



GUWAHATI METROPOLITAN DEVELOPMENT AUTHORITY

PART-II

Master Plan for Guwahati Metropolitan Area – 2025 (Land Use Zoning and Development Control Regulation)



July 2009

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GUWAHATI METROPOLITAN DEVELOPMENT AUTHORITY

NOTIFICATION

GMDA/MP/1/98/Part-I/103 dated 7th July, 2009 - In exercise of the powers conferred by sub-section (1) of Section 21 of the GMDA Act 1985 the Guwahati Metropolitan Development Authority is pleased to publish the following Notice regarding the publication of the new final Master Plan and the Zoning Regulation 2025 for Guwahati as approved by Govt. under Section 19 of GMDA Act 1985 vide Govt. order No. GDD. 91/1997/395 dated 09/06/2009 for the area described in the Schedule-I.

NOTICE FOR THE PUBLICATION OF THE MASTER PLAN AND THE ZONING REGULATION 2025 FOR GUWAHATI

1. It is notified that the new final Master Plan and Zoning Regulation 2025 for Guwahati, prepared by Guwahati Metropolitan Development Authority is hereby published for operation with effect from 07/07/2009.
2. The final Master Plan and the Zoning Regulation together with all relevant papers and maps may be inspected free of cost during office hours at the offices of The Chief Executive Officer, Guwahati Metropolitan Development Authority, Bhangagarh, Guwahati-5, The Deputy Commissioner, Kamrup (Metro) and Kamrup, The Palasbari and North Guwahati Revenue Circle Offices, Guwahati Municipal Corporation and North Guwahati Town Committee. Copies of the Master Plan and Zoning Regulation and soft copy of report and maps are available at the office of The Chief Executive Officer, Guwahati Metropolitan Development Authority, Bhangagarh, Guwahati-5 for sale.

Sd/-
Chief Executive Officer
Guwahati Metropolitan Dev. Authority
Bhangagarh, Guwahati-5

SCHEDULE-I

A. SITUATION AND AREA: -

- Districts : Kamrup (Metro) and Kamrup
1. Approximate area : Existing Master Plan and Guwahati Metropolitan Area -262 sq. km.
2. Approximate new area : 66 sq. km.
3. Approximate Total Area : 328 sq. km.

1. Mouzas and Villages included in the existing Master Plan for Greater Guwahati:

Mouzas

Villages

Silasindurighopa	: Nort-Guwahati, Rudreswar, Gouripur, Abhoypur, Tilinggaon, Sila Grant, Ghorajan, Nomalijalah, Amingaon.
Pub Bangsar	: Charmajuli pam.
Dakhin Rani	: Barjhar, Kahikuchi, Jugipara.
Chhayani	: Kaithasidhi.
Jalukbari	: Garalgaon, Ajaragaon, Dharampur, Upar Mirjapur, Mikirpara Chakardai, Dipar Beel, Pamohi, Dehangarigaon, Kacharigarigaon, Pachim Jalukbari, Dakhin Jalukbari, Maj-Jalukbari, Uttar Jalukbari, Sadilapur, Tetelia, Pachim Baragaon, Pub Baragaon, Pub Baragaon N.C., Pachim Baragaon N.C., Tetelia N.C., Gotanagar, Maligaon, Durgasarobar N.C., Fatasilgaon N.C., Kamakhya, Gorpandu, Kumarpara, Pandu, Bharalumukhgaon, Jugipara.
Beltola	: Dhalbama, Betkuchi, Jutikuchi, Fatasilgaon, Barsapara, Greenwood Grant, Odalbakra Grant, Odalbaragaon, Dakhingaon, Saukuchi, Saru-Sajoi, Bar-Sajoi, Natbama, Hatigaon, Jatia, Kahelipara-gaon, Kahelipara N.C., Dispur, Dispur N.C., Bhagargaon Grant, Japarigog, Hengrabari N.C., Hengrabari Garden, Hengrabarigaon, Saru Mataria, Rukunigaon, Bar Mataria, Khanapara, Maidam, Basistha, Basistha Grant, Basisthagaon, Duar-Andha, Bagharbari, Satgaon, Birkuchigaon, Birkuchi N.C., Kalitakuchigaon, Kalitakuchi N.C., Nunmati, Modghoria N.C., Modghoria No. 1, Modghoria No. 2, Nunmati Garden, Bondagaon, Bonda Grant-I, Bonda Grant-II, Bonda N.C., Kharghuligaon, Sunsali Grant, Kharghuli Gaon, Kharghuli N.C., Jansimalu, Jansimalu N. C.
Ulubari	: Ulubari New Town, Sarania New Town, Bamuni Maidan New Town, Nunmatigaon, Ulubari, Bamuni Maidam, Ramcha Hill Grant, Chunsali Grant, Clarence Grant, Kharghuli New Town.
Guwahati	: Guwahati

2. Description of the new area:

Sl. No.	Addition	Location	Area (sq. km.)
1	New Town-I (Special Scheme Area).	Nort-East of GMA (Sila-Matiya-Najirakhat-Fulung area)	14
2	New Town-II (Special Scheme Area).	Nort-West of GMA (Charmajulipam-Gandhmau-Ambari-Bamun Soalkuchi area)	23
3	New Town-III	South-West of GMDA (Panchniyapara-Sajjanpara-Gaiyapara-Alibari-Tarapatipara area)	19
4	Marginal adjustment in boundary and inclusion of Pamohi Village (Special Scheme Area).		10
Total			66

Villages proposed in new towns:

New Town-I

1. Sila Gaon Part, 2. Jalah Gaon, 3. Balai Beel, 4. Bamuni Gaon, 5. Fulung, 6. Rang Mahal, 7. Barchandra, 8. Barchandra Grant, 9. Chang Chari Part

New Town-II

1. Char Majuli Pam, 2. Charmajuli Gaon, 3. Dali Bari, 4. Singimari, 5. Rawmari, 6. Gondh Mou, 7. Kismat Bangsor, 8. Ambari, 9. Nij Bangsor, 10. Rakhakhinir Char, 11. Bamun Bari.

New Town-III

1. Jabe, 2. Patgaon, 3. Sajanpara, 4. Mati Kuturi, 5. Paseniapara, 6. Jangalipara, 7. Kamargaon, 8. Rajapani Chnada, 9. Andherijuli, 10. Rangapara, 11. Kachari Ali Bari, 12. Losana, 13. Batabari, 14. Shathikapara, 15. Malhata, 16. Deor Ali Gaon.

Sd/-
Chief Executive Officer
Guwahati Metropolitan Dev. Authority
Bhangagarh, Guwahati-5

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Abbreviations

A.T.C.	: Area Traffic Control	L.C.V.	: Light Commercial Vehicle
B.O.D.	: Biochemical Oxygen Demand	L.P.C.D.	: Litres Per Capita per Day
C.A.G.R.	: Compounded Annual Growth Rate	L.R.T.S.	: Light Rail Transit System
C.B.D.	: Central Business District	M.A.V.	: Multi Axle Vehicle
C.C.C.	: Community Commercial Centre	M.L.D.	: Million Litres per Day
C.F.C.	: Community Facility Centre	M.G.D.	: Million Gallons per Day
C.M.P.	: Comprehensive Master Plan	M.S.L.	: Mean Sea Level
C.O.D.	: Chemical Oxygen Demand	N.E.R.	: North East Region
D.C.C.	: District Commercial Centre	N.H.C.	: Neighbourhood Centre
D.F.C.	: District Facility Centre	N.U.T.P.	: National Urban Transport Policy
E.C.S.	: Equivalent Car Space	O.H.S.R.	: Over Head Service Reservoir
E.S.R.	: Elevated Service Reservoir	P.C.U.	: Passenger Car Unit
F.A.R.	: Floor Area Ratio	P.M.T.S.	: Public Mass Transport System
F.C.	: Facility Centre	P.S.U.	: Planning Sub Unit
G.I.F.C.C.	: Guwahati Integrated Freight Complex Company	P.U.	: Planning Unit
G.I.T.B.	: Guwahati Integrated Transport Board	R.O.W.	: Right Of Way
G.M.A.	: Guwahati Metropolitan Area	R.S.U.	: Remote Subscriber Unit
G.M.C.	: Guwahati Municipal Corporation	S.E.Z.	: Special Economic Zone
G.M.C.A.	: Guwahati Municipal Corporation Area	S.P.V.	: Special Purpose Vehicle
G.M.D.A.	: Guwahati Metropolitan Development Authority	S.T.P.	: Sewage Treatment Plant
Ha	: Hectare	T.A.Z.	: Traffic Analysis Zone
H.C.V.	: Heavy Commercial Vehicle	T.E.M.U.	: Traffic Engineering and Management Unit
I.C.C.	: Integrated Community Centre	T.S.M.	: Traffic Systems Management
I.D.C.	: Integrated District Centre	W.F.P.R.	: Work Force Participation Rate
I.F.C.	: Integrated Freight Complex	W.T.P.	: Water Treatment Plant
I.P.T.	: Intermediate Public Transport		

12. Land Use Zoning Plan

12.1 Existing Land Use

All areas in the GMA have been designated in different-zones. Refer to **Map 12.1** for Existing predominant Land Use for GMA.

12.2 Land Use Plan

The Land Use Plan – 2025 for GMA has been prepared considering:

- i) The vision and goals as enunciated
- ii) Restructuring of land uses based on sectoral studies
- iii) Accommodating the existing developments as possible
- iv) Addition of 3 new towns for specific economic activities
- v) Land-use-transportation integration
- vi) The requirement of additional physical and social infrastructure

All areas in the GMA have been designated as one of the 9 use-zones, which are residential, commercial, industrial, public- and semi-public, recreational, transportation, eco-sensitive zone, composite-use I and composite use II. The Composite Use I includes residential, commercial, and public- and semi-public uses, whereas Composite Use II includes residential, commercial, public- and semi-public and industrial (existing) uses.

The over-all land use break-up for the new proposed GMA measuring 328 sq. Km. Is as follows:

Table 12.1: Proposed Land Use break-up in GMA

Sl. No.	Land Use Categories	Area in Ha. (excluding New Towns)	% of Developed area	Area in Ha. (including New Towns)	% of Developed area
1	Residential	8,646	31.92%	10,383	31.65%
2	Retail Commercial	360	1.33%	447	1.36%
3	Wholesale Commercial	81	0.30%	417	1.27%
4	Industrial	518	1.91%	918	2.80%
5	Public and Semi-Public	3,270	12.07%	3,606	10.99%
6	Composite Use I	814	3.01%	814	2.48%
7	Composite Use II	300	1.11%	841	2.56%
8	Recreation & Open Space	3,324	12.3%	3,728	11.0%
9	Transportation	2,853	10.53%	3,407	10.39%
10	Eco-Sensitive / Eco Friendly Zone	6,919	25.5%	8,245	26.0%
	Total	27,085	100%	32,806	100%

12.3 Unit-wise land use break-up

On the basis of the city structure as envisaged for the GMA, the following in the land use pattern for planning unit

Refer to **Map 12.2** for Land Use Zoning Plan for GMA-2025.

