

**ACTION PLAN FOR CONTROL OF AIR POLLUTION
IN NON-ATTAINMENT CITY OF GUJARAT
(AHMEDABAD)**

BY

**GUJARAT POLLUTION CONTROL BOARD
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Action Plan for Control of Air Pollution in Non-Attainment City of Gujarat (Ahmedabad)

Preamble:

Ahmedabad is Gujarat's largest city with a population of 5.6 million as per the 2011 census was founded in 1411 AD as a walled city on the eastern bank of River Sabarmati. It is the seventh largest city of India. The city is located at 21°03'N and 72°58'E. Historically Ahmedabad has been one of the most important centres of trade and commerce in western India. It is also a major industrial and financial city contributing about 60% of the total productivity of the state. Ahmedabad city of Gujarat is emerged as an important economic and industrial hub in India and one of the hundred Indian smart city. The area around Ahmedabad and the banks of the Sabarmati river is better known for best Infrastructure and Transport.

The total no. of vehicles registered in Ahmedabad district are more than 40 lakhs. Pharmaceuticals, Chemicals, Textile & Construction are the main industries of Ahmedabad of today. Total no. of vehicles registered as on June, 2018 in Ahmedabad District with Transport Department is 40,78,718 (Goods Vehicle: 1,53,836, Passenger Vehicle: 36,928, Car: 6,66,753, Taxi/Jeep: 50,961, Auto Rickshaw: 1,83,854, Two Wheeler: 28,78,309, Tractor/Trailer: 83,754 and others: 11,708).



The major sources of air pollution in Ahmedabad city are road dust, vehicular emission, domestic fuel burning, open waste burning, construction activities, industrial emissions etc. Gujarat Pollution Control is regularly monitoring the ambient air quality at Ahmedabad through Continuous Ambient Air Quality Monitoring Station (CAAQMS) installed at Kankariya Dhor Bajar (Maninagar) and GIDC Vatva and through 14 manual stations operated as per CPCB guidelines under NAMP & SAMP.

Particulate Matter (PM₁₀ & PM_{2.5}) has been identified as main air pollutant as it is found above the prescribed national standards. This is mainly due to re-suspension of road dust, emission from vehicles, D.G. sets, construction activities, burning of domestic fossil fuels, open burning of

solid wastes, transportation of construction materials such as sand, soil etc. without covering and emission from brick kilns located around Ahmedabad. NO₂ also has been observed an alarming level. This is mainly due to vehicular emissions. Plying of old vehicles and traffic congestion causes higher level of NO₂. It has been observed that air quality of Ahmedabad during winter season becomes poor & severe due to condensation of fine particulate matter in the lower portions of the atmosphere.

Action Plan for Control of Air Pollution in Non-Attainment city of Gujarat

1.	Name of the city	:	Ahmedabad
2.	Air Pollution concerns	:	PM ₁₀ , PM _{2.5} , NO ₂
3.	Air pollution levels: (provide range of 24-houly average concentration values; annual average for past five years; No. days in various AQI categories)	:	Annexed as Annexure-1
4.	Months with high air pollution levels	:	January, February, November & December
5.	Action Plan:		

Source group	Action	Implementation period (Short/ Mid /Long-term)	Responsible agency(ies)	Time target for Implementation	Financial Allocation	Any other information
Vehicles	1. Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles.	Mid	Transport Department	1 years		Policy will be finalized within six months.
	2. CNG infrastructure for auto gas supply in the city and transition of public transport vehicles to CNG mode. Introduction of e-buses for Public transport	Long	Transport Department & Oil companies, AMC, GSRTC	2 years		Policy will be finalized within 6 months. Ahmedabad Janmarg Ltd (AJL) is in process of procuring 50 CNG & 50 e-buses. Further to this, a new RFP for procurement, operation and maintenance of 300 e-buses. Therefore, AJL is very much on the path to introduce more e-buses and CNG buses.
	3. Installation of remote sensor based PUC system	Long	Transport Department	2 years		Policy will be finalized within six months.
	4. Synchronize traffic movements/Introduce intelligent traffic system for lane-driving	Mid	AMC, Traffic Police	First Pilot Project of Area Traffic Control system (ATCS) 10 Nos. of Traffic	In Smart city Budget	After successful completion of First Pilot Project of Area Traffic Control system (ATCS),as and observation of result AMC may go for implication of Area Traffic Control system (ATCS) on another signalize junctions.

