered in the beat	No of Shops/Establishments in the beat	Service Timing s	No. of Auto Tipper to be	ID of MCC Location where	ID of MRF Location where
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	/ Colony / BWG				deployed	wet waste is delivered	dry waste is delivered

3.1.2 Collection Service of waste from Commercial Establishments/ Markets

Table 15: Deployment of Waste Collection Vehicles

Route No. :			Route No. :		
Vehicle type:			Vehicle Type:		
Ward:			Ward:		
Street No./Lane No./Halt Point	Time	Area to be serviced	Street No./Lane No./Halt point	Time	Area to be serviced
		Ward No./Market Name			Ward No./Market Name
		Ward No./Market Name			Ward No./Market Name
MCC		ID of MCC:	MCC		ID of MCC:
MRF		ID of MRF:	MRF		ID of MRF:
End point		Compactor Location ID:	End point		Compactor Location ID:

Table 16: Deployment of Auto Tipper/Light Commercial Vehicle

Ward / Beat ID	Beat: Service Area/ Street / Market Complex	Shop Numbers (range) covered in the beat	No of Shops in the beat	Service Timings	No. of Auto Tipper to be deployed	ID of MCC Location where wet waste is delivered	ID of MRF Location where dry waste is delivered

Table 17: Bins situated in areas covered in Commercial Establishment/Markets/Haats

ID: Ward/ Location	Capacity of MSW (no. of bins)	Whether it receives waste from non-street level areas as well? (Y/N)	No. of times per day – to be cleared	Scheduled clearing time(s)

3.1.3 Collection and transportation Service of Sweeping Waste

Table 18: Deployment of sweeping waste Collection Vehicles

Route No. :			Route No. :		
Vehicle type:			Vehicle Type:		
Ward:			Ward:		
Street No./Lane No./Halt point	Time	Area to be serviced	Halt point	Time	Area to be serviced
		Ward No./Lane No.			Ward No./Lane No.
		Ward No./Lane No.			Ward No./Lane No.
Ward		Ward No:	Ward		Ward No:
End point		Disposal point (Landfill/SLF) Location ID:	End point		Disposal point (Landfill/SLF) Location ID:

3.1.4 Collection and transportation Service of Drain Silt

Table19:Deployment of drain silt Collection Vehicles

Route No. :			Route No. :		
Vehicle type:			Vehicle Type:		
Ward:			Ward:		
Street No./Lane No./Halt point	Time	Area to be serviced	Halt point	Time	Area to be serviced
		Ward No./Lane No.			Ward No./Lane No.
		Ward No./Lane No.			Ward No./Lane No.
Ward No.		ID of Ward:	Ward No.		ID of Ward:
End point		Disposal point Location ID:	End point		Disposal point Location ID:

3.1.5 Bin Washing Schedule

Table 20: Bin Washing Schedule

Location ID	No. of Bins at location	Date of proposed washing	Time of proposed washing

3.1.6 Vehicle Servicing Schedule

Table 20: Vehicle Servicing Schedule

Vehicle Registration No	Type of Vehicle	Date of proposed washing	Date of proposed servicing (if any)

3.1.7 Fleet Deployment for the Month

Table 21: Fleet Deployment for the Month

Reg. No Make	Vehicle Type	Volume (cu m)	MSW Capacity (MT)	DryWaste Capacity (MT)	Wet Waste Capacity (MT)	Sweeping Waste Capacity (MT)	Silt Waste Capacity (MT)

3.1.8 Plan for Deployment of Manpower

Table 22: On Vehicles (LCV/Auto Tipper)

Employee ID:	Name of Employee	Father's Name	Designation	Mobile No	Vehicle Reg No on which deployed

Table 23: On Vehicles (Pushcart/Seamless Handcart/Wheel Barrow)

Employee ID:	Name of Employee	Father's Name	Designation	Mobile No	Vehicle Reg No on which deployed

Table 24:Supervisory Manpower

Employee ID:	Name of Employee	Father's Name	Designation	Mobile No	Area of Supervision

3.2 Monthly (Real Time) Reports

Following reports are generated monthly on real time basis.