Table 12.2: Proposed Land Use Break-up in GMA-2025 (in Hectares)

Planning Unit	Residential	Retail Commercial	Wholesale Commercial	Industrial	Public and Semi-Public	Composite Use I	Composite Use II	Green belt (Recreation & Open Space)	Transportation (incl roads)	Eco-Sensitive / Eco-Friendly Zone	Total
1	553.42	103.93	35	12	187.82	8.17	0	108.51	99	78.78	1187
	46.62%	8.76%	2.95%	1.01%	15.82%	0.69%	0.00%	9.14%	8.34%	6.64%	100.00%
2*	2,288	116.22	14	33	705.81	142.57	205.74	262.93	292	726.01	4786
	47.80%	2.43%	0.29%	0.69%	14.75%	2.98%	4.30%	5.49%	6.10%	15.17%	100.00%
3	880	14	5	84	891.8	172	0	133.2	95	552	2827
	31.13%	0.50%	0.18%	2.97%	31.55%	6.08%	0.00%	4.71%	3.36%	19.53%	100.00%
4	237	9	0	154	324	5	0	106	74	1,455	2364
	10.02%	0.38%	0.00%	6.51%	13.70%	0.21%	0.00%	4.48%	3.13%	61.52%	100.00%
5*	606.05	9	0	1.68	75.32	137.55	94.3	616.66	151	2,598	4290
	14.13%	0.21%	0.00%	0.04%	1.76%	3.21%	2.20%	14.37%	3.52%	60.50%	100.00%
6	379.6	16	4	0	49	31.24	0	47.99	57	245	830
	45.73%	1.93%	0.48%	0.00%	5.90%	3.76%	0.00%	5.78%	6.87%	29.52%	100.00%
7	458.32	1	0	0	331.5	63.76	0	324.87	48.9	289	1517
	30.21%	0.07%	0.00%	0.00%	21.85%	4.20%	0.00%	21.42%	3.22%	19.05%	100.00%
8	1232.35	6	0	1	97.06	144.73	0	427.5	1,529	72.77	3510
	35.11%	0.17%	0.00%	0.03%	2.76%	4.12%	0.00%	12.18%	43.56%	2.07%	100.00%
9	793.1	12	0	200.28	548.38	100	0	623.65	194	283.4	2755
	28.79%	0.44%	0.00%	7.27%	19.90%	3.63%	0.00%	22.64%	7.04%	10.29%	100.00%
10	1218.2	73	23	32	59	9	0	22.8	313	1,269	3019
	40.35%	2.42%	0.76%	1.06%	1.95%	0.30%	0.00%	0.76%	10.37%	42.03%	100.00%
11	307	7	336	0	84	0	0	270	154	294	1452
(NT I)*	21.14%	0.48%	23.14%	0.00%	5.79%	0.00%	0.00%	18.60%	10.61%	20.25%	100.00%
12	707.32	40	0	400	130	0	0	474.68	208	382	2342
(NT II)*	30.20%	1.71%	0.00%	17.08%	5.55%	0.00%	0.00%	20.27%	8.88%	16.31%	100.00%
13	723.21	40	0	0	122	0	541	308.79	192	0	1927
(NT III)	37.53%	2.08%	0.00%	0.00%	6.33%	0.00%	28.07%	16.02%	9.96%	0.00%	100.00%
Total	10,383	447	417	918	3,606	814	841	3,728	3,407	8,245	32,806
	32%	1%	1%	3%	11%	2%	3%	11%	10%	26%	100%

Note: * The exact land use plan will be finalised by the authority as a special scheme area.

13. Land Use Zoning and Development Control Regulations

13.1 Scope

The Land Use Zoning and Development Control Regulations include the following:

- i) Classification of Landuse Zones
- ii) Land Use Permissibility
- iii) Development Control Regulations
 - Subdivision Regulations
 - Development Controls for integrated developments and individual buildings
- iv) Regulations for Conservation of Heritage Buildings and Heritage Precincts

13.2 Classification of Land Use Zones

The land in the proposed Guwahati Metropolitan Area has been categorized into nine Land Use Zones:

- i) Residential Zone
- ii) Commercial Zone
- iii) Industrial Zone
- iv) Public/Semi-Public (P & SP) Facilities Zone

- v) Transport and Communication Zone
- vi) Green Belt Zone (Recreational and Open Space)
- vii) Eco-Sensitive / Eco-Friendly Zone
- viii) Composite Use Zone – I (includes Residential, Commercial and P & SP)
- ix) Composite Use Zone – II (includes Residential, Commercial, P & SP and existing Industrial)

13.3 Land Use Permissibility

Permissibility with regards to different land uses in the listed Land Use Zones shall be as given in Table 13.1.

Table 13.1: Land Use Permissibility in different Use Zones

S. No.	Land Uses ^{1,13}	Use Zones in which permitted								
		R	C	I	P	T	G	E	CI	CII
1	Airport, Helipad, Flying Club					●				
2	Art gallery, museum, exhibition centre	●	●		●				●	●
3	Auto Supply store and Show room for motor vehicle and machinery		●	●					●	●
4	Automobile service and repairing station			●						●
5	Bank and Safe deposit vault	●	●	●	●	●			●	●
6	Bird Sanctuary						●	●		
7	Boarding or lodging house	●	●		●				●	●
8	Botanical garden						●			
9	Bus Depot		●	●		●				●
10	Bus Terminal	●				●				
11	Canteen and eating house serving the industries			●						●
12	Cemetery, crematorium, burial ground, electric				●					

S. No.	Land Uses ^{1,13}	Use Zones in which permitted									
		R	C	I	P	T	G	E	CI	CII	
	crematorium										
13	Children Traffic Park				●		●				
14	Cinema	●	●						●	●	
15	Clinic for pets	●	●		●				●	●	
16	Clinical Laboratory		●		●				●	●	
17	Club house not conducted primarily as business	●	●		●		●		●	●	
18	Club house or other recreational activities conducted as business		●						●	●	
19	Cold storage and ice factory			●						●	
20	College				●				●	●	
21	Commercial/ business Offices ²		●	●					●	●	
22	Community hall & welfare centre	●	●	●	●				●	●	
23	Contractor plant and storage for building material			●						●	
24	Convenience Shopping Centre	●	●	●	●	●			●	●	
25	Convention Centre				●				●	●	
26	Cottage, Handloom and Household Industries ³	●	●	●					●	●	
27	Court				●				●	●	
28	Crèche & Day Care Centre	●	●	●	●				●	●	
29	Cultural and Information Centre		●		●				●	●	
30	Customary home occupation	●	●						●	●	
31	Defence	●	●	●	●	●			●	●	
32	Diary and poultry industry			●							
33	Dispensary	●	●	●	●				●	●	
34	Dry Cleaners-cleaning and dyeing		●	●					●	●	
35	Educational and research institution	●	●		●				●	●	
36	Electric Sub-station	●	●	●	●	●	●		●	●	

S. No.	Land Uses ^{1,13}	Use Zones in which permitted									
		R	C	I	P	T	G	E	CI	CII	
37	Existing Village ⁴	●	●	●	●	●	●	●	●	●	
38	Fair Ground				●				●	●	
38-A	Farm House ⁿ¹	●					●				
39	Film studio ⁵						●				
40	Fish curing ⁶						●	●			
41	Flatted Group Industry		●	●						●	●
42	Flood control work	●	●	●	●	●	●	●	●	●	
43	Forensic Science Laboratory		●		●				●	●	
44	Forest						●	●			
45	Gas Godown	●	●		●				●	●	
46	General Industries ⁷			●						●	
47	Golf course						●	●			
48	Green house	●	●		●		●		●	●	
49	Gymnasium	●	●		●		●		●	●	
50	Health Centre	●	●	●	●				●	●	
51	Hospital	●	●	●	●				●	●	
52	Hostels for educational institution	●	●		●				●	●	
53	Hotel		●		●				●	●	
54	Indoor Games Hall	●	●	●	●		●		●	●	
54-A	Integrated Township ¹⁴	●	●	●	●	●	●	●	●	●	
55	Jail				●						
56	Junk yard ⁸			●							
57	Local, Municipal, State or Central Government office	●	●	●	●	●			●	●	
58	Mechanical workshop with lathes, drills, grinders, spot welding set			●						●	
59	Medical, eye and dental practitioners' clinic	●	●	●	●				●	●	
60	Monument ⁹	●	●	●	●	●	●	●	●	●	
61	Motor Driving Training Centre	●	●		●				●	●	
61- A	Motel ⁿ²	●	●		●		●		●	●	
62	Municipal facility (as listed in Annex VII)	●	●	●	●	●	●	●	●	●	
63	Music, dance, drama training centre	●	●		●				●	●	

S. No.	Land Uses ^{1,13}	Use Zones in which permitted									
		R	C	I	P	T	G	E	CI	CII	
64	Neighbourhood Shopping Centre-convenience & local shopping with vegetables, fruits, flowers, fish and meat.	●	●						●	●	
65	Night Shelter	●	●	●	●	●			●	●	
66	Nursery, Horticulture and Orchards	●	●	●	●	●		●	●	●	
67	Nursing Home	●	●	●	●				●	●	
68	Oil Depot ¹⁰			●							
69	Open Air Theatre	●	●	●	●		●		●	●	
70	Orphanage	●	●		●				●	●	
71	Park, play ground, playfield and recreational area	●	●	●	●		●		●	●	
72	Personal Service Shop	●	●	●	●	●			●	●	
73	Petrol filling station	●	●	●	●	●	● ⁿ³		●	●	
74	Photograph studio and laboratory	●	●	●	●				●	●	
75	Piggery			●							
76	Planetarium		●		●		●		●	●	
77	Police Headquarter and Police Lines				●						
78	Police Station, Out Post and Fire Station	●	●	●	●	●			●	●	
79	Post office, Telephone Exchange, Telegraph Offices	●	●	●	●	●			●	●	
80	Professional office of a resident of the premise	● ¹⁵	●						●	●	
81	Public library	●	●		●	●			●	●	
82	Radio broadcasting studio				●				●	●	
83	Railway Station					●					
84	Reformatory (Juvenile Home)				●				●	●	
85	Refinery ¹¹			●							
86	Religious Place like temple, namghar, mosque, church etc	●	●		●				●	●	
87	Research and Development Centre		●	●	●						
88	Residence cum Work Plot	●	●						●	●	
89	Residential Dwelling	●	●		●				●	●	

S. No.	Land Uses ^{1,13}	Use Zones in which permitted									
		R	C	I	P	T	G	E	CI	CII	
89-A	Residential Dwelling Low Income Group ^{14, n4}	●	●	●	●				●	●	
90	Residential Plot- Plotted Housing	●			●				●	●	
91	Restaurant, cafeteria, milk bar	●	●	●	●	●			●	●	
92	Retail Shop ¹²	●	●	●	●	●			●	●	
93	Satellite and Telecommunication Center				●				●	●	
94	Schools	●	●		●				●	●	
95	Service Centre	●	●	●			●		●	●	
96	Sewerage treatment plant			●	●						
97	Social, cultural and religious institution	●	●		●				●	●	
98	Specialised Park/Ground		●		●		●		●	●	
99	Sports Training Center				●		●		●	●	
100	Stadium						●				
101	Storage of petroleum and other inflammable materials			●						●	
102	Storage, Warehouses and Godown		●	●					●	●	
102-A	Storage of Processed Food & Dairy Product Consumer and stationery article		●	●			(n5)		●	●	
103	Swimming Pool	●	●		●		●		●	●	
104	Taxi stand and bus stand, cycle and rickshaw stand	●	●	●	●	●	●		●	●	
105	Theatre, assembly or concert hall, dance and music hall and such other place of entertainment;	●	●		●				●	●	
106	Truck terminal		●				●				
107	Vending Booth	●	●	●	●	●	●		●	●	
108	Vocational Training/Technical Training Institute	●	●	●	●				●	●	
109	Watchmen or caretaker's lodges	●	●	●	●	●	●		●	●	
110	Water Treatment Plant	●	●	●	●		●		●	●	