				junction from Panchvati to Iscon work is in Progress under Smart city. Project is likely to be completed by 31 st March-19.		
	5. Prepare Action Plan to check fuel adulteration and random monitoring of fuel quality data	Ongoing	District Adm., Oil company, Civil Supply Dept., Transport Department	Continuous process		Team will be formed at District level & frequency of monitoring shall be decided.
	6. Promotion and operationalization of E-rickshaw/E-Cart.	Long	Transport Department	2-5 years		Transport Department will prepare a policy within 6 months.
	7. Prevent parking of vehicles in non-designated areas. Development of Multi-layer parking	Long Long	AMC, Traffic Police AMC, UD&HD & District Adm	continuous process	as per AMC budget	Parking policy is required to prepare. Four Multi level parking are functional and 3 more multilevel parking are planned. Details attached here

	8. Introduction of BS-6 fuels in vehicles in metro cities	Long	RTO, Transport Department	2020		
	9. Augmentation of Public Transport in the city	Mid	AMC	2020		<p>AJL has floated tenders for procurement of 50 CNG buses, 50 e-buses. And new RFP of 300 e-buses.</p> <p>So, a process of fleet augmentation is very much in progress.</p> <p>Metro Rail Project for Phase-I East-West corridor 18.52 Km length & North-South corridor of 20.73 km is under progress</p>
	10. Monitoring on Vehicle Fitness	Ongoing	Transport Department & Traffic Police			At present, monitoring of 100 % vehicle fitness is obtained but conversion into electrical manner checking is yet to be achieved.
	11. Prepare plan for widening of road and improvement of infrastructure for decongestion of road.	Long	AMC, Traffic Police	2024	2020	<p>1) AMC is carry out road widening as well as recarpeting of roads regularly and approximate 200 Km. roads attended at the cost of about 300 cr. every years.</p> <p>2) There are total 53 bridges in AMC limit and 7 no. of New bridges are in progress out of this 1 will completed on 31st march 2019 and more 1 will complete on November 2019 and rest 5 bridges will be completed by 2020.</p>
	1. Regular cleaning of road dust.	Short	AMC	Ongoing		<ul style="list-style-type: none"> Daily two time sweeping in morning and evening shift is done by more

Road Dust						<p>than 12500 Safai Karamcharis on a daily basis.</p> <ul style="list-style-type: none"> Moreover AMC also deployed 40 road sweeping machines for mechanized road sweeping. RWAs are also assigned for manual cleaning of roads in night shift.
	2. Creation of Green buffers along the traffic corridors.	Mid	AMC	Continuous	50 Lakh (Financial Allocation Year 2019-20)	Regular Continues by AMC in Financial year 2019-2020, plan to develop 10 km central verge and 10 new traffic circle.
	3. Construction of pucca pavement along the roads.	Mid	AMC and Road Construction Department			AMC is also planning to construct all major roads wall to wall along with paved shoulder and footpaths where all utilities are completed on regular basis.
	4. Maintain pothole free roads for free flow of traffic	Short	AMC			<p>Ahmedabad Municipal Corporation has made various arrangements for maintenance of road,</p> <p>Road which are falls in defect liability period that is maintained by concern contractor at his own cost.</p> <p>Road which are not falls in defect liability period are being maintained by AMC with following methods.</p> <ul style="list-style-type: none"> Manual patchwork by hot mix material. Manual patchwork by cold mix material.

