



Ahmedabad Municipal Corporation

Solid Waste Management Department

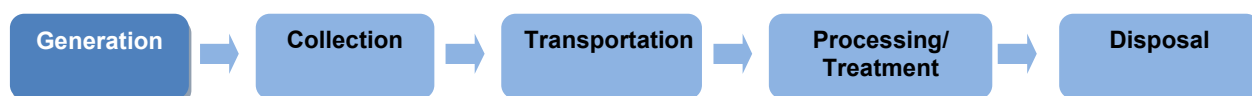
Office of the Director,
Solid Waste Management Department, Ahmedabad Municipal Corporation
5th floor, C Wing, Sardar Patel Bhavan, Danapith, Ahmedabad- 380 001
Telephone No. 079-25350841, Fax No. 079-25321484
E-mail: directoswm@ahmedabadcity.gov.in, swmamc111@gmail.com

Brief profile of Ahmedabad and Ahmedabad Municipal Corporation

- Ahmedabad is the 7th Largest Metropolis in India, having a population of more than 63 lakhs and spread over an area of 466 Sq Km.
- The city is witnessing a major construction / infrastructure boom as well as a steady population increase. It is a growing hub of education, information technology and scientific Industries.
- The Ahmedabad Municipal Corporation (AMC) provides all basic services to citizens of Ahmedabad such as water supply, collection of sewage, solid waste management, building roads and transportation, street lighting, providing medical and educational facilities are some of the key services. For effective service provision and smooth administration to all citizens, AMC has divided its activities into 7 Zones and 48 wards.

SOLID WASTE MANAGEMENT IN AHMEDABAD

- The Ministry of Environment and Forest (MoEF), Govt. of India issued a notification on the 25th September, 2000 under the Environment Protection Act 1986 stating that all cities and towns of India should undertake municipal solid waste management as prescribed by the rules. These are known as “The Solid Waste (Management & Handling) Rules 2016”.
- Almost, 4100 Metric Tons of solid waste (including 1000 tons of C&D waste) is generated from the city on a daily basis. This waste is collected, transported, treated and disposed according to Rules.



Collection & Transportation:

- a) Nearly 50 percent of the entire waste is collected from Door to Door Waste Collection and from street sweeping.

Street Sweeping is carried out on all 365 days by more than 12,500 workers from the morning 6:30 am to 11:30 am and 3.00 pm to 6.00 pm on all roads of the city.

- b) A new concept of **Door to Door system** is introduced in AMC since July 2009, in which the AMC appointed contractor collects waste from residential units in the morning hours and from commercial units in the evening in closed Hydraulic Euro III vehicles.

From July 2017, AMC started new Door to Door/Gate waste collection system with new vehicles with closed body having different compartments with tipping agreement for collection of segregated waste from citizens according to SWM Rules 2016.

The waste from these vehicles is transferred to nearby transfer stations from each ward to the treatment plants.

More than 866 Vehicles have been deployed that start the collection process from 7.00 am onwards.

Currently, more than 1700 metric tons of waste is collected from more than 16.09 lakh residences and 5.69 lakh commercial unit in this manner and transported to the processing plants through Refuse Transfer Stations.

This work is monitored through GPS system.

The project is successfully covering 100% of all residential & commercial units, on all 365 days of the year.

- c) AMC has developed a fully mechanized transportation system that ensures handling of waste only once. Further AMC has also outsourced the secondary waste transportation system & ensure timely & efficient removal of waste from its collection point. AMC has deployed 56 trucks / tractors mounted road vacuum sweeping machines and 15 self ride on road vacuum sweepers and other rented vehicles in all 6 zones on daily basis for efficient cleaning of the city.

- d) **Waste Collection from Spots**

- (i) In order to remove nuisance spots and to meet the increasing needs as well as to maintain cleanliness and public health. AMC has purchased 660 / 1100 liters capacity galvanized 2129 trolleys (silver color) and 187 vehicles like Refuse Compactor.

This work is given on O & M model for 5 years.

Agency has to collect the waste from these Trolleys on a daily basis as per TPM. AMC is paying the Agency on shift basis.

Vehicles and TPM working is monitored through GPS, RFID Readers and Tags.