S. No.	Land Uses ^{1,13}	Use Zones in which permitted									
		R	C	I	P	T	G	E	CI	CII	
111	Weekly Market/ Informal Sector Unit	●	●		●		●		●	●	
112	Wholesale Trade		●								
113	Wireless transmitting and weather station, Transmission Tower				●				●	●	
114	Zoological park						●				

Index of Use Zones:

- R – Residential
- C – Commercial
- I – Industrial
- P – Public & Semi Public
- T – Transportation
- G - Green Belt (Recreational and Open Space)
- E – Eco-sensitive / Eco Friendly
- C I – Composite Use I
- C II – Composite Use II

Note:

¹ All Existing non nuisance, non-polluting uses to continue in the following use zones:

- Residential
- Commercial
- Industrial
- Public/Semi-public
- Transportation and Communication
- Composite Use I
- Composite Use II

All existing non nuisance, non-polluting uses may be allowed to continue/discontinue after an application for special permission to the Authority in the following use zones:

- Recreational, Commercial, Public/ Semi Public & Green Belt
- Eco-sensitive/ Eco-Friendly.
- All notified forest, water bodies, rivers etc. are classified as Eco-Sensitive Zone. Also the entire other areas west of Gorchuk-Pamohi Road, South of National Highway by-pass upto Deepar Beel shown in land use zoning plan are classified as Eco-Sensitive Zone where existing Govt. institutions will not be affected..

² To be permitted in commercial areas to be indicated in Industrial Use Zones in Local Area Plans/ Layout Plans

³ In Residential use zone, existing uses to continue and new ones to come on special

permission from the authority Also refer Annex I

- ⁴ No further expansion of residential area
- ⁵ In the New Town proposed Recreational Area
- ⁶ Only Existing uses to continue
- ⁷ Only those industries as listed in Annex I
- ⁸ Permitted only in Heavy Industrial Zone
- ⁹ Existing locations to continue
- ¹⁰ Permitted only in Heavy Industrial Zone
- ¹¹ Permitted only in Heavy Industrial Zone
- ^{12*} In commercial centres in industrial areas

¹³ Parks, parking, circulation and utilities can be located in any of the use zones. In recreation and eco-sensitive zone, these would be permissible with special permission from the Authority.

¹⁴ The following activities shall be permitted only in Eco-Friendly Zone and not in Eco-Sensitive Zone

- Tourism
- Socio-cultural activities
- Bungalow type construction
- Integrated Township
- Residential Dwelling Low Income Group

Development of land would be permitted in Eco-Friendly Zone, if an integrated land development proposal is submitted. Such proposal should cover an area of more than 20 ha and should have obtained prior Environmental Impact Assessment (EIA) clearance from competent authority with maximum coverage of 33% and maximum FAR of 150.

¹⁵ To the maximum of 30 percent of the FAR is allowed

ⁿ¹ Maximum coverage of 25% and maximum FAR of 50 provided the area is not notified as water bodies forest etc

ⁿ² A roadside hotel designed primarily for motorists, typically having the rooms arranged in low blocks with parking directly outside with 25% coverage & 50 FAR. Provided area is not notified as water bodies, forest etc. & only on plots along NH & peripheral ring roads

ⁿ³ In Green Belt it is allowed on N.H by pass and peripheral ring road as a high way amenity.

ⁿ⁴ Maximum coverage of 25% and maximum FAR of 50 with Assam Type structure in areas not notified water bodied forest etc.

ⁿ⁵ Maximum coverage of 40% and maximum FAR of 100 on the plot along National Highway and peripheral ring roads

Note: For interpretation of land use zoning and development control regulation Authority may constitute a committee of experts if such situation arises. The committee may also be given the task of elaborate and add on the above land use permissibility considering the circumstances that may come from time to time in the process of implementation of the plan for subsequent approval of Government.

13.4 Development Control Regulations

13.4.1 New Town

The new town shall be developed on the basis of population, economic base and land use sub-division in paragraph 11.2.6. Further sub-division and building construction norms to be as per controls given in the section.

13.4.2 Sub-division Regulations

The objective of sub-division regulations is to guide the preparation of layout plan for residential and industrial use zones and some other areas. These regulations include norms for provision of facilities, circulation and landscape. The service plans corresponding to these layout plans for provision of physical infrastructure like water supply, sewerage, drainage, solid waste management and power shall conform to municipal bye-laws.

13.4.2.1 Residential Use Zone

The sub-division of residential use zone into plots/use premises and subsequent approval of the layout plans shall be governed by the following:

- a) The residential areas shall be planned at gross residential densities as given in **Map 13.1**.
- b) The residential area can have both the plotted as well as group housing developments. In case of group housing, the minimum plot size shall be 3000 sq.m; in plotted housing the minimum plot

size shall be 200 sq. m. in general and 30 sq.m. for economically weaker sections' housing.

- c) The provision of requisite social infrastructure shall be governed by the following norms for residential neighbourhood of 15,000 population. In any residential sub-division plan, minimum area reserved for social infrastructure shall be 8.50 sq.m. per person.

Table 13.2 Standards for facilities in a residential sub-division

Sl. No.	Use Premises	No. of Units	Unit Area (in ha)	Total Land Area (in ha)
(a)	<i>Education</i>			
1.	Nursery School	6	0.08	0.48
2.	Primary School	3	0.40	1.20
3.	Senior Secondary School	2	1.00	2.00
(b)	<i>Health</i>			
4.	Dispensary	2	0.20	0.20
(c)	<i>Commercial</i>			
5.	Local Shopping including Service centre	1	0.46	0.46
6.	Convenience Shopping	3	0.11	0.33
(d)	<i>Other Community Facilities</i>			
7.	Milk Booth	3	0.015	0.045
8.	Community Hall & Library	1	0.20	0.020
(e)	<i>Recreation</i>			
9.	Park			4.50
10.	Play Area			2.25
(f)	<i>Utility & Parking</i>			
11.	Overhead Tank			0.25
12.	Electric Sub-Station	As per requirement		
13.	Three Wheeler and Taxi Stand	1	0.05	0.05
14.	Common Parking	To be appropriately distributed in a number		1.00

Sl. No.	Use Premises	No. of Units	Unit Area (in ha)	Total Land Area (in ha)
		of locations		

Note: These facilities should preferably be located along internal roads with minimum 12 m r/w.

Park and play areas shall be @ 4.5 sq.m. per person with one of the park cum play area to be of the minimum size of 1.50 ha.

- d) The planning of residential neighbourhood regarding circulation system shall be governed by the following norms:
- i. The residential plots in new areas shall generally face an open space including pedestrians' movement with a minimum width of 12 m. The plots may face a vehicular access road with 12m right of way. The circulation network within the cluster shall be so devised that no residential plot is more than 65 m away from the nearest point of the vehicular access road.
 - ii. All vehicles shall be restricted to specific parking lot or along the vehicular access road.
 - iii. Maximum length of cul-de-sac shall be 150 m and loop road 450 m.
- e) The planning of residential neighbourhood regarding landscaping shall be governed by the following norms:

- i. Suitable landscape plans for the residential area shall be prepared indicating in reasonable detail, the landscape development of the parks and roadside plantation.
- ii. Detail landscape plan for one Neighbourhood Park shall be prepared.

f) The low income group plotted developments with less than 50 sqm plots shall be governed by the following norms:

- i. Area under recreation shall be at the rate of 3.0 sq.m. per person (minimum).
- ii. The plot shall face an open space/road including pedestrian movement with a minimum width of 8.0 m.

13.4.2.2 Industrial Zone

The sub-division of industrial use zone into plots shall be governed by the following norms:

- a) The development of industrial area may have plotted development for individual industrial units. Some part of industrial area may be used for flatted group industry. The minimum size of plot for flatted group industry shall be 2000 sq.m.
- b) No road within the industrial area shall be less than 24m r/w.
- c) The Industrial Sub-division shall provide for :
 - i. 10 % of the area to be reserved as recreational and green belt.
 - ii. 2 % of the area as commercial centre to accommodate essential commercial and related facilities.

- iii. 8 % of the area for common facilities including common parking as per table below:

Table 13.3: List of facilities to be essentially provided in Industrial Areas

Sr. No.	Facilities
	Sub Fire Station, Banks, Petrol bunks, Restaurants, Essential Retail Shops
	Police Station, STP, S.W. dumping yard
	Electric sub-stations (as necessary)
	Parking area for tempo, taxi and three wheelers, truck terminal etc.
	Other facilities such as water reservoir/storage and recreational clubs/associations, community halls and other allied common facilities.

- d) For water polluting industries, the effluent shall be treated at common treatment plant before it is discharged into regular sewers.

13.4.2.3 Facility Centre/ Integrated Community Centre/ Integrated District Centre

Layout Plan for facility centres, integrated community centres, integrated district centres, shall be prepared with 75 % area allotted to the specified facilities and commercial facilities and 25 % of the area reserved for roads, parks, parking and some retail shopping. Minimum road width shall be 18 m.

13.4.2.4 Neighbourhood Centre

Each neighbourhood centre shall have an area of 12 ha of which about 70% net area shall be reserved for providing social infrastructure facilities

and housing (refer table 7.29) and the remaining 30 % would serve for roads and common facilities like common parking, shopping etc.

13.4.2.5 University

The area shall be developed with the following sub-division and development controls:

- a) Academic including administration (45% of the total land area)
 - Maximum ground coverage 20%
 - Maximum Floor area ratio 40
 - Maximum height 26 m
- b) Residential: 25% of the total land area

This will be developed at a density of 250 pph gross. The land shall be reserved for residential facilities as per the norms given in table 13.2. Sub-division regulations as given for residential areas shall apply.
- c) Sports and cultural activities (15% of the total area)
 - Maximum ground coverage 10%
 - Maximum Floor area ratio 15
- d) Parks and landscape (15% of the total land area); suitable landscape plan to be prepared for this area.

13.4.2.6 Education and Research

Layout Plan for education and research areas shall be prepared with 75 % area for institutional plots and 25 % of the area reserved for roads, parks,

parking and some retail shopping. Minimum road width shall be 18 m.

13.4.3 Suggestive Development Controls for integrated developments and individual buildings

The objective of these regulations is to provide development controls i.e. setbacks, parking requirement, basement, ground coverage, FAR and Maximum height for integrated developments and individual buildings. Wherever there is a difference in FAR between the presently enforced and as given in the Master Plan, the authority may decide based on the requirements.