3.2.1 Collection and transportation of MSW from All Markets,& Other Commercial Establishment

Date _____

Ward No. _____ Name of Market / Commercial _____

Table 25: Primary Collection & transportation Vehicles deployment for waste collection from such entities (Report from GPS data-real-time report)

Route No Vehicle type	Vehicle Reg. No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 26: Exception Report on Primary Collection &transportation Vehicles deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 27: Auto Tipper/LCV deployment for market level collection

Route No	Auto Tipper/LCV ID No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 28: Exception Report on Auto Tipper/LCV deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 28: Summary report of the trips

Type of vehicle	Total nos. of route	Nos. of routes serviced

Table 29: Summary report of the trips

Location ID	Scheduled clearing time	Actual Clearing time	Cleared by- Vehicle Reg. No Driver Name Driver Mobile	Time of arrival at MCC	Time of arrival at MRF	Upload photo with date & time stamp

Table 30: Exception Report of Bins Clearance (Where Bins has not been cleared within 1 hour of scheduled time)

Location ID	Scheduled clearing time	Likely clearing time	Reason for delay	Remedial action taken

Table 31: Overall performance self-assessment of market/ commercial establishment

Estimated number of individual shops and establishments in the service area (In Nos.).	(a)	
Number of individual shops and establishments with daily doorstep MSW collection.	(b)	
Total waste that is generated and which needs to be collected.	(c)	
Total quantum of waste that is collected by the authorized service providers.	(d)	
Coverage Efficiency	(e = b/a in	

	%)	
Collection Efficiency	(f = d/c in %)	

3.2.2 Report on Door-to-Door Level Primary MSW Collection System for Bulk Waste Generator

Date _____

Ward _____

Table 32: Primary Collection & transportation Vehicles deployment for street level collection (Report from GPS data– real-time report)

Route No/BWG Name Vehicle type	Vehicle Reg. No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 33: Exception Report on vehicle deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No/BWG Name	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 34: Auto Tipper/LCV deployment for street level collection

Route No/BGW Name	Auto Tipper/LCV ID No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 35: Exception Report on Auto Tipper/LCV deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 36: Summary report of the trips

Type of vehicle	Total nos. of route	Nos. of routes serviced

Table 37: Overall performance self-assessment of Ward

Estimated number of BWGs in the service area (In Nos.).	(a)	
Number of BWGs with daily doorstep MSW collection.	(b)	
Total waste that is generated and which needs to be collected	(c)	
Total quantum of waste that is collected by the authorized service providers	(d)	
Coverage Efficiency	(e = b/a in %)	
Collection Efficiency	(f = d/c in %)	

3.2.3 Report on Collection and transportation of Street Sweeping Waste

Date _____

Ward No. _____

Table 38: Report of Clearance from Ward

Ward	Scheduled clearing time	Actual Clearing time	Cleared by- Vehicle Reg. No Driver Name Driver Mobile	Time of arrival at MCC/MRF/Landfill/SLF / disposal site	Upload photo with date

Table 39: Exception Report of Ward Clearance (Where Ward has not been cleared within 1 hour of scheduled time)

Ward	Scheduled clearing time	Likely clearing time	Reason for delay	Remedial action taken

Table 40: Auto Tipper deployment for collection of sweeping waste from Ward

Route No	Auto Tipper ID No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 41: Exception Report on Auto Tipper deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 42: Overall performance self-assessment of Ward

Total length of road sweeping covered during a month considered (In Meter).	(a)	
Total length of the road available in the ward for sweeping (In Meter).	(b)	
Street Sweeping Efficiency	(c = a/b in %)	

3.2.4 Report on Collection and Transportation of Drain De-silting Waste

Date _____

Ward No. _____

Table 43: Auto Tipper deployment for collection drain de-silting waste from Ward

Route No	Auto Tipper ID No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 44: Exception Report on Auto Tipper deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 45: Overall performance self-assessment of Ward