(ii) AMC collect more than 600 TPD waste from various spots in seven zones by deploying 156 closed body yellow coloured vehicles. This system is also monitoring through GPS system.

e) **Waste collection from road side small litter bins**

More than 3000 pair of litter bins of 80 liters size have been installed at various public roads, main roads, public places, pavements, as well as traffic locations, where citizens can dispose their dry & wet waste easily. It has been planned to install even more number of litterbins in the forthcoming year.

This work is given on O&M model for 5 years. AMC has provided total 14 vehicles.

Agency has to put black garbage plastic bag in the bin and collect it on a daily basis (also put a new garbage plastic bag in a bin). AMC is paying the Agency on shift basis.

Vehicles and TPM working is monitored through GPS, RFID Readers and Tags.

f) To reduce pollution and maintain cleanliness of river Sabarmati, citizens are motivated to deliver flower waste and such holy materials in the "KALASH" instead of throwing into the river. AMC has deployed 14 "KALASH" on 7 bridges of Sabarmati River. Such flower waste is delivered to compost plant for treatment.

g) AMC has deployed 89 Tipper Trucks, 40 JCB Machines, 33 Bobcat type machines, 120 Hydraulic Dumper Placers, 11 Skip Lifters, 54 Compactors, 4 Dead Animal Vans, 14 Nuisance Tankers, 1 Mobile Court, 60 Tractors, 3 Excavators, 5 Bull dozers, 3 Wheel dozers, 20 Road Vacuum Sweepers, 24 mini vans and other contractors' 700 vehicles in all 6 zones. AMC deploys more than 1500 Total vehicles / equipments on daily basis for efficient handling of waste cleaning of the city.

h) AMC has contracted the daily collection and transportation of bio-medical waste from 4 municipal hospitals, referral hospitals, 79 urban health centers to the incineration plant. The contracts have been given to GPCB approved and authorized contractors (Medicare Environmental Management Pvt Ltd and Pollucare Bio Medical Waste Management Pvt. Ltd.)

i) Dead animals and carcass are collected, transported to Gyaspur by SWM Department's Pail Depo office. This facility is available from 7.00 a.m. to 11.00 p.m on all 365 days. (Telephone No. 7819862859).

AMC has deployed 4 hydraulic based vehicles and staffs to collect carcass of dead animal like cow, camel, buffalo, donkey, dog, rat, etc. AMC has deployed 2 vehicles to collect fish, meat, and slaughter house waste from market.

Average 10 TPD animal waste is collected from the city under this system.

j) 8 Transfer Stations of about 400 MT capacities each were constructed in 7 Zones, all are functional and 1 RTS is in under construction.

At each transfer Station, 2 Stationary Compactors and 10 Large Containers (20 - 25 CMT Capacity which can carry 10 to 12 MT of MSW) will be deployed i.e.

total of 12 Stationary Compactors, 60 Containers and 40 Large Hook Loader Vehicles. Advantages for these transfer stations are savings in transportation cost, reduction in pollution and reduction in traffic congestion.

<u>Details of All 08 Refuse Transfer Stations</u>		
No	RTS	Location/Address
1	VASTRAL RTS	Opp. EWS quarters, Panjarapol road, Vastral
2	RAKHIAL	Near La-Gajjar, Nagarvel Hanuman Road, Rakhial
3	VADAJ	Near D- Mart, Ranip BRTS, Juna Vadaj
4	SHAHWADI RTS	Vasna Shahvadi canal Road, Vasna
5	Naroda	Nr. Kadva Patidar samajwadi, naroda road
6	VATVA RTS	Near Ambika tubes, Opp. Overbridge, Vatva
7	KHADIA RTS	Opp. P. V. Tower, Near Hirabhai market, Near Divan ballubhai school, kankariya
8	SOLA RTS	B/h La meridian hotel, Mercidiz benz showroom, Sola high court road

- k) Since 2008, for collection, transportation and final disposal of kitchen waste / biodegradable waste from hotels and restaurants, AMC has contracted with three agencies. Such segregated waste collected from such units is transported to AMC's composting plants - Excel Industries Ltd. and Bharuch Enviro Engineers Ltd. Currently, more than 1000 units are covered through this system.