						<ul style="list-style-type: none"> Road repairing by cold emulsion injection pothole patching technology. Repairing of minor Erosion for improvement of riding quality is carryout using Micro Surfacing technique. <p>For repairing of major Erosion or Heavy damage of roads, Heavy patch work done with hot mix with paver machine and roller.</p>
	5. Development of green belt in open areas, gardens, parks/ community places, schools & housing societies.	Long	Department of Environment and Forest, AMC	Ongoing Continues	10 Crore (Financial Allocation Year 2019-20)	Regular Continues by AMC, in Financial year 2019-2020, plan to develop 10 new gardens.
	6. Introduction of water fountains at major traffic intersection/ circle	Long	AMC	continuous	as per budget	Many fountain functional
	7. Blacktopping of metaled road including pavement of road shoulders	Ongoing	AMC	Ongoing		<p>1) AMC is carry out road widening as well as recarpeting of roads regularly and approximate 200 Km. roads attended at the cost of about 300 cr. every years.</p> <p>2)AMC is also planning to construct all major roads wall to wall along with paved shoulder and footpaths where all utilities are completed on regular basis.</p>

Construction activities	1. Enforcement of Construction and Demolition Waste Rules	Short	AMC			Public health byelaws-2012 are already enforced for C & D waste collection, transportation and disposal C & D Waste recycling plant is working at Gyaspur.
	2. Control measures for fugitive emissions from material handling-conveying and screening operations through water sprinkling, curtains, barriers and dust suppression units.	Short	AMC.	1 year	as per AMC budget	Other Departments like estate , TDO, Water operation worked together
	3. Ensure Carriage of construction material in closed/ covered vessels	Short	AMC	1 year	as per AMC budget	Work already started
Biomass and garbage burning	1. Restriction on open burning of municipal solid waste, Biomass, plastic, horticulture waste etc.	Short	AMC			Public health byelaws-2012 are already enforced and punitive measures are taken against offence of burning of MSW.
	2. Immediate lifting of solid wastes generated from de-silting and cleaning of municipal drains for its disposal.	Short	AMC	less than 1 year	70.00 Crore	Advance suction machinery and bucket rickshaw

Industries	3. Transportation of municipal solid wastes, construction materials and debris in covered system.	Short	AMC			<ul style="list-style-type: none"> All vehicles of AMC deployed for MSW and Debris collection and transportation are closed body / covered. Public health byelaws-2012 are already enforced and punitive measures are taken against offence of transportation of MSW, C & D and debris.
	4. Ensuring promotion & use of cleaner fuel for commercial purposes like local Dhaba/ eateries	Long	District Adm. & Oil company			
	1. Ensuring installation and operation of air pollution control devices in industries.	Short	GPCB & Industries	Ongoing		<p>For industries using solid fuel</p> <ul style="list-style-type: none"> Steam generation capacity> 2TPH auto fuel feeding system and bag filter as APCM and heat exchanger before APCM Steam generation capacity> 6TPH & more ESP as APCM Thermal power plant of Torrent power Ltd has installed ESP, Flue Gas Desulfurization system pending
	2. Ensuring emission standards in industries.	Short	GPCB & Industries Torrent Power	Continuous Processes		<ul style="list-style-type: none"> To ensure flue gas emission and process gas emission of industries met with the standards To ensure thermal power plant (TPP) is complying as per CPCB guidelines
	3. Adoption of cleaner technology in brick kilns	Mid	GPCB	1 year		No major brick kilns within city limit. Brick Kilns of AUDA area (i.e. city outskirts) will be targeted.