13.4.3.1 Minimum Setbacks

The provision of minimum setbacks of the building or structure from the street line for different sizes of plots for all categories of use shall be as per the following table.

Table 13.4: Setback Regulations for different plot sizes

Sl. No.	Plot Size (in sqm.)	Minimum Setbacks (in metre)			
		Front	Rear	Side (1)	Side (2)
1	Sites with 100% coverage	0	0	0	0
2	Upto 300	3	3	1.5	1.5
3	Above 300 & upto 500	3	3	3	1.5
4	Above 500 & upto 1000	6	3	3	3
5	Above 1000 & upto 2000	9	3	3	3
6	Above 2000 & upto 4000	9	6	6	6
7	Above 4000 & upto 10000	15	6	6	6
8	Above 10000	15	9	9	9

Note:

- i. In case the permissible coverage is not achieved with setbacks, the setbacks of the preceding category may be allowed.
- ii. In case of residential plots upto 200 sqm., the rear setbacks shall be 2m x 2m at corner, the open courts of the plots in rear and side to be adjacent.
- iii. These provisions of setbacks are subject to requirements of height and ventilation as per building byelaws.
- iv. In case a layout is sanctioned with more than the minimum prescribed setbacks, the same shall be followed in the sanction of the building plans.
- v. The authority could relax setbacks in special circumstances.

13.4.3.2 Parking Standards

Parking is to be provided for different types of development as per norms given in the following table. The standards given are in Equivalent Car Space (ECS) and it includes parking for all types of vehicles i.e. cars, scooters, cycles, and also light and heavy commercial vehicles in case of wholesale markets and industrial areas etc.

Table 13.5: Parking Standards for different uses

S. No.	Use	Equivalent Car Space (ECS) per 100 sq.m. floor area
A	<ol style="list-style-type: none"> 1. Residential Apartments 2. Plotted Housing 3. Local Shopping Centre 4. Convenience Shopping Centre 5. Nursing Homes, Hospitals (other than govt.) 6. Government Offices 7. Social and Cultural Institutions 	1.33
B	<ol style="list-style-type: none"> 1. Commercial Development (plotted) 2. City Centre 3. Business Centre 	2.00
C	<ol style="list-style-type: none"> 1. Integrated District Centre 2. Integrated Community Centre 3. Hotel 4. Cinema 5. Composite Use 	1.67
D	<ol style="list-style-type: none"> 1. Colleges and Schools 2. University 3. General Industries 4. Flatted Group Industries 5. Heavy Industry 	1
E	Government Hospitals	0.67
F	1. Wholesale Trade / Integrated Freight Complex	2.50

For the provision of Car Parking spaces, the space standards shall be as under:

- a) For open parking – 23.0 sq.m. per equivalent car space
- b) For ground floor covered parking – 28.0 sq.m. per equivalent car space.
- c) For basement parking – 30.0 sq.m. per equivalent car space.

13.4.3.3 Basement

Basement shall be allowed only in the following complexes:

- i. City Level Commercial Centre
- ii. Integrated District level Commercial Centres
- iii. Integrated Community Centre

The maximum basement area shall be to the extent of ground coverage within the setback lines.

13.4.3.4 Suggestive Ground Coverage, FAR, Height and Other Controls

Use Premise	Maximum Ground Coverage (%)	Maximum FAR	Maximum Height (m)	Other Controls and Guidelines						
Plot (in Residential Plotted)	60	100	11	<p>Other Controls:</p> <ul style="list-style-type: none"> - Minimum plot size to be 150 sq.m. - Minimum plot size for EWS housing to be 30 sq.m. - Bungalow area shall have following controls: <table style="margin-left: 40px; border: none;"> <tr> <td>Maximum Ground Coverage</td> <td>30 %</td> </tr> <tr> <td>Maximum FAR</td> <td>75</td> </tr> <tr> <td>Maximum Height</td> <td>11 m</td> </tr> </table> 	Maximum Ground Coverage	30 %	Maximum FAR	75	Maximum Height	11 m
Maximum Ground Coverage	30 %									
Maximum FAR	75									
Maximum Height	11 m									
Apartment Buildings	40	175	26	<p>Net housing density shall be 114 du/ha with 15% variation on either side. Minimum access road to be 18 m r/w.</p>						
Convenience Shopping Centre	40	100	15							
Local Shopping Centre	40	100	15							
Community Commercial Centre	25	125	26	<p>Maximum 5 % additional ground coverage to be allowed for providing atrium. 10% of the area earmarked for the community commercial centre shall be left for landscape development with zero FAR. The socio-cultural activities at community level should be integrated with other commercial activities in the centre.</p>						
City/District Commercial Centre	25	150	37	<p>Design Guidelines for City District Commercial Centre The City /District Commercial Centre shall have the following components:</p> <ol style="list-style-type: none"> i. Retail Shopping ii. Commercial Offices iii. Service Centre iv. Facilities v. Cultural Complex vi. Hotel vii. Landscape Component <p>This plan could be partly plotted and partly as integrated with net building lines.</p> <p>Other Controls</p> <ol style="list-style-type: none"> i. 5 % additional coverage allowed for providing atrium. ii. At least 10 % of the area should be reserved for landscape development with zero FAR. 						

Use Premise	Maximum Ground Coverage (%)	Maximum FAR	Maximum Height (m)	Other Controls and Guidelines
City level Commercial cum Institutional Corridor	30	150	26	<p>i. The City level Commercial cum Institutional Corridor has to be developed along the 60 m R/W road as shown in the Master Plan.</p> <p>ii. The Building line should be after 30 m setback from the Street Line. The 30 m setback should be used effectively for parking and landscaping.</p> <p>iii. A detailed urban design scheme should be prepared for this area.</p>
Wholesale/Integrated Freight Complex	20	60	26	A minimum of 10% of the area shall be left for landscape development with zero FAR.
Retail Commercial Plot (existing development)	50	200	15	
Wholesale Plot (Existing Development)	55	225	15	
Industrial Plot	50	150	15.5	
Flatted Group Industry plot	30	120	26	
Nursery School	50	66	8	
Primary School	50	100	15	School for the handicapped shall have the same norms as the primary school
Secondary School	50	120	15	
Hospital/ Nursing Home	45	200	26	Area to be used for housing of essential staff shall adhere to regulations of apartment housing.
College	50	120	15	In case of educational institutions, the total area of the plot shall be divided in (i) School /college building area (40 %), (ii) playfield (40%), (iii) Parking area (10%) and (iv) Residential and hostel area (10%). The maximum ground coverage and FAR shall be calculated only on the area meant for building activities i.e. (i) and (iv).
Socio-cultural club/community hall/ Religious premises	30	120	15	
Police station, post and telegraph office, fire station	30	120	15	25% of the plot area may be used for housing the staff and regulations for apartment housing shall apply to the area meant for housing.
Public & Semi-public Premises (for which specific regulations have not been given)	45	175	26	15 % of the total floor area shall be allowed for residential purpose.
Institutional Plot (in existing development)	40	150	15	
Exhibition Ground	20	20	15	The structures in the Exhibition Ground Area shall be primarily temporary in nature.
Recreational Area	-	-	-	Facilities like vending booths, club houses, film studio, green houses, golf course and other such uses permissible as listed in table 13.1 shall be allowed with due permission from the authority. Maximum built space to be within 0.1 FAR.

Note:

- a) *Development in special uses like Airport, Railway Terminal, Rail Circulation, Bus Terminal and Depot, Road Circulation, Water, Sewerage, Electricity, Solid Waste Management, Cremation and Burial Ground, and in areas like River and water bodies shall be governed by their functions and specific requirements.*
- b) *Fire bye-laws based on Delhi Bye laws related to fire services to be introduced .(refer Annex VIII)*
- c) *Provision of facilities in the public buildings excluding domestic buildings for handicapped persons as per Annexure X or refer Model Building Bye Laws by Town and Country Planning Organisation (TCPO).*

13.5 Regulations for Conservation of Heritage Buildings and Heritage Precincts

Conservation of buildings, artefacts, structures, areas and precincts of Historic and /or aesthetic and/or architectural and /or cultural significance (Heritage buildings and heritage precincts)

1. Applicability

This regulation would apply to those buildings, artefacts, structures, areas and precincts of historic and/ or aesthetic and/or architectural and/or cultural significance (herein after referred as listed buildings/ heritage buildings and listed precincts/ Heritage precincts) which are listed in a notification issued by state Govt. This list shall be supplemented from time to time by Govt., and the Competent Authority, provided that before the list is supplemented, objections and suggestions from the public shall be

invited and duly considered by the Govt., and/or the Competent Authority respectively. The listed Buildings /Precincts could be graded.

2. Restriction on Development / Redevelopment / Repairs etc

No development or redevelopment or of additions, alteration, repairs, renovation including the painting of buildings, replacement of special features or plastering or demolition of any part there of the said listed buildings or listed precincts shall be further allowed except with prior written permission of the Competent Authority.

Before granting any such permission the competent Authority shall consult the Heritage Conservation Committee. Provided that before granting any permission for demolition or major alternation/ addition to listed buildings (or buildings within listed precincts) objection and suggestion from the public shall be invited and duly considered by the Competent Authority.

3. Power to Alter, Modify or Relax Regulations

With the approval of the Government and on the advice of the said Heritage Conservation Committee and for reasons to be recorded in writing, the Competent Authority may/shall alter modify or relax the provisions of other regulations of the Development Control, Regulations/Building bylaws if it is needed for the conservation, preservation or retention of historic and/or aesthetic and/or cultural and/or architectural quality of any listed buildings/heritage buildings or listed precincts/heritage precincts

4. Maintaining Skyline

Building included in Heritage Precincts shall maintain the skyline in the precincts (with out any-high rise development) as may be existing in the surrounding area, so as not to diminish or destroy the value and beauty of

the said Heritage building/Heritage precincts. The development within the precincts shall be accordance with the guidelines framed by the Competent Authority on the advice of the Heritage Conservation Committee.

5. Signs and Out Door Display Structures

No advertising sign or outdoor display structures shall be permitted on buildings of architectural, aesthetic, historical or heritage importance as may be decided by the Competent Authority, on the advice of the Heritage Conservation Committee or on Government buildings, save that in the case of Government buildings only advertising signs of outdoor display structures may be permitted if they relate to the activities for the said buildings own purposes of related programmes.

Provided that if the Heritage Conservation Committee so advises, the Competent Authority shall refuse permission for any sign of outdoor display structure.

6. Composition of Heritage Conservation Committee

The members of the Heritage Conservation Committee shall include Chairman with experience in the field of Heritage Conservation, with experienced heritage Architects, structural engineers and nominees from the concerned government departments.

7. Functions of the Heritage Conservation Committee

- a) To advise the competent authority whether Development permission should be granted under this Regulation and the conditions of such permission.
- b) To prepare a supplementary list of buildings, artefacts, structures, areas, precincts of historic, aesthetic, architectural, or cultural

significance, to which this Regulation would apply (vide regulation).