Total length of drain cleaned during a month considered (In Meter).	(a)	
Total length of the drain available in the ward for cleaning (In Meter).	(b)	
Drain Cleaning Efficiency	(c = a/b in %)	

3.2.5 Report on Conservancy Cleaning, Bush Uprooting and De-weeding

Date _____

Ward No. _____

Table 46: Auto Tipper deployment for collection waste from Conservancy Cleaning, Bush Uprooting and De-weeding waste from Ward

Route No	Auto Tipper ID No Driver Name Driver Tel No	Scheduled start time Actual Start time	Scheduled end time Actual End time

Table 47: Exception Report on Auto Tipper deployment (Where Vehicle has not been deployed within 1 hour of scheduled start time)

Route No	Scheduled start time	Likely start time	Reason for delay	Remedial Action taken

Table 48: Report of Cleaning

Location ID	Scheduled clearing time	Actual Clearing time	Upload photo with date & time stamp

Table 49: Exception Report of Cleaning (Where Cleaning has not been cleared within 1 hour of scheduled time)

Location ID	Scheduled clearing time	Likely clearing time	Reason for delay	Remedial action taken

Table 50: Overall performance self-assessment of Ward

Total length of conservancy area cleaned during a month considered (In Meter).	(a)	
Total length of conservancy area available in the ward for cleaning (In Meter).	(b)	
Conservancy Cleaning, Bush Uprooting and De-weeding Efficiency	(c = a/b in %)	

3.2.6 Report of Complaints Redressal System (real-time)

Area _____

Date _____

Table 51: Report of complaints and their closure

Complaint ID Time	Source- Phone/ email/ SMS	Nature of complaint	OPEN/CLOSED	If Closed, How addressed?	Date of redressal/ closure

Table 52: Exception report where complaints have not been addressed/ closed in 48 hours

No of complaints received in the day	No of complaints addressed	No of complaints addressed within 48 hours	No of complaints still open	No of complaints that could not be addressed in 48 hours	Reason for open complaints

3.3 Consolidated Report of Ward (Generated at the end of the month)

Date _____

Table 53: Summary Report of Deployment of Vehicles/ Infrastructure

Main Activity	No of Routes/items to be serviced in the day	No of Routes/ items actually serviced	No of Vehicles to be deployed in the day	No of vehicles actually deployed in the day	No of Manpower to be deployed	No of Manpower actually deployed
Collection of						

Drain Silt						
Collection of Sweeping Waste						
Collection of Green Waste						

Table 54: Collection of Street Sweeping Waste

Ward	Disposal Site	Vehicle No.	Arrival time

Table 55: Collection of Drain De-siltingWaste

Ward	Disposal Site	Vehicle No.	Arrival time

Table 56: Collection of Bush Uprooting, Conservancy Cleaning and De-weedingWaste(Green Waste)

Ward	Disposal Site	Vehicle No.	Arrival time

Details of Haat Located Under Brajrajnagar Municipality Area

Sl. No.	Name of the Haat	Location/ Ward No	Zone
1	Gandhi Chhak	Ward No-22	III
2	ESI Chhak	Ward No-17	II
3	Rampur	Ward No-6	I
4	Daily Market	Ward No-15	I
5	Fish Market	Ward No-15	I
6	Lamtivahal	Ward No-11	II
7	Gurubar Bazar	Ward No-3	III
8	Mandalia Market	Ward No-1	III
9	Khaliakani Chhak	Ward No-21	III
10	Wednesday Market	Ward No-18	II
11	Monday Market	Ward No-11	II
12	Sunday Market	Ward No-17	II

4 ANNEXURE-III

4.1 Performance Penalties

The Monitoring System based on self-reporting by the Operator is proposed (*refer table nos. in annexure-I*). It may be noted all these self-assessment reports shall tally with GPS report (auto analysed by the computer system) for this monitoring system to properly work.