Strengthening of AAQ	1. Operation of CAAQMS at Ahmedabad a. Two CAAQM stations at Maninagar and GIDC Vatva are operational.	Mid	GPCB, AMC, Industries Association	Two Years		<p>Maninagar & Vatva CAAQMS are linked with CPCB.</p> <p>As per draft guidelines of CPCB, for the cities having population more than 50 lacs, 12 CAAQMS are required.</p> <p>In addition to that under "SAFAR" project Ahmedabad Municipal Corporation has 8 CAAQMS operational.</p> <p>Considering CAAQMS provided by GPCB and AMC, two new CAAQMS are required for Ahmedabad city. which shall be provided within 2 years of time limit.</p>
	2. Source apportionment study	Mid	GPCB, GEMI	2019		Dept. of F&E has given this work to GEMI for Ahmedabad City
Public Awareness	1. Issue of advisory to public for prevention and control of air pollution	Short	AMC	Implemented	20 lack	"SAFAR" Ahmedabad AIR project launched.
	2.Launch public awareness campaign for vehicle maintenance, minimizing use of personal vehicles, lane discipline etc.	Short	Transport Department & Traffic Police			Development of mobile app is under progress.
Others	1. Compliance of guidelines on D.G. sets and action against violation	Short	GPCB & AMC			<p>By & large, due to uninterrupted power supply in the city, D G Set operation is only for stand by purpose as & when required.</p> <p>As per new categorisation of CPCB D G Set upto 1000 KVA falls under white category and do not require permission from GPCB.</p>
	2. Coordination with concerned authorities on continual basis for maximizing coverage of LPG/PNG for domestic and commercial cooking with target of 100% coverage.	Short	Civil Supply Dept			<p>GOI has floated Ujjwala Scheme for facilitating use of LPG as domestic fuel instead of burning wood, cow dung cakes, coal etc.</p> <p>Department has declared Ahmedabad as kerosene free city.</p>

4. Monitoring mechanism and Implementation status:

The aforesaid action plan shall be implemented by State Government (as per GR No. ENV-10.2019-97-T, Dated: 12/06/2019) to ensure effective implementation of National Clean Air Program in Ahmedabad city. There is 3 tier committee for monitoring and implementation of NCAP.

- (1) Steering committee at state level headed by chief secretary of Govt. of Gujarat
 - to review on quarterly basis and to provide guidance
- (2) Monitoring committee at state level
 - to monitor the action plan and to review on monthly basis
- (3) Implementation committee for Ahmedabad city
 - for the implementation of the NCAP program

Annexure-1(A)

AHMEDABD AIR QUALITY					
ANNUAL AVERAGE 2017-18 (FROM APRIL-2017 TO MARCH-2018)					
SR NO.	LOCATION	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO _x µg/m ³
	<i>National std. for annual average</i>	60	40	50	40
1.	Cadila Laboratories Ltd	163.75	49.59	16.65	28.15
2.	L D College of engineering, Navrangpura	133.08	44.54	13.32	26.05
3.	Shardaben Hospital, Saraspur	144.58	47.62	13.56	28.75
4.	R.C Technical schhol, Mirzapur	138.33	45.48	13.48	28.34
5.	Behrampura Referral hospital	147.17	47.59	14.33	29.96
6.	Satellite area Jodhpur Shraddha Pumping station	158.83	49.12	13.77	27.58
7.	On the terrace of traffic booth, Ashram road	163.42	49.78	13.96	30.23
8.	Pumping station rakhiyal	144.42	46.65	13.72	29.31
9.	Dynowash, Illaben Estate, Narol	192.33	53.51	15.30	31.48
10.	Sola chanakyapuri pumping station, nr. Kargil char rasta	155.08	49.20	15.08	28.41
11.	Udyog Nagar Police Chowky, GIDC-Naroda	155.8	49.5	14.5	27.2
12.	Mukesh Industry, Narol	154.8	49.8	16.3	31.2
13.	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda Road	146.6	47.0	14.8	28.9
14.	VIA Hall, GIDC-Vatva	150.8	47.7	15.3	29.6

AHMEDABAD - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2016-17 (FROM APRIL- 2016 TO MARCH- 2017)					
SR.	LOCATION	PM ₁₀	PM _{2.5}	SO ₂	NO _x
NO.		ug/m ³	ug/m ³	ug/m ³	ug/m ³
	<i>National Std. for Annual average</i>	60	40	50	40
1	Cadilla Laboratories Ltd	113.75	35.58	13.08	29.81
2	L.D ENG.COLLEGE, NAVRANGPURA,	113.67	35.08	12.36	25.46
3	Shardaben Hospital, Saraspur	111.83	35.84	12.78	28.05
4	R.C TECHNICAL SCHOOL, MIRZAPUR	112.25	35.67	12.59	27.19
5	BEHRAMPURA REFERAL HOSPITAL	112.42	35.71	13.25	29.92
6	SATELLITE AREA Shradhdha Pumping Station, Jodhpur	114.75	36.50	12.79	26.98
7	On the terrace of traffic booth ,Aashram road, NEHRUBRIDGE	111.83	35.38	12.08	31.53
8	Pumping station Rakhial	113.43	35.57	13.06	30.35
9	Reliable Products, 61,62/Dyno wash Illaben Estate, Narol	110	35	14.35	30.29
10	Sola Chanakya puri pumping station, Near Kargil Char Rasta	112.33	35.42	12.04	27.43
11	Udyog Nagar Police Chowky, GIDC-Naroda	114.1	36.0	12.9	28.2
12	Mukesh Industry, Narol	114.0	36.4	15.0	33.6
13	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda	114.7	36.2	13.1	32.9