- c) To advise whether any relaxation, modification, alteration, or variance of any of the Development Control Regulations / Building Byelaws, is required.
- d) To frame special regulations for precincts and to advise the Competent Authority regarding the same.
- e) To advise whether to allow commercial / office uses.
- f) To advise in the operation to regulate or eliminate / erection of outside advertisements / bill boards.
- g) To recommend guidelines to be adopted by those private parties who sponsor beautification schemes at public intersections and elsewhere.
- h) To prepare special designs and guidelines for listed buildings.
- i) To advise the Competent Authority on any other issues as may be required from time to time during course of scrutiny of development permissions and in overall interest of heritage conservation.

Note: Guwahati Metropolitan Development Authority may be declared as the competent authority responsible for the conservation of heritage buildings and precincts and also the plan sanctioning authority for these.

14 Master Plan Implementation

The Master Plan implementation requires (i) development of new areas (ii) redevelopment of existing developed areas and (iii) conservation of eco-sensitive areas. GMDA shall be the nodal agency for Master Plan implementation.

Landuse plan, land use zoning, sub-division and development control regulations would in general be the base for all development, and redevelopment in the city.

14.1 Division of the city for Development / Redevelopment

The GMA area is divided into following 4 parts for the purpose of development / redevelopment. Refer map 14.1

- Part I** : Units 11, 12, 13 i.e. New Towns I, II and III
- Part II** : Units 2, 3, 5, 7, 8, 9 where large undeveloped areas are available for new development
- Part III** : Units 1 central city old municipal area
- Part IV** : Units 4, 6 & 10 (remaining area)

14.2 Part 1: Development of New towns

The three proposed new towns shall be developed with the following as basis. Refer table 14.1 and 14.2

Table 14.1: Important features of New Towns

Important features	New Town I	New Town II	New Town III
Location	North of GMA (Sila-Matiya-Najirakhat-Bhulung area)	North-West of GMA (Charmajulipam-Gandhmau-Ambari-Bamun)	South-West of GMA (Panchniyapara-Sajjanpara-Gariyapara-Alibari-Tarapatipara)
Area in ha	1450	2342	1927
Population	0.8 lakh	1.60 lakh	1.60 lakh
Employment	29350	44025	44025
Major economic base	Wholesale trade	Industrial	SEZ & IT park
Town level density	55 persons per hectare	68 persons per hectare	83 persons per hectare
Gross residential density	250 persons per hectare	250 persons per hectare	250 persons per hectare (80 ha residential area to be developed as Bungalow area with 100 ppha)

Table 14.2 Comparative Landuse subdivision for New Towns (indicative)

Land Use	New Town I (Wholesale)		New Town II (Industrial)		New Town III (SEZ & IT)	
	Area in ha	% of total area	Area in ha	% of total area	Area in ha	% of total area
Residential	307	21.1	707	31.38	700	36.33
Business & Commerce and Industrial	374	25.76	440	18.79	581	30.15
Public and Semi-Public	59	4.06	130	5.55	122	6.33

Land Use	New Town I (Wholesale)		New Town II (Industrial)		New Town III (SEZ & IT)	
	Area in ha	% of total area	Area in ha	% of total area	Area in ha	% of total area
Recreation & Open Space	324	22.31	475	19.09	332	17.23
Transportation	94	6.47	208	8.88	192	9.96
Eco-Sensitive Zone	294	20.25	382	16.31		0.00
Total	1452	100.00	2342	100.00	1927	100.00

The Landuse subdivision is only indicative. Each one of these new towns should be taken up as an independent project.

14.3 Part II New Developments in the existing GMA

In six planning units i.e. 2, 3, 5, 7, 8 & 9, there are large areas still under agriculture or vacant where urban development is proposed in the Comprehensive Master Plan 2025. In this area major new urban developments would be taken up.

14.3.1 New Residential developments

Approximately 2047.11 ha of new residential area (including around 17% of developed area) is indicated for new residential development. This area is divided into 36 blocks, which form the unit of development. The size of these development blocks varies from 21.71 ha of block 21 to 87.62 ha of block 30. The average size of these development blocks is 56.86 ha. Refer Table 14.3 & Map 14.2

Table 14.3: Urban Development Blocks in Part 2 for Residential Development

Sl. No.	Planning Unit (PU)	Block No.	Residential Area in ha.	Population
1	PU- 7	Block 1A	36.52	9130
2	PU- 7	Block 1B	52.26	13065
3	PU-7	Block 2	92.49	23123
4	PU-8	Block 3	51.29	12823
5	PU-8	Block 4A	36.14	9035
6	PU-8	Block 4B	59.31	14828
7	PU-7	Block 5	57.54	14385
8	PU-8	Block 6A	45.69	11423
9	PU-8	Block 6B	76.41	19103
10	PU-8	Block 7	36.81	9203
11	PU-8	Block 8	89.96	22490
12	PU-8	Block 9	64.75	16188
13	PU-8	Block 10A	46.05	11513
14	PU-8	Block 10B	61.83	15458
15	PU-8	Block 11	63.46	15865
16	PU-8	Block 12	41.59	10398
17	PU-8	Block 13	31.58	7895
18	PU-8	Block 14	35.8	8950
19	PU-2	Block 15	41.62	10405
20	PU-2	Block 16	66.9	16725
21	PU-2	Block 17	28	7000
22	PU-2	Block 18	65.1	16275
23	PU-2	Block 19	64.1	16025
24	PU-3	Block 20	70.9	17725

Sl. No.	Planning Unit (PU)	Block No.	Residential Area in ha.	Population
25	PU-4	Block 21	21.71	5428
26	PU-4	Block 22	68.86	17215
27	PU-10	Block 23	41.83	10458
28	PU-9	Block 24	64.89	16223
29	PU-9	Block 25	71.34	17835
30	PU-9	Block 26	66.89	16723
31	PU-9	Block 27	80.91	20228
32	PU-9	Block 28	30.89	7723
33	PU-9	Block 29	64.1	16025
34	PU-9	Block 30	87.62	21905
35	PU-9	Block 31	58.77	14693
36	PU-9	Block 32	73.2	18300
Total		Blocks (36 nos)	2047.11	511786

Note: 1) These residential blocks also includes around 14% of the residential area already developed in these blocks on average
2) The areas are proposed to be developed at a gross residential density of 250 persons per ha

The land sub-division of these blocks shall be as per the subdivision regulations given in section 13.4.1.1 of Land use Zoning and Development Regulations. **Refer Annex IX** for Land Assembly Options.

14.3.2 Development of Neighbourhood Centres

Neighbourhood centres are generally the facilities, park and shopping areas to cater to the needs of 15000 population. These also include some new residential areas to be developed as integral part of the same. These

centres are proposed to be developed to cater to major part of the facilities required at neighbourhood level for the additional population to be accommodated by 2025 and to compensate for existing deficiency.

There are 57 Neighbourhood centres indicated in this part. These Neighbourhood centres shall be developed as per the guidelines given in section 7.13.1

14.3.3 Other major developments

Other major developments in this part are as given in table 14.4 and shall be developed as per the guidelines given in respective sections.

Table 14.4: Area statement for other major development projects

Sl No.	Other Major Developments	Area in ha	Remarks
1	City commercial centre	56	Refer section 13.4.3.4
2	City facility centre	52	Refer section 13.4.2.3
3	City level recreational areas	3833	Refer section 13.4.3.4
4	District commercial centres (DCC I, III & IV)	110	Refer section 13.4.3.4
5	District facility centres (FC IV, VII & IX)	100	Refer section 13.4.2.3
6	District Park and Play Area	30	Refer section 13.4.3.4
7	Community Commercial Centres (CC I, II, III, IV & V)	27	Refer section 13.4.3.4
8	Community Facility Centres (FC I, III, VI & VIII)	74	Refer section 13.4.2.3
9	Community parks and play areas (CP I, II, III & IV)	16	Refer section 13.4.3.4

SI No.	Other Major Developments	Area in ha	Remarks
10	Neighbourhood centres (57 nos)	684	Refer section 13.4.2.4
11	Education and research centre	107	Refer section 13.4.2.6
	Total Area	5089	

14.4 Part III Central City Old Municipal Area

This is a central congested area measuring about 1176 ha presently with high-density residential developments, wholesale and retail markets. Redevelopment of central city zone is proposed. This area needs the preparation of urban renewal plans. Refer section 8.5.2 for urban renewal guidelines.

14.5 Part IV Area in between Part II and Part III

This area includes the major urban developments as in table 14.5. For guidelines refer respective sections.

Table 14.5: Major development projects

SI No.	Major Developments	Area in ha	Remarks
1	New University including a Engineering College	304	Refer section 13.4.2.5
2	City level recreational areas	174	Refer section 13.4.3.4
3	District commercial centre (DCC II)	20	Refer section 13.4.3.4
4	District facility centre (FC V)	23	Refer section 13.4.2.3
5	District park and play area	10	Refer section 13.4.3.4
6	Neighbourhood centres (9 nos)	108	Refer section 13.4.2.3
	Total Area	639	

14.6 Transport and Physical Infrastructure

Transport and physical infrastructure projects run through different parts given in section 14.1. Thus these have been identified for city as a whole (Refer Table 14.6, 14.7 & 14.8). For details of transport and physical infrastructure projects refer to the sections 5 and 6 of this report.

Table 14.6: List of transport projects

SI No.	Transport projects
1	Road Network Development (Arterial, Sub-Arterial & Collector)
2	Light Rail Transit System
3	Bridges on river Brahmaputra <ul style="list-style-type: none"> • Bridge in the East • Bridge in the West
6	Grade separators (7 intersections as identified in section 5.5.9)
7	Terminals <ul style="list-style-type: none"> • Bus Terminals and Depots • Freight Terminals
8	Off-street parking complexes

Table 14.7: Details of physical infrastructure projects

SI No.	Physical infrastructure projects	Area in ha
1	Water Treatment Plants and their distribution system (6 number)	35.36 (WTP area)
2	Sewerage Treatment Plants and their collection system (6 number)	46.13 (STP area)
3	Solid waste dumping sites (2 no)	91
	Total area	172.46 ha

Table 14.8: Details of Power distribution projects

Power distribution system	Numbers
132/33 KV main receiving grid station (each having capacity of 150 MVA)	3
33/11 KV electric sub-stations (. each having capacity of 20 MVA)	19
Installation of 33 KV Transmission line	380 km

14.7 Slums up- gradation/resettlement

26 slums are scattered in different parts of the city. Slums upgradation/resettlement shall be taken up for these slum areas. Refer table 14.9

Table 14.9: Details of Slum upgradation/resettlement project

Sl No.	Slum upgradation/resettlement project
1	Slum improvement Scheme for upgradation/resettlement of 26 slums comprising of 25043 households

14.8 Projects – Phasing

In the above sections, projects in different sectors have been identified for implementation during the period 2006-2025. The GMDA/State Government's major responsibility is of land assembly, land development and provision of basic infrastructure i.e. - water supply, sewerage, drainage, solid waste management, power and transportation. The building activity except for Capitol Complex in general is to be left to the private sector and the Government & Non-government agencies concerned.

The major projects as identified are proposed to be taken up in 5 yearly phases between 2006 and 2025. Refer table 14.11

14.9 Financing Options

14.9.1 Sources of Resource Mobilization

Implementation of Master Plan and provision of urban services require massive financial investments. The traditional system of funding based on plan and budgetary allocations can't meet the financial requirements. As basic approach for the implementation of the CMP – 2025, the role of private sector in development process should be duly recognized, depending upon the potential of various projects. As a general fiscal policy on resource mobilization, it would be however desirable to have a proper mix of public and private sectors participation. It is advisable that the public infrastructure projects should be implemented through budgetary resources/government funding and commercial/residential projects to be implemented through private sector participation while the option of joint venture/public-private participation could also be explored in both cases.

Some of the important financing options for GMDA are briefly described below:

14.9.1.1 Revolving Funds

Revolving funds are defined as a fund which, if borrowed or used, is intended to be replenished so it may be spent repeatedly. This technique has been successfully implemented.

14.9.1.2 Institutional Finance (Financial Assistance from HUDCO, IL&FS)

Local authorities need substantial funds for execution of various infrastructure and other projects. Financial institutions providing loans to various state governments for execution of these projects are HUDCO and Infrastructure Leasing & Finance Corporation (ILFS). They finance mainly physical infrastructure projects (water supply, sewerage, and solid waste disposal) and area development projects.

14.9.1.3 Joint Venture/ Public-private Partnerships

One of the ways to enhance fiscal capabilities of the Development/Municipal Authorities is to evolve alternative institutional arrangement for the performance of such functions. Some of the aspects of water supply, transport, electricity, and collection of solid waste could be privatized. Other financial options available like BOT, BOOT, BFT (Build-Finance-Transfer), BOO are emerging variations of such partnership arrangements which need to be explored.

14.9.1.4 Financial assistance from Central Government under JNNURM

In December 2005 Central Government have formally launched JNNURM & earmarked a large sum of Rs 1,20,000/- crore to be spent in seven years in 63 cities of the country. Mission aims in creating cities that are productive, efficient, equitable & responsive.

The sectors and project covered under JNNURM assistance are urban renewal, water supply, sanitation, sewerage & solid waste management,

construction and improvement of drains & storm water drains, urban transportation, parking lots, development of heritage areas, prevention and rehabilitation of soil erosion and landslides, prevention of water bodies.

Guwahati is one of the 28 cities covered under JNNURM mission under Category C (cities/UAs with less than one million population).

14.9.1.5 International Funding

The debt profile for the projects would depend on the debt serving capability of the project cash flows. The risk undertaken by the international lenders would be high in comparison with the traditional lending profile typically adopted domestically. Accordingly the debt instruments with varying risk profiles are structured to meet the requirements of different lenders like World Bank, Asian Development Bank.

14.9.1.6 Suggested Funding

For the major projects identified, funding option is suggested against each project in Table 14.11. Projects in different phases to be taken up after the preparation of Detailed Project Reports. The approximate overall funding in various options would be as in Table 14.10.

Table 14.10: Approximate division of the projects cost in funding options

Sl No.	Funding options	Cost of projects (in Rs Crore)	% of total cost
1	Revolving fund (A)	1828.97	13.54
2	Institutional finance (B)	1097.865	8.13
3	Joint Venture (C)	2817.36	20.86
4	JNNURM (D)	586.265	4.34

Sl No.	Funding options	Cost of projects (in Rs Crore)	% of total cost
5	International funding (E)	3528	26.13
6	BOT (F)	1730	12.81
7	Government budgetary allocation (G)	955	7.07
8	Private Sector (H)	959.5	7.11
	Total	13502.96	100

14.10 Area Planning

For defined areas in all use zones, area plans at the scale of 1:2000 should be prepared based on the latest physical survey. These shall make a set of reliable plans for any further area level development/redevelopment.

14.11 Master Plan Monitoring and Review

The physical and socio-economic indicators responsible for development need to be monitored so that the changes required for improving the quality of life can be put into action. The plan should be monitored continuously to update the socio-economic changes. Monitoring helps in evaluating the achievements of physical targets proposed in the plan. Following are the important indicators of physical and socio-economic changes to be monitored for the Guwahati Metropolitan Area at 5 year intervals i.e. 2011, 2016 and 2021.

14.11.1 Indicators of physical and socio-economic changes

Demographic	Population size, Age-sex structure, migration, density pattern
Economic	Distribution of Household by income, employment, workers participation rate, occupation pattern, growth of economic activities, increase in commercial activities in relation to population
Land Use	Different land use categories
Physical Infrastructure	Access to safe drinking water, access to sewerage and removal of garbage, drainage
Social infrastructure	Access to health facilities & education facilities at different levels, number and capacity of various facilities such as police, fire, recreational areas, stadium, libraries
Housing	Household size, number of housing units, slums with number of households, housing typology, housing condition
Environment	Air pollution, water pollution & noise pollution
Transport	Trips by public transport cost of using and operating different modes, passengers' capacity and distance travelled by public transport per year in relation to population. Parking demand and supply in different areas.

The above-mentioned list of socio-economic indicators is not exhaustive; GMDA could add more indicators in due course of time.

14.11.2 Comprehensive Master Plan Review

In view of its rapid growth and fast changing socio-economic conditions, in a city like Guwahati, the CMP-2025 needs to be reviewed at 5 yearly intervals with a major mid term review in 2016. Expert groups for different sectors for the review and Master plan implementation to be formed:

- 1) Regional group
- 2) Environment Planning and conservation group
- 3) Integrated transport (passenger and goods) group
- 4) Infrastructure (physical and social) group
- 5) Economic base group
- 6) City image, urban design and landscape group
- 7) Social housing and Slum rehabilitation group
- 8) Land assembly and land development group
- 9) Enforcement, plan monitoring and legal frame work group

14.11.3 Other Recommendations

As a part of continuation of the Master Plan proposals in various sectors the recommendations are required to be carried forward by GMDA for preparation of schemes and detail project report. Accordingly, following are being recommended:

- 1) For new Town-I & II and extended area of Pamohi village which are reserved as “Special Scheme Area” Authority may finalize the Land Use & Zoning taking into consideration for the continuation of all existing non-nuisance, non-polluting uses after an application for special permission to the Authority.
- 2) Base on the recommendation of the Traffic & Transportation, Comprehensive Mobility Plan (CMP) and subsequent DPRs may be prepared for upgradation of transport sector.
- 3) The study leading to the preparation of detail project report (DPR) may be initiated for water supply, sewerage and drainage.

- 4) Authority should finalize the options given in Annexure-IX for land assembly for taking appropriate measure to create a land bank for Authority for execution of different proposals given in Master Plan.
- 5) The Development Control Regulations and provision related to fire (Annexure-VIII) are basically suggestive in nature for consideration of Authority for inclusion in whole or in part in the existing byelaws considering their applicability under existing condition.
- 6) Norms to provide facilities in the public buildings including domestic buildings for physically challenged persons (Annexure-X) should form part of the building byelaws.

Master Plan for Guwahati Metropolitan Area - 2025

Table 14.11: Projects - Area, Cost and Phasing									
Sl. No.	Projects	Total Area in ha	Total Project Cost in Rs Crore	Project Phasing (Percentage of Work)				Financing Options	Street Vendors
				Phase-I (2006-2011)	Phase-II (2011-2016)	Phase-III (2016-2021)	Phase-IV (2021-2025)		
1	New Towns								
	New Town I	1450	560				C	*	
	New Town II	2342	932				C	*	
	New Town III	1927	906				C	*	
2	Major Residential Development								
	Unit 2	348	181				A	*	
	Unit 5	25	13				A	*	
	Unit 7	149	77				A	*	
	Unit 8	672	349				A	*	
	Unit 9	508	264				A	*	
3	Redevelopment of Central city zone (Unit I)	1176	353				B/D	*	
4	Business & Commercial Centres								
	City level Commercial Centres								
	City Commercial & Business Centre	56	23				A	*	
	District commercial centres (DCC)								
	DCC I	44	21				A	*	
	DCC II	20	9				A	*	
	DCC III	28	13				A	*	
	DCC IV	38	18				A	*	
	Community Commercial Centres (CC)								
	CC I	5.4	2.54				A	*	
	CC II	5.4	2.54				A	*	
	CC III	5.4	2.54				A	*	
	CC IV	5.4	2.54				A	*	
	CC V	5.4	2.54				A	*	
5	Facilities								
	City level facility & Cultural Centres								
	City Facility Center (includes FC II)	52	22				A	*	
	District facility centres								
	District Facility Centre (FC IV)	32	13				A	*	
	District Facility Centre (FC V)	23	10				A	*	
	District Facility Centre (FC VII)	34	14				A	*	
	District Facility Centre (FC IX)	34	14				A	*	
	Community Level facility centres								
	Community Facility Centre (FC I)	14	6				A	*	
	Community Facility Centre (FC III)	20	8				A	*	
	Community Facility Centre (FC VI)	23	10				A	*	

Master Plan for Guwahati Metropolitan Area - 2025

Table 14.11: Projects - Area, Cost and Phasing									
Sl. No.	Projects	Total Area in ha	Total Project Cost in Rs Crore	Project Phasing (Percentage of Work)				Financing Options	Street Vendors
				Phase-I (2006-2011)	Phase-II (2011-2016)	Phase-III (2016-2021)	Phase-IV (2021-2025)		
	Community Facility Centre (FC VIII)	17	7					A	*
								A	*
	Neighbourhood Centres (70 Nos)	840	352.8					A	*
6	Recreational								
	City level recreational areas								
	City Park (Unit 2)	79	25					A**	
	City Sports Complex (Unit 2)	97	31					A**	
	Golf Course (Unit 13)	121	39					C	
	Exhibition Ground (Unit 13)	412	132					C	
	Unit 1	109	19					A**	
	Unit 2	800	40					A**	
	Silsako Bill eco park (Unit 3)	123	6					A**	
	Unit 4	106	18					A**	
	Dipar Bill eco park (Unit 5)	1498	75					A**	
	Unit 6	44	7					A**	
	Unit 7	361	61					A**	
	Unit 8	516	26					A**	
	Numali Jalah eco park (Unit 9)	598	30					A**	
	Unit 10	23	4					A**	
	District recreation centres								
	District Park (PI)	10	3					A**	
	District Park (PII)	10	3					A**	
	District Park (PIII)	10	3					A**	
	District Park (PIV)	10	3					A**	
	Community Level Recreational Parks								
	Community Park (FC I)	4	1					A**	
	Community Park (FC III)	4	1					A**	
	Community Park (FC VI)	4	1					A**	
	Community Park (FC VIII)	4	1					A**	
7	Institutional/Education & Research								
	New University	304	88					C	*
	Education & Research Centre	107	32					A	*
8	Transport								
	Preparation of Functional plans, designs, tenders etc including Surveys		60					G	
	Traffic Management including intersection Improvements (Lumpsum)		40					G	
	Road Network Development							G	

Master Plan for Guwahati Metropolitan Area - 2025

Table 14.11: Projects - Area, Cost and Phasing

Sl. No.	Projects	Total Area in ha	Total Project Cost in Rs Crore	Project Phasing (Percentage of Work)				Financing Options	Street Vendors
				Phase-I (2006-2011)	Phase-II (2011-2016)	Phase-III (2016-2021)	Phase-IV (2021-2025)		
	Arterial		606						
	Sub-Arterial		155						
	Collector		92						
	Light Rail Transit System						E		
	Green Corridor		1,141						
	Blue Corridor		714						
	Orange Corridor		1,673						
	Grade Separators/ Bridges		938				B/F		
	Terminals								
	Bus Terminals and Depots		161				F		
	Freight Terminals		200				F		
	Bus Fleet		120				H		
	Off-street Parking Complexes		900				F		
9	Physical Infrastructure								
	Water supply projects								
	WTP of 236.5 MLD capacity at Kharguli including distribution system (trunk & peripheral water supply line)	15.44	154				D		
	WTP of 113 MLD capacity at Nilachal Hills including distribution system (trunk & peripheral water supply line)	7.32	100				B		
	WTP of 33.7 MLD capacity at Silagrang including distribution system (trunk & peripheral water supply line)	2.19	27				B		
	WTP of 48 MLD at Nazirakhat for New Town I including distribution system (trunk & peripheral water supply line)	3.13	21				C		
	WTP of 58 MLD at Charmajuli Pam for New Town II including distribution system (trunk & peripheral water supply line)	3.78	30				C		
	WTP of 54 MLD near Sajjan Para for New Town III including distribution system	3.5	26				C		
	Sewerage Projects								
	STP of 157.68 MLD capacity at Dhirenpara area including trunk sewer line	20.6	176				D		
	STP of 75.27 MLD capacity on the banks of Khanajan River including trunk sewer line	8.66	115				B		
	STP of 22.5 MLD capacity near Confluence of Ghorajan River including trunk sewer line	3.07	32				B		
	STP of 32 MLD capacity near Jalahill area for New town I including trunk sewer line	4.2	23				C		

Master Plan for Guwahati Metropolitan Area - 2025

Table 14.11: Projects - Area, Cost and Phasing									
Sl. No.	Projects	Total Area in ha	Total Project Cost in Rs Crore	Project Phasing (Percentage of Work)				Financing Options	Street Vendors
				Phase-I (2006-2011)	Phase-II (2011-2016)	Phase-III (2016-2021)	Phase-IV (2021-2025)		
	STP of 37.6 MLD capacity near Sanpara area for New town II including trunk sewer line	4.9	33					C	
	STP of 36MLD capacity near Patgaon for New town III including trunk sewer line	4.7	29					C	
	Solid Waste Management projects								
	Solid Waste Dumping Site I	38	10					D	
	Solid Waste Dumping Site II	53	14					B	
	Drainage Projects								
	Storm drainage improvement programme (financial assistance from HUDCO)		96					B	
	A new Comprehensive study of existing drainage system including proposed developments		2					G	
	Power Supply								
	132/11 KV main receiving grid station (3 no. each having capacity of 150 MVA)		450					H	
	33/11 KV electric sub-stations (19 no. each having capacity of 20 MVA)		380					H	
	Installation of 33 KV Transmission line		10					H	
10	Slum upgradation/resettlement of 26 slums								
	Slum improvement Scheme for upgradation of 26 slums comprising of 25043 households (160371 persons) @ Rs 50000 per Dwelling Unit for construction of dwelling units & toilet seats and per capita expenditure for provision of basic amenities @ Rs 800 per person		138					B/D	
	Total	15425	13502						
Financing Options:									
	1] Revolving Funds (A)								
	2] Institutional Finance (B)								
	3] Joint Venture (C)								
	4] JNNURM (D)								
	5] International Funding (E)								
	6] BOT (F)								
	7] Government Budgetary Allocation (G)								
	8] Private Sector (H)								
	* 1% of the total project area to be reserved for street vendors								
A**	These projects to be linked with the nearest commercial centre to be developed (1% of the park area, wherever possible to be developed for commercial recreational activities like amusement park, water park, theme park)								

Annex I
Classification of industries

A. Cottage, Handloom and Household Industries

1. Cosmetic Products
2. Agarbatti
3. Writing Ink
4. Sealing Wax
5. Watch, pen and spectacles repairing
6. Acrylic Sheet Button
7. Plastic Covers (Diary and Files etc.)
8. Knitted Plastic Bags
9. Shoe repairing and manufacturing
10. Rubber stamps
11. Rubber moulded goods
12. Food Products – bakeries etc.
13. Creamery and dairy products
14. Atta Chakki and Masala Grinding
15. Repacking of Medicines etc.
16. Paper Products
17. Card Board Boxes, paper Bag making
18. Book binding
19. Printing Press
20. Ready Made Garments
21. Batik Printing
22. Embroidery
23. Watch Straps (Nylon)
24. Canvas Bags and Products
25. Hosiery Items
26. Surgical Bandages
27. Shoe Laces etc.
28. Thread Reels
29. Tailor labels
30. Mirror and frame making
31. Decorative Glass articles
32. Chalk Sticks
33. Tailor's Shop
34. Cycle repairing
35. Basket Masking
36. Wire Brushes
37. Umbrella Assembly
38. Wooden Toys
39. Paper pins, Gem clips
40. Hair Pins
41. Wire Staples
42. Wire stands for kitchens
43. Wire for Curtains
44. Wire loops
45. Decorative Key Rings
46. Link Clips
47. File Clips
48. Shoe and Tent Eyelets
49. Brass Jewellery
50. File cover accessories
51. Garment hooks and eyes
52. Link chain
53. Heating element (for domestic electrical appliances)
54. Decoration lighting series
55. Transistor radio Covers

56. Decorative Leather Goods
57. Industrial Leather Hand Gloves
58. Manufacture of Bidi
59. Processing of Supari
60. Laundry, dry cleaning and dyeing
61. Cotton cloth weaving in handlooms
62. Ivory Carving
63. Metal Polishing
64. Gold and silver thread, Zari work, Jewellery, Gold Ornaments
65. Manufacturing, repairing and Tuning of musical instruments
66. Making of lac bangles
67. Repairing of Electronic Instruments
68. Assembly of Furniture Units

B. General Industries

1. Manufacture of mirror from sheet glass and photo framing
2. Cotton spinning and weaving
3. Automobile servicing and repairs stations
4. Flour mills (excluding Domestic Atta Chakki)
5. Malted food
6. Food including fruits and vegetable processing
7. Pulping and fermenting of coffee beans
8. Instant tea/coffee, coffee processing
9. Non-alcoholic beverages (soft drinks)
10. Fragrances and industrial perfumes
11. Food additives, nutrients and flavors
12. Fish processing
13. Organic nutrients
14. Surgical and medical products not involving effluent/emission generating processes
15. Laboratory-wares
16. Wire drawing (cold process) and bailing straps
17. Laboratory chemicals involving distillation, purification process
18. Tyres and tubes vulcanisation, vulcanisation, retreading moulding
19. Pesticides/Insecticides/Fungicides/Herbicides/Agrochemical formulation
20. NPK Fertilizers/Granulation
21. Pharmaceuticals formulations
22. Khandsari sugar
23. Pulverizing units
24. Washing of used sand by hydraulic discharge
25. Aatta-chakkies
26. Rice mullors
27. Steeping and processing of grains
28. Mineralised water
29. Dal mills
30. Bakery products, biscuits, confectionery
31. Groundnut decorticating (dry)
32. Supari (Betel nut) and masala grinding
33. Chilling plants and cold storages
34. Ice cream or Ice-making
35. Tailoring and garment making
36. Cotton and woolen hosiery
37. Apparel making
38. Handloom weaving
39. Shoelace manufacturing
40. Gold and silver thread zari work
41. Gold and silver smithy

42. Leather footwear and leather products excluding tanning and hide processing
43. Musical instruments manufacturing
44. Sports goods
45. Bamboo and cane products (only dry operations)
46. Cardboard or corrugated box and paper products (Paper or pulp manufacturing excluded)
47. Insulation and other coated papers (Paper or pulp manufacturing excluded)
48. Scientific and mathematical instruments
49. Furniture (wooden and steel)
50. Assembly of domestic electrical appliances
51. Radio assembling
52. Fountain pens
53. Polythene, plastic and PVC goods through extrusion/moulding
54. Rope (cotton and plastic)
55. Carpet weaving
56. Assembly of air coolers, conditioners
57. Assembly of bicycles, baby carriages and other small non-motorized vehicles
58. Electronics equipment (Assembly)
59. Toys
60. Water softening and de-mineralised plants
61. Paint (by mixing process only)
62. Candles
63. Carpentry (excluding saw mill)
64. Oil ginning/expelling (no hydrogenation/refining)
65. Jobbing and machining
66. Manufacture of steel trunks and suitcases
67. Paper pins and U-clips
68. Block making for printing

69. Optical frames
70. Power looms/handlooms (without dyeing & bleaching)
71. Printing press
72. Garments stitching, tailoring
73. Thermometer making
74. Footwear (rubber)
75. Plastic processed goods
76. Medical and surgical instruments
77. Electronic and electrical goods
78. Rubber goods industry

C. Prohibited Industries

1. Distillery including Fermentation industry
2. Sugar (excluding Khandsari)
3. Fertilizer
4. Chloro alkali
5. Pharmaceuticals (Basic) (excluding formulation)
6. Dyes and Dye-intermediates
7. Pesticides (Technical) (excluding formulation)
8. Tanneries
9. Petrochemicals (Manufacture of and not merely use of as raw material)
10. Cement
11. Thermal power plants
12. Iron and Steel (Involving processing from ore/scrap/Integrated steel plants)
13. Zinc /copper/aluminium smelter
14. Tyres and tubes (excluding Vulcanisation /Retreating/moulding)
15. Synthetic rubber
16. Glass and fiberglass production and processing

17. Industrial carbon including electrodes and graphite blocks, activated carbon, carbon black etc
18. Paints and varnishes (excluding blending/mixing)
19. Pigments and intermediates
20. Synthetic resins
21. Petroleum products involving storage, transfer or processing
22. Lubricating oils, greases or petroleum-based products
23. Synthetic fibers including rayon, tyre cord, polyester filament yarn
24. Surgical and medical products involving prophylactics and latex
25. Synthetic detergent and soap
26. Photographic films and chemicals
27. Chemical, petrochemical and electrochemical including manufacture of acids such as Sulphuric Acid, Nitric Acid, Phosphoric Acid etc
28. Industrial or inorganic gases
29. Chlorates, per chlorates and peroxides
30. Glue and gelatin
31. Yarn and textile processing involving scouring, bleaching, dyeing, printing or any effluent/emission generating process
32. Industry or process involving metal treatment or processes such as pickling, surface coating, paint baking, paint stripping, heat treatment, phosphate or finishing etc
33. Industry or process involving electroplating operations
34. Asbestos and asbestos-based industries
35. Fermentation industry including manufacture of yeast, beer etc
36. Steel and steel products including coke plants involving use of any of the equipments such as blast furnaces, open hearth Furnace, induction furnace or arc furnace etc or any of the operations or processes such as heat treatment, acid pickling, rolling or galvanizing etc
37. Incineration plant
38. Power generating plants (excluding DG Sets)
39. Lime manufacturing
40. Dry coal processing/Mineral processing industries like ore sintering, palletization etc
41. Phosphate rock processing plants
42. Coke making, coal liquefaction, coal tar distillation or fuel gas making
43. Phosphate and detonators, fuses etc.
44. Explosive including detonators, etc
45. Fire crackers
46. Processes involving chlorinated hydrocarbon
47. Chlorine, fluorine, bromine, iodine and their compounds
48. Hydro cyanic acid and its derivatives
49. Milk processing and dairy products (Integrated project)
50. Industry or process involving foundry operations
51. Potable alcohol (IMFL) by blending or distillation of alcohol
52. Anodizing
53. Ceramic/refractoriness
54. Lead processing and battery reconditioning & manufacturing including lead smelting
55. Hot mix plants
56. Mining and ore-beneficiation

For the industries, which do not fall in any of the above-mentioned categories, decision with regard to these to be taken by the Authority.

Annexure VII
List of Municipal Facilities

1. Overhead Tank
2. Underground Tank
3. Oxidation Pond
4. Septic Tank
5. Sewerage Pumping Station
6. Public Toilet
7. Dhallao and dustbin
8. Dhobi Ghat

Annexure VIII

Building Bye Laws related to Fire (Delhi)

A) Building Plans for Multi-storeyed / Special Buildings-For multi-storeyed buildings which are more than 15 m height and for special buildings like assembly, institutional, industrial, storage and hazardous occupancies, the following additional information shall be furnished/indicate in the Building

- a. Access to fire appliances/vehicles with details of vehicular turning circle and clear motorable access way around the building;
- b. Size (width) of main and alternate staircases along with balcony approach, corridor, ventilated lobby approach;
- c. Location and details of lift enclosures;
- d. Location and size of fire lift;
- e. Smoke stop lobby/door where provided;
- f. Refuse chutes; refuse chamber, service duct, and etc
- g. Vehicular parking space;
- h. Refuge area, if any;
- i. Details of Building Services - air conditioning system with position or dampers, mechanical ventilation system, electrical services, boilers, gas pipes etc.;
- j. Details of exits including provision of ramps, etc. for hospitals and special risks;
- k. Location of generator, transformer, and switchgear room;
- l. Smoke exhauster system if any;
- m. Details of fire alarm system net work;

- n. Location of centralized control, connecting all fire alarm system, built-in fire protection arrangements and public address system, etc.;
- o. Location and dimension of static water storage tank and pump room;
- p. Location and details of fixed fire protection installations such as sprinklers, wet risers, hose reels, drenchers. CO2 installations etc.; and
- q. Location and details of first aid fire fighting equipments/installations.

Clearance from Chief Fire Officer

In the case of buildings identified in A), the work shall also be subject to the inspection of the Chief Fire Officer, Fire Service and the occupancy certificate shall be issued by the Authority only after the clearance from the Chief Fire Officer regarding the completion of the work from the fire protection point of view.

Means of Access

- a) No building shall be erected so as to deprive any other building of the means of access.

- b) Every person who erects a building shall not at any time erect or cause or permit to erect or re-erect any building, which in any way encroaches upon or diminishes the area set apart as means of access.
- c) For buildings identified in A, the following provisions of means of access shall be ensured
 - a. The width of the main street on which the building abuts shall not be less than 9 meters,
 - b. A building shall abut on a street or streets or upon spaces directly connected from the street by a hard surface approach road, width of which is not less than 9 meters,
 - c. If there are any bends or curves on the approach road, a sufficient width shall be provided at the curve to enable the fire appliances to turn, the turning circle being atleast of 9.0 m radius,
 - d. The approach road to the building and open spaces on its all sides upto 6 m width and the layout for the same shall be done in consultation with Chief Fire Officer, Fire Service and the same shall be of hard surface capable of taking the weight of Fire engine, weighing upto 118 tones. The said open space shall be kept free of obstructions and shall be motorable,
 - e. Main entrances to the premises shall be of adequate width to allow easy access to the fire engine and in no case it shall measure less than 5 meters. The entrance gate shall fold back against the compound wall of the premises, thus leaving the exterior access way within the plot free for movement of fire service vehicles. If archway is provided over the main entrance the height of the archway shall not be at a height less than 4 m, and

- f. For multi-storeyed group housing schemes on one plot, the approach road shall be 9 m in width and between individual buildings; there shall be a space of 6 m around.

For buildings identified in A, the provisions of exterior open spaces around the buildings shall be as given below:

S. No.	Ht. of the building up to	Exterior Open spaces to be left our on all sides* (front, rear and sides in each plot)
1.	10 m	3m
2.	15 m	5m
3	18m	6m
4	21 m	7m
5	24 m	8m
6	27 m	9m
7	30 m	10 m
8	35 m	11 m
9	40 m	12 m
10	45 m	13 m
11	50 m	15 m
12	55 m and above	16 m

Height

- a. The maximum height of building shall not exceed 1.5 times the width of road abutting plus the front open spaces.
- b. If a building abuts on two or more streets of different widths, the building shall be deemed to face upon the street that has the greater width and the height of the building shall be regulated by the width of the street and may be continued to this height to a depth of 24 m along the narrower street subject to conformity of city bye laws.

Basement

The construction of the basement shall be allowed by the Authority in accordance with the land use and other provisions specified under the Master Plan.

Where the use, set backs and coverage is not provided in the Master Plan provisions, the same shall be allowed to be constructed in the plot leaving mandatory set backs and can be put to any of the following uses:

- i. Storage of household or other goods of non-flammable materials;
- ii. Dark room;
- iii. Strong rooms, bank cellars etc.;
- iv. Air-conditioning equipment and other machines used for services and building;
- v. Parking places and garages;
- vi. stack rooms of libraries; and

- vii. Office or commercial purpose provided it is air-conditioned.

The basement shall not be used for residential purposes.

The basement shall have the following requirements:

- i. Every basement shall be in every part at least 2.4 m in height from the floor to the underside of the roof slab or ceiling.
- ii. Adequate ventilation shall be provided for the basement. The standard of ventilation shall be the same as required by the particular occupancy according to Bye-laws. Any deficiency may be met by providing adequate mechanical! Ventilation in the form of blowers, exhaust fans (one exhaust fan for 50 sq. m. of basement area), air-conditioning system etc.
- iii. The minimum height of the ceiling of any basement shall be 0.9 m and maximum of 1;2 m above the average surrounding ground level.
- iv. Adequate arrangement shall be made such that surface drainage does not enter the basement.
- v. The walls and floors of the basement shall be water-tight and be so designed that the effect of the surrounding soil and moisture, if any, are taken into account in design and adequate damp proofing treatment is given.
- vi. The access to the basement shall be separate from the main and alternate stair-case providing access and exit from higher floors. Where the staircase is continuous the same shall be enclosed type serving as a fire separation from the basement floor and higher floors. Open ramps shall be permitted if they are constructed within the building line subject to the provision of (iv).

- vii. In the case of basements for office and commercial occupancies sufficient number of exit ways and access ways shall be provided with a travel distance not more than 15 m.
 - viii. The basement shall not be partitioned. In case the partitions in the basements are allowed by the Authority, no compartment shall be less than 500 sq. ft. in area and each compartment shall have ventilation standards as laid down in sub-clause (ii) separately and independently. The basement partitions shall however conform to the norms laid down by the Chief Fire Officer.
 - ix. Kitchen, bathroom and toilet shall not be permitted in the basement unless the sewer levels permit the same and there is no chance of back flow and flooding of sewerage. If permitted, this shall be placed against an external wall of the basement (which shall also be external wall of the building) and shall be adequately lighted and ventilated. The area of kitchen, bathroom and toilet so permitted in the basement shall be counted towards FAR calculations.
 - x. A kitchen when permitted in the basement shall be equipped with electric ovens, stoves, gas or similar equipments.
- d. No buildings shall be altered so as to reduce the number, width or protection of exits to less than that required;
 - e. Exits shall be clearly visible and the routes to reach the exit shall be clearly marked and sign posted to guide the population of floor concerned;
 - f. All exit ways shall be properly illuminated;
 - g. Fire fighting equipment where provided along exits shall be suitably located clearly marked but must not obstruct the exit way and yet there should be indication about its location from either side of the exit way;
 - h. Alarm devices shall be installed to ensure prompt evacuation of the population concerned through the exits;
 - i. All exits shall provide continuous means of egress to the exterior of a building or to an exterior open space leading to a street;
 - j. Exits shall be so arranged that they may be reached without passing through another occupied unit, except in the case of residential buildings.

Exit Requirements

General - The following general requirements shall apply to exits

- a. Every building meant for human occupancy shall be provided with exits sufficient to permit safe escape of occupants in case of fire or other emergency;
- b. In every building exits shall comply with the minimum requirement of this part, except those not accessible for general public use;
- c. All exits shall be free of obstructions;

Types of Exits

- a. Exits shall be either of horizontal or vertical type. An exit may be doorway, corridor, and passageways to an internal staircase or external staircase, ramps or to a verandah and/or terraces, which have access to the street or to roof of a building. An exit may also include horizontal exit leading to an adjoining building at the same level.
- b. Lifts and escalators shall not be considered as exits.

Number and Size of Exits-The requisite number and size of various exits shall be provided, based on the population in each room, area and floor based on the occupant load, capacity of exits, travel distance and height of buildings as per provisions of city bye laws.

Arrangement of Exits - Exits shall be so located so that the travel distance on the floor shall not exceed 22.5m for residential, educational, institutional and hazardous occupancies and 30m for assembly, business, mercantile, industrial and storage occupancies. Whenever more than one exit is required for a floor of building, exits shall be placed as remote from each other as possible. All the exits shall be accessible from the entire floor area at all floor levels.

Occupant Load-The population in rooms, areas of floors shall be calculated based on the occupant load given in the table given below.

Occupant Load

Sl. No.	Group of Occupancy	Occupant Load Gross Area* in sqm/person
1.	Residential	12.5
2.	Educational	4
3.	Institutional	15**
4.	Assembly: (a) with fixed or loose seats and dance floors (b) without seating facilities including dining rooms	0.6*** 1.5***
5.	Mercantile: (a) Street floor and sales basement (b) Upper sale floors	3 6
6.	Business and Industrial	10

7.	Storage	30
8.	Hazardous	10

* The gross area shall mean plinth area or covered area.

** Occupant load in dormitory portions of homes for the aged, orphanages, insane asylums etc. where sleeping accommodation is provided, shall be calculated at not less than 75-sqm gross area/person.

*** The gross area shall include, in addition to the main assembly room or space, any occupied connection open or space in the same storey or in the storey above or below, where entrance is common to such rooms and spaced and they are available for use by the occupants of the assembly place. No deductions shall be made in the gross area for corridors, closets or other subdivisions; one area shall include all space serving the particular assembly occupancy.

Capacity of Exits -The capacity of exits (doors and stairways) indicating the number of persons that could be safely evacuated through a unit exit width of 50 cm shall be as given below.

Occupants Per Unit Exit Width

Sl. No	Group of Occupancy	Number of Occupants	
		Stairways	Doorways/Horizontal Exit
1	Residential	25	75
2	Educational	25	75
3	Institutional	25	75
4	Assembly	60	90

5	Business	50	75
6	Mercantile	50	75
7	Industrial	50	75
8	Storage	50	75
9	Hazardous	25	40

Notes :

1. Sprinkler Allowances -

When a building is protected with automatic sprinkler system and such a system is not required specifically by the Code, the capacity per storey per unit width of exit of stairways in Table 6 may be increased by 50%.

2. Horizontal Exit