Penalty for non-conformance shall be imposed by Authority based on one or both of the following:

- (a) Complaint by 2 or more actual users, and validated by field report or GPS system;
- (b) Spot inspection and reporting by Authority officials/ appointed Project Monitoring Consultant.
- (c) The penalties imposed on the basis of above MIS reports shall over-ride the self-reporting by the Operator, notwithstanding the fact that the self-assessment may have been accepted by the authority. In addition, the Operator shall be given an opportunity of being heard. Certain Tolerance for default(s) are prescribed in the table 57. If the performance of the Operator falls below the tolerance level, the penalties are applicable on all defaults (and not just that are in excess of the tolerance limits).

Table 57: Performance Penalties as per the MIS

Default	Monitoring Mechanism (As above and Refer Table Numbers as mentioned in Annexure-I)	Penalty/ Deduction	Tolerance	Rectification
1. Deficient Service (Primary Collection)				
(a) Non-servicing of area (Market/Commercial Area in Ward)	Physical reporting by Brajrajnagar Municipality /Project Monitoring Unit (PMU)	Rs. 5000 per day for each area not serviced	No Tolerance	Within 24 hours
(b) Non-deployment of vehicles / Auto Tipppers		Rs. 3000 per day for each route for Auto Tipper	No Tolerance	Within 24 hours
(c) Late deployment of vehicles/		Rs. 250 per 2 hour of	No Tolerance	Within 24 hours

Auto Tipper			delay, subject to maximum of Rs 3000 per day			
(d)Provision of the Separate Compartments in Auto Tipper for Dry & Wet Waste	Physical reporting by Brajrajnagar Municipality /PMU		Rs. 1000 per vehicle per instance if provision of separate compartment is not made in auto-tippers	No Tolerance		Within next 24 hours
(e)Provision of the Top Cover on Auto-Tippers	Physical reporting by Brajrajnagar Municipality /PMU		Rs. 500 per vehicle per instance if provision of top cover is not made in the Auto Tipper	No Tolerance		Within next 24 hours
(f)Vehicle unloads collected waste at location other than specified spot specified for ward	GPS report (Auto Analysed for running and stoppage) or Physical reporting by Brajrajnagar Municipality /PMU		Rs. 5000 per incident for Auto Tipper	No Tolerance		Within next schedule
(g)Failure to achieve required coverage Operator has to achieve following target for the coverage benchmark measured on monthly basis: Within 30 days from COD - 70% coverage Within 60 days from the COD - 85% coverage Within 90 days from the COD till project completion date - 100% coverage			2% of the monthly bill for every 5% shortfall or part thereof, for 1 st Month 3% of the monthly bill for every 5% shortfall or part thereof, for the 2 nd Month 4% of the monthly bill for every 5% shortfall or part thereof, for 3 rd Month onwards Shortfall = Target - Actual	No Tolerance		Within 48 hours of notice
(h)Failure to achieve required collection			2% of the monthly bill for every 5% shortfall or part thereof, for 1 st Month	No Tolerance		Within 48 hours of notice

<p>Operator has to achieve following target for the collection efficiency benchmark measured on monthly basis: Within 30 days from COD – 70% collection Within 60 days from the COD - 85% collection Within 90 days from the COD till project completion date - 100% collection</p>		<p>3% of the monthly bill for every 5% shortfall or part thereof, for the 2nd Month 4% of the monthly bill for every 5% shortfall or part thereof, for 3rd Month onwards Shortfall = Target - Actual</p>		
<p>2. Inadequate Implementation of Street Level Sweeping Collection of MSW</p>				
<p>(a) Waste collected from Ward</p>	<p>physical inspection</p>	<p>Rs. 1000/- for shortfall of per point per day</p>	<p>No Tolerance</p>	<p>Within 12 hours</p>
<p>(b) Failure to achieve the Target Street Level Sweeping efficiency Operator has to achieve following target for the sweeping efficiency benchmark measured on monthly basis: From COD – 100% efficiency</p>	<p>physical reporting</p>	<p>0.5% of the monthly bill for every 5% shortfall or part thereof, for 1st Month 1% of the monthly bill for every 5% shortfall or part thereof, for the 2nd Month 1.5% of the monthly bill for every 5% shortfall or part thereof, for 3rd Month onwards Shortfall = Target - Actual</p>	<p>No Tolerance</p>	<p>Within 24 hours</p>
<p>(c) Transportation by secondary Collection vehicles without cover/littering during Transportation</p>	<p>Physical reporting by Brajrajnagar Municipality/PMU</p>	<p>Rs. 1000/- each instant</p>	<p>No Tolerance</p>	<p>Within 6 Hours</p>