	Road				
14	VIA Hall, GIDC-Vatva	111.6	35.8	15.3	32.0

AHMEDABAD - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2015-16 (FROM APRIL - 2015 TO MARCH – 2016)					
SR. NO.	LOCATION	PM ₁₀ ug/m ³	PM _{2.5} ug/m ³	SO ₂ ug/m ³	NO _x ug/m ³
	<i>National Std. for Annual average</i>	60	40	50	40
	<i>National Std. for 24 hourly average</i>	100	60	80	80
1	Cadilla Laboratories Ltd	108.50	34.00	14.27	28.18
2	L.D ENG.COLLEGE, NAVRANGPURA,	110.67	33.33	12.57	24.69
3	Shardaben Hospital, Saraspur	107.67	33.51	13.08	26.93
4	R.C TECHNICAL SCHOOL, MIRZAPUR	106.67	33.08	12.58	26.85
5	BEHRAMPURA REFERAL HOSPITAL	107.92	33.71	14.43	29.41
6	SATELLITE AREA Jodhpur Taker Urben Health center	109.17	34.08	13.05	27.37
7	On the terrace of traffic booth ,Aashram road, NEHRUBRIDGE	107.46	33.38	11.79	31.99
8	Pumping station Rakhial	107.55	33.02	13.73	29.98

9	Reliable Products, 61,62/Dyno wash Illaben Estate, Narol	105.08	33.13	15.87	28.86
10	Udyog Nagar Police Chowky, GIDC-Naroda	139.0	49.0	15.0	30.0
11	Mukesh Industry, Narol	186.0	68.0	21.0	37.0
12	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda Road	114.0	44.0	12.0	27.0
13	VIA Hall, GIDC-Vatva	142.0	55.0	22.0	36.0

AHMEDABAD - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2014-15 (FROM APRIL - 2014 TO MARCH - 2015)					
Sr. No.	LOCATION	PM10	PM2.5	SO2	NOx
		ug/m3	ug/m3	ug/m3	ug/m3
1	Cadilla Laboratories Ltd	116.66	44.05	13.37	25.72
2	L.D ENG.COLLEGE, NAVRANGPURA,	79.47	30.50	12.14	19.49
3	Shardaben Hospital, Saraspur	110.15	42.73	12.75	24.94
4	R.C TECHNICAL SCHOOL, MIRZAPUR	93.97	38.18	12.00	21.46
5	BEHRAMPURA REFERAL HOSPITAL	104.15	39.82	14.64	24.03

6	SATELLITE AREA Jodhpur Taker Urben Health center	87.75	33.28	11.30	21.86
7	On the terrace of traffic booth ,Aashram road, NEHRUBRIDGE	114.85	47.77	13.04	25.28
8	Pumping station Rakhial	93.41	33.75	13.22	22.29
9	Reliable Products, 61,62/Dyno wash Illaben Estate, Narol	92.52	29.00	13.39	19.99
10	Udyog Nagar Police Chowky, GIDC-Naroda	94.0	35.0	14.5	22.0
11	Mukesh Industry, Narol	99.0	42.0	14.9	22.4
12	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda Road	89.0	31.0	13.2	20.4
13	VIA Hall, GIDC-Vatva	95.0	35.0	14.6	21.8