Other Activities:

a) **Information, Education and Communication activities for Awareness among the Citizen of Ahmedabad**

AMC has initiated IEC (Information, Education and Communication) activities for generating awareness among the general public towards cleanliness, waste treatment & waste disposal. Activities include formation of committees, conducting group meetings in the wards, short films, publicity through television channels / local cable network, advertisement in newspapers, distribution of pamphlets, erecting of Banners, Slides in cinema theatres, conducting street plays, organizing of rallies involving school & college students. Imparting awareness training to municipal staff and councilors has also been included.

b) **Mobile Sanitation Court**

AMC launched country's first Sanitation Mobile Court on 4th June, 2009 which is dedicated to disciplining those who litter and help to keep city clean. Till September 2016, total 2,25,442 cases have been registered and Rs. 9.43 Crore penalty levied from such offenders.

c) Public Health Byelaws

AMC has prepared Public Health Bye-laws for effective enforcement and maintaining discipline.

- Classification of waste in 30 categories
- Generators of waste based on their type, 20 categories
- Segregation of waste
- Storage of waste
- Delivery & collection of waste
- Processing & disposal of waste
- Liquid Waste Management
- Prevention of Waterborne, Vector borne and Food borne diseases
- Offences under the bye-laws
- General offenses which is applicable to all the citizens within city limit (20 in number)
- Enforcement of the provisions
- Schedule of Fines

This PHBL has sanctioned by Government of Gujarat and Notified in Government Gazette.

d) Plastic waste Mgmt. bylaws

AMC already banned Plastic carry bags of less than specified microns, plastic cups, water pouches, paan masala polythene in the year 2018.

AMC notified Plastic Waste Mgmt. bylaws in December 2018.

e) GPS & RFID based monitoring system

AMC has invited bids for installation of GPS and RFID technology based solution for the vehicles deployed for collection & transportation of solid waste management of Ahmedabad city for 5 years on two bid system with a technical demo as a part of bidding process. AMC has engaged (n) Code Solutions (A Division of GNFC) as a consultant for this project and assigned this work to Ammnex Pvt. Ltd. (Infinium Solutionz Private Limited), Ahmedabad. This project has commenced from August-2014. This system is deployed in Door / Gate to dump collection vehicles, Container lifting vehicles, Road Sweeping machines etc.

Solid Waste Treatment / Processing

a) Present Scenario

Sr. No.	Name of Company	Daily MSW Treatment	Mode of Agreement	Operational Since
1	Excel Industries Ltd	300 Tons into compost	DBFOO * mode No tipping fee	January-2000
2	Bharuch Enviro Engineers Ltd. (UPL Djai Power Ltd.)	300 Tons into compost & RDF	DBFOO * mode No tipping fee	July -2009

3	Creative Eco-Recycle Port Pvt. Ltd.	400 Tons into compost & RDF	DBFOO * mode No tipping fee	December-2012
4	Amdavad Enviro Projects Pvt Ltd	1000 Tons C&D Waste treatment into recyclable products	DBFOO * mode No tipping fee	December-2013
5	Kankaria Zoo de centralized plant	1 Ton (Green Waste Treatment into compost)	Start up	December-2019
6	Victoria Garden de centralized plant	1 Ton (Green Waste Treatment into compost)	Start up	December-2018

b) Construction & Demolition Waste Processing Plant

- Amdavad Enviro Pvt. Ltd. is authorized by AMC on PPP mode to collect, transport & process of C & D waste from designated locations and convert it into various recyclables.
- Citizen are well informed to dump their C& D waste at their own cost at the defined 17 locations.
- Citizens can also register their complaints on AMC operated CCRS number 155303 or on Agency's number.
- AMC paid Rs.155 per ton from 2013 with 5% increase in every year.
- AMC modified agreement to increase daily processing of Construction and Demolition Waste from 300 TPD to 1000 TPD from April-2018.
- For sustainability and viability of C & D Waste processing plant, **AMC made provision to procure 100% of material requirement for its civil work, infrastructure projects, Street furniture.**

c) Effective Utilization of Flower waste from temple

- Ahmedabad is a religious city having many small and big temples.
- AMC has started project of processing of holistic flower waste, by collecting it from different temples.
- AMC has deployed one vehicle separately for collection of flower waste from 150 temples around the city.
- Collected flower waste then transported to Processing plant at Victoria Garden having capacity of 01 TPD for processing it to convert into Compost and Incensed stick.

(1) Solid Waste Recycling Centre (Material Recovery Facility)

Automated Material Recovery Facility (M.R.F.)

- AMC has awarded work to Nepra Resources Management Private Limited (NRMPL) as a pilot project to establish a "Solid Waste Recycling Centre (Material Recovery Facility)"
- It is India's biggest Automated MRF Facility. The capacity is 100 MT per day.

- Agency collects Dry Municipal Waste from households, several commercial complexes, hotels, industries and institutions is collected and recycled in huge quantum. The waste is sorted, washed, baled and shredded (processed) based on the requirement before dispatch.
- More than 2000 rag pickers are integrated with main stream.

Decentralized Material Recovery Facility (MRF)

- 8 new MRFs have been established at all Refuse Transfer Station and women rag pickers were deployed to segregate dry waste received at RTS.
- In order to assist them financially during initial phase, each worker was given Rs. 200 per day.
- More than 600 woman rag pickers get integrated in the main stream

Future Planning of Solid Waste Management

(2) For Solid Waste Treatment :Waste to Energy

No.	Name of Company	Daily MSW Treatment	Land given & Daily production of MW	Technology details
1	Abellon Clean Energy Ltd	1000 Tons	13 acres for 29 years 14 MW	Will follow European Union emission norms. Mass Incineration, core technology
2	JITF Urban Infrastructure Ltd.	1000 Tons	14 acres for 30 years 11 MW	Will follow MoEF, CPCB, SPCB emission norms Use its own technology
(Pre-processing Section - Sorting of recyclables, drying with Thermophillic enzyme digestion process, mechanized elaborate segregation system for separating into recyclables/inert, producing processed MSW for combustion in Waste to Energy Plant and Power Generation Section - producing steam in boiler with processed MSW as fuel, Steam Turbine Generator module to produce power)				

- a) All plants are Design, Build, Finance, Own and Operate basis.
- b) AMC has allotted land (on lease rent of Rs. 1 per year, not allowed to mortgage)
- c) Gujarat Electricity Regulatory Commission (GERC) has issued an order for levelized tariff for MSW to Energy Project on 10th November, 2016. In this order GERC has given levelized tariff of Rs. 7.03 KWh for Mass Incineration Technology and Rs. 7.07 KWh for RDF Technology.
- d) Power Purchase Agreement of both agencies done with DISCOM (Torrent / GUVNL).

Pirana Dump Site Biomining Project

- **AMC has Initiated Biomining Project by its own:** To overcome and resolve the long 40 years legacy waste issue to resolve effectively and efficiently.
- As a part of pilot project, AMC had started bio-mining of one portion of Pirana Dump Site i.e. Ajmeri Dump with 3 trommel machines in Jan-2019.
- The Hon'ble National Green Tribunal, Principal Bench at New Delhi has passed detailed oral order in Original Application No.606 of 2018 on 26.03.2019.
- As per the above referred order, the legacy waste dump sites should not be simply capped but should be bio-mined and then kept and maintained in accordance with MSW rules.
- **Hence, as per the order, AMC cannot directly cap the Pirana dump site.**
- In March-2019, AMC has invited tender for Supplying of Segregating trommels each have capacity of 300 TPD on Rental Basis for the bio mining of Pirana dumpsite.
- Lowest rate is Rs.6,40,000/-per trommel machine per month.
- 10 agencies qualified and installed 36 trommels, each of having capacity of 300 TPD processing.
- Recently, new tenders are invited for 300 TPD and 1000 TPD trammel machines, agencies are finalized and work is allotted.
- **Approx. 24 lakhs MT legacy waste is processed and around 13 acres land cleared.**

Bopal - Ghuma Dump Site Biomining Project

- The Ahmedabad Municipal Corporation (AMC) which recently took over the Bopal - Ghuma nagarpalika area, has decided to first clear the dump site
- It is adjacent to the Isro guest house and there are residential colonies and a school near it. It is spread over six acres.
- The AMC deployed 01 automated segregation machine of 1000 TPD processing capacity for bio-mining of Bopal dump site.
- Approx. 2.5 lakh tonnes of waste at the site processed.
- AMC decided to create an ecology park of dense trees with facility of children's play area, walkway, open gym, etc on this area. Work on which already begin.