3. Deficient Segregation of Waste			
(a) Failure to Segregate Waste. Operator has to achieve following target for the segregation benchmark: Within 30 days from COD - 70% segregation Within 60 days from the COD - 85% segregation Within 90 days from the COD till project completion date - 100% segregation	Lab sample test from Govt. laboratory/BIS accredited laboratory	2% of the monthly bill for every 5% shortfall or part thereof, for 1 st Month 3% of the monthly bill for every 5% shortfall or part thereof, for the 2 nd Month 4% of the monthly bill for every 5% shortfall or part thereof, for 3 rd Month onwards Shortfall = Target - Actual	No penalty if 95% target is achieved Within 24 hours
(b) Test for segregation of biodegradable Waste. Segregation benchmark for biodegradability: Within 30 days from COD - 70% segregation Within 60 days from the COD - 85% segregation Within 90 days from the COD till project completion date - 100% segregation	Report of Vehicles carrying segregated biodegradable waste is to be generated by the Operator and checked by Brajrajnagar Municipality /PMU at the disposal point.	Rs. 20000/- per vehicle for Auto Tipper	No Tolerance Within 24 hours
(c) Test for Non MSW/Hazardous waste in the Collection vehicles. 10% of the vehicles (Not declared biodegradable) shall be randomly selected and tested.	Test by Brajrajnagar Municipality /PMU	Penalty of Rs 20000/- per vehicle which fails the test and no payment for the vehicle. If Hazardous waste is found in the vehicle, it should be	

It should not contain NON MSW Wastes more than 2% of Weight and NO Hazardous Waste.		immediately reported and safely disposed off.		
4. Inadequate Implementation of Drain De-silting				
(a) Lifting of silt within timeframe	Physical reporting	Rs. 3000 per instance in summer/winter and Rs. 10000 per instance in rainy season	No Tolerance	Within 24 hours
(b) Failure to achieve the Target Efficiency in Drain Cleaning Operator has to achieve following target for the efficiency in drain cleaning benchmark measured on monthly basis: From COD - 100% efficiency		0.5% of the monthly bill for every 5% shortfall or part thereof, for 1 st Month 1% of the monthly bill for every 5% shortfall or part thereof, for the 2 nd Month 1.5% of the monthly bill for every 5% shortfall or part thereof, for 3 rd Month onwards Shortfall = Target - Actual	No Tolerance	Within 24 hours
Inadequate Implementation of Bush Uprooting, Conservancy Cleaning and De-weeding				
(a) Waste collected from Ward	physical inspection	Rs. 1000/- for shortfall of per point per day	No Tolerance	Within 12 hours
(b) Failure to achieve the Target Efficiency in Bush Uprooting, Conservancy Cleaning and De-weeding Operator has to achieve		0.5% of the monthly bill for every 5% shortfall or part thereof, for 1 st Month 1% of the monthly bill for every 5% shortfall or part thereof, for the 2 nd Month	No Tolerance	Within 24 hours

<p>following target for the bush uprooting, conservancy cleaning and de-weeding efficiency benchmark measured on monthly basis: From COD – 100% efficiency</p>		<p>1.5% of the monthly bill for every 5% shortfall or part thereof, for 3rd Month onwards</p> <p>Shortfall = Target - Actual</p>	
<p>5. Deficient/Non-maintenance of Infrastructure</p>			
<p>(a) Short deployment of functional vehicles (Auto Tipper/Battery Rickshaw/tricycle/ Compactors / transportation vehicles</p>		<p>Rs. 5000/- for Compactor and Rs. 2000/- per other vehicle per day, Rs. 200/- per tricycle</p>	<p>No tolerance (Operator is expected to keep surplus infrastructure to meet contingencies)</p> <p>Within 24 hours</p>
<p>(b) Short Deployment of Secondary Collection Vehicle/Auto Tippers</p>		<p>Rs 2000/- per vehicle per day</p>	<p>No tolerance (Operator is expected to keep surplus infrastructure to meet contingencies)</p> <p>Within 24 hours</p>
<p>(c) Short deployment of manpower</p>		<p>Rs. 500 per person per day if shortage is more than 10%</p>	<p>No tolerance (Operator is expected to keep surplus manpower to meet contingencies)</p> <p>Within 24 hours</p>
<p>(d) Bins overflowing or not maintained clean (or littering in adjoining 15 m)</p>	<p>Spot inspection Brajrajnagar Municipality /PMU</p>	<p>Rs. 500 per incident</p>	<p>No Tolerance</p> <p>Within maximum 6 hours</p>
<p>(e) Designated staff not present on site; or not wearing uniform, PPE or not having ID</p>	<p>Spot inspection by Brajrajnagar Municipality /PMU</p>	<p>Rs 500 per incident</p>	<p>No Tolerance</p> <p>Within maximum 6 hours</p>
<p>(f) Bins are not kept in agreed numbers or there are broken bins</p>	<p>Spot inspection by Brajrajnagar Municipality /PMU</p>	<p>Rs. 500 per incident</p>	<p>No Tolerance</p> <p>Within 24 hours</p>

(g) Project Assets maintained as per specifications	Physical reporting by Brajrajnagar Municipality official/PMU	Rs 1000 per fault and Rs 500 per day thereafter if the defects are not rectified in specified period.	No Tolerance	Within 15 days
(h) Missing asset identification number in specified format from all assets or Missing RFID Tag	Spot inspection Brajrajnagar Municipality/PMU	Rs. 500 per asset	No Tolerance	Within 24 hours
(i) Periodic Maintenance of static physical infrastructure like Work Shop etc.	Report generated by the Operator/system and inspection by Brajrajnagar Municipality/PMU	Rs 10,000 for every month of Delay for Work Shop.	No Tolerance	
6. Deficient Grievance Redressal Mechanism				
(a) Non redressal of complaints in 2 days		Rs. 2000 per complaint when complaint has not been properly closed within 48 hours. Double for every 24 hours thereafter	No penalty if 80% of the complaints get resolved within the prescribed time for the day.	Within 24 hours
(b) Inadequate functioning of workshop		Rs. 5,000 per day if no of AT transactions are below 90% of expected transactions	No Tolerance	Within 24 hours
7. Miscellaneous Penalties				
(a) Vehicle unloads collected waste at location other than specified MCC/MRF/Landfill/SLF or disposal site	GPS report (Auto Analysed for running and stoppage) or inspection by Brajrajnagar Municipality/PMU	Rs. 5000 per incident	No Tolerance	Within next schedule
(b) Lifting of the waste from the outside of jurisdiction of the	GPS with feed of sensor (Auto analysed for running and	Rs. 10000/- for each vehicle/ incident	No Tolerance	Immediate termination of involved staffs by Operator and action

specified ward/zone	stoppage)or inspection by Brajrajnagar Municipality /PMU		against the supervisor and management team.
(c)Use of the project assets for the commercial/ personal other than the specified work	GPS with feed of sensor (Auto analysed for running and stoppage) or inspection by Brajrajnagar Municipality/PMU	Rs. 10000/- for each vehicle, immediate termination of involved staffs by Operator and action against the supervisor and management team.	Immediate
8. Deficient MIS/Reports			
(a)Action Plan shall be submitted at the start of the project.		Rs. 10,000/- per day	Within next day
		No Tolerance.	

Deficient means that the resources/ infrastructure proposed to be deployed by the Operator is not matching with the commitments he had made in his bid/ proposal or as mentioned in this PIM. Failure to rectify within the proposed time period would constitute a material breach by the Operator of its obligations under the Agreement.

Reporting Mechanism: Tables referred for monitoring mechanism may be modified, changed, added anytime by Brajrajnagar Municipality.

5 ANNEXURE-IV

5.1 Minimum Technical Requirement of the Proposed sanitation instruments

Operator has to follow minimum technical requirement of the proposed vehicles mentioned in the below table. Please note that "capacity" and "specifications" suggested below are "minimum required". Operator is free to use higher capacity or higher specifications.

Table 58: Minimum Technical Requirement of the Proposed Vehicles

S. N.	Main Components	Sub-Components	Key Requirement
1	Wheel Barrow for Road Sweeping & Drain Desilting Material		<ul style="list-style-type: none"> ● Steel Sheet – Steel Sheets shall be not less than 1.60 mm in thickness and shall conform to IS:1079-1973 ● Steel Selection Bars and Rivets ● Steel sections and bars shall conform to IS: 1977-1975 and IS: 226-1975 ● Rivet bars shall conform to IS: 1148-1973 ● Steel Tubes–Steel tubes shall be medium tubes conforming to IS: 1239(Part I)-1973 ● Capacity-The wheel barrows shall be of 85 litres capacities: The wheelbarrows shall withstand a proof load without any permanent deformation of the members. The proof load shall be applied by filling the body of wheelbarrow with a suitable material. ● BODY: Construction-The body shall be either cut from a single sheet of steel, the joints being secured by riveting or welding or it may be solid-drawn pressing from a single sheet. If joints are secured by riveting, the rivets shall be of diameter not less than 6mm and shall be placed at a spacing of not more than 10 cm. The body shall have top edge reinforced by one of the following methods: a) The edge rolled over a steel rod of not less than 8mm diameter in order to form a bead and to retain the rod. b) A mild steel band not less than 20*5 mm in cross-section closely riveted or welded to the outside of top edges. If riveted, the rivets shall be of diameter not less than 6mm and shall be placed at each end of the strip and at intermediate points not more than 15 cm apart. Additional reinforcement shall be

			<p>provided at both fronts' corners by welding both edges of the band to the body sheeting, or by additional rivets. The body shall be fixed to the chassis by welding or with black mild steel bolts with cup heads, round necks and square or hexagonal nuts, the bolts being of not less than 8mm diameter. The body shall be so designed that the position of centre of gravity aids the forward motion of the wheelbarrow when in use (filled to its maximum nominal capacity) with normal inclination to the horizontal without causing spillage of the material. The design and dimensions shall be such that when the body is fixed to the chassis the liquid capacity is not less than 35 litre. This capacity shall be determined by standing the barrow on a level surface and filling it with water. The handles of the barrow shall then be raised until the undersides of the ends of the handles are 75 cm above the level of the level of the level surface on which the wheel is resting; the water remaining after raising the body to this position, shall then be measured. In order to facilitate the use of spare bodies with existing frames, they shall be supplied without fixing holes unless otherwise ordered.</p> <ul style="list-style-type: none"> • CHASSIS: The chassis frame shall consist either of a single length of tube of 2.5mm nominal bore or any other suitable steel section such as flat of size 30*6 mm or angle or channel section of equivalent strength, suitably bent to form a support for the wheel and the body. The legs of the chassis shall be formed as part of the tube or other steel section used for the construction of frame or shall consist of separate length of tube or steel section similar to that used for the frame, bent to form a bow and welded to the main frame. The frame shall be reinforced with two mild steel bars, each not less than 30x5 mm in
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cross-section and arranged to span between the chassis frame at the handle end as well as the wheel end of the body, with their ends closely formed round or welded to the frame. Each leg shall be braced by a mild steel bar not less than 30x6 mm in cross-section closely formed round the bottom of the leg and arranged to provide an intermediate support for the body. Alternately an X type bracing of 25x6 mm steel and spanning between the two legs may be provided. Two front steel braces, not less than 25x6 mm in cross-section shall be fixed between the wheel ends of the body and the chassis frame or the chassis frame shall be suitably bent to provide support to the body at the wheel ends. The arrangement shall, however not prevent tipping of the wheelbarrow over its wheels, when so required by the operator to empty its contents. The underside of the handle ends shall be not less than 50cm and the top edge of the body not more than 60cm above the ground level when the legs are resting on the ground. The overall width of the handles shall be not less than 50cm and not greater than 55cm. The ends of the handles shall be provided with firm comfortable and non-slip grips. The shape and construction of the chassis and body shall ensure stability of the wheelbarrow when the legs are resting on ground or when the wheelbarrow is in motion under normal working conditions.

- WHEELS: The wheels shall be constructed of mild steel or cast iron and shall be of disk type or any other suitable design to ensure adequate strength. The wheels shall be fitted with metal rims, or solid or cushioned rubber tyres. The diameter of the wheels shall be not less than 300mm and the nominal width of the tyre shall be not less 50mm.

- **PAINTING:** The whole wheel barrows should be sand blasted prior to coating/painting. The outside & inside of the containers to be coated with one coat of zinc rich primer. The internal surface shall be coated with two coats of bituminastic epoxy paint or as approved while the external surface shall be painted with two coats of synthetic enamel paint to ensure long lasting sucture suitable for use of handling raw garbage under corrosive conditions. Colour shade/make of paint shall be as per the choice of Competent Authority. The paint shall be good quality and ICI / Asian / Johnson & Nicholson. / British/ Burger or as approved.
- **AXLE:** The axle shall be fixed to the chassis frame and the bearings shall be located inside the wheels hubs which will revolve over the axle. The axle shall be not less than 25mm in diameter and the bearings length shall be not less than 25mm at each end. The journal portion of the axle shall be machined to appropriate tolerances and the allowance, and the surface finished to ensure uniform bearing contact. The material for axle shall conform to IS: 226-1975* if bronze bearing bushes are used and to appropriate grade of wrought steel, such as C 40 of IS: 1570-1961, if cast iron bearings are used.
- **BEARINGS:** The bearings shall be so designed that there is no side play in the movement of the wheels. The bearings shall consist of grey iron castings or pressings, or bronze bearing bushes or any other suitable bearings of equivalent properties. The internal diameter of bore of the bearing shall be such that the clearance between bearing and the axle is not more than 0.5mm. The bearing walls shall be of adequate thickness preferably not less than 5mm to avoid premature wear and

			<p>giving way of bearing under load. Adequate arrangements shall be provided to facilitate proper lubrication of bearings.</p> <ul style="list-style-type: none"> • Accessories: Provision should be made for following additional accessories, quantity one with each Wheel Barrow/seamless hand cart. • Long handle broom: length of broom 80-85cm, weight of broom 1kg, binding material 20 gauge MS sheet ring having width of 1.5-2 cm, handle of broom bamboo of 135 cm length and 3-4cm dia. Weight of the handle 0.9kg, • Collection plate: length 325mm, width front 300mm, width rear 250mm, 22 gauge of MS sheet. • Metal plate: 100x250 mm sheet of 20 gauge • Secondary Storage Containers of 1.1 cum capacity
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* Proposed design does not recommend usage of Auto Tipper-trolley at any place. However, if there are remote/areas not accessible by proposed Auto Tipper, Operator may identify such area and propose this mechanism in limited form in IIP (Initial Implantation Plan). However, the deployment must comply with prevailing MSW rules and transport rules.

* Equipment or vehicle for which specification are not there in the PIM, the operator shall have to get specification from at least three suppliers/vendors and get it approved from the officer-in-charge or the competent authority before purchase.


Sanitation Expert
Brajrajnagar Municipality


Sanitation In-charge
Brajrajnagar Municipality


Municipal Engineer
Brajrajnagar Municipality


Executive Officer
Brajrajnagar Municipality


Chairperson
Brajrajnagar Municipality