AHMEDABAD - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2013-14 (FROM APRIL - 2013 TO MARCH – 2014)					
STATION		PM10	PM2.5	SO2	NOx
		ug/m3	ug/m3	ug/m3	ug/m3
1	Cadilla Laboratories Ltd	89.28	32.38	13.77	20.31

2	L.D ENG.COLLEGE, NAVRANGPURA,	81.8	28.08	13.53	18.96
3	Shardaben Hospital, Saraspur	82.91	28.48	12.36	19.32
4	R.C TECHNICAL SCHOOL, MIRZAPUR	82.95	28.77	12.56	19.66
5	BEHRAMPURA REFERAL HOSPITAL	84.41	29.98	13.37	20.41
6	SATELLITE AREA Jodhpur Taker Urben Health center	79.71	27.79	14.21	20.51
7	On the terrace of traffic booth ,Aashram road, NEHRUBRIDGE	90.84	33.90	15.19	21.20
8	Pumping station Rakhial	93.67	38	13.08	20.93
9	Reliable Products, 61,62/Dyno wash Illaben Estate, Narol	89.33	33.00	13.07	21.00
10	Udyog Nagar Police Chowky, GIDC-Naroda	101.3	30.6	14.3	20.5
11	Mukesh Industry, Narol	103.0	35.0	16.0	22.0
12	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda Road	84.0	26.0	13.0	18.0
13	VIA Hall, GIDC-Vatva	97.0	28.0	14.0	20.0

AHMEDABAD - AMBIENT AIR QUALITY

ANNUAL AVERAGE 2012-13 (FROM APRIL - 2012 TO MARCH – 2013)

STATION		PM10	PM2.5	SO2	NOx
		ug/m3	ug/m3	ug/m3	ug/m3
1	Cadilla Laboratories Ltd	92.92	30.78	13.25	20.58
2	L.D ENG.COLLEGE, NAVRANGPURA,	65.07	25.15	10.89	16.57
3	Shardaben Hospital, Saraspur	68.43	26.38	10.01	16.85
4	R.C TECHNICAL SCHOOL, MIRZAPUR	71.31	26.24	11.53	18.59
5	BEHRAMPURA REFERAL HOSPITAL	70.49	26.24	12.04	17.68
6	SATELLITE AREA Jodhpur Taker Urben Health center	68.11	24.78	11.12	17.46
7	On the terrace of traffic booth ,Aashram road, NEHRUBRIDGE	112.91	34.08	28.84	23.12
8	Udyog Nagar Police Chowky, GIDC-Naroda	98.0	49.0	13.0	27.8
9	Mukesh Industry, Narol	127.0	61.0	13.81	29.8
10	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda Road	69.0	33.0	10.55	20.44
11	VIA Hall, GIDC-Vatva	73.0	39.0	11.60	23.63

AHMEDABAD - AMBIENT AIR QUALITY

ANNUAL AVERAGE 2011-12 (FROM APRIL - 2011 TO MARCH – 2012)

STATION		PM10	PM2.5	SO2	NOx
		ug/m3	ug/m3	ug/m3	ug/m3
1	Cadilla Laboratories Ltd	82.38	41.77	11.59	24.46
2	L.D ENG.COLLEGE, NAVRANGPURA,	59.54	28.56	9.75	16.39
3	Shardaben Hospital, Saraspur	73.07	38.50	11.24	22.57
4	R.C TECHNICAL SCHOOL, MIRZAPUR	68.15	35.23	10.48	21.16
5	BEHRAMPURA REFERAL HOSPITAL	72.68	33.56	10.90	22.64
6	SATELLITE AREA Jodhpur Taker Urben Health center	74.63	35.15	10.64	22.56
7	On the terrace of traffic booth ,Aashram road, NEHRUBRIDGE	94.82	50.67	12.38	27.64
8	Udyog Nagar Police Chowky, GIDC-Naroda	106.0	42.0	17.49	33.18
9	Mukesh Industry, Narol	137.0	61.0	18.26	36.98
10	H.P. Petrol Pump, S.P. Ring Road, Odhav-Naroda Road	83.0	33.0	12.27	24.93
11	Vatva-Odhav, S.P. Ring Road	86.0	32.0	11.89	26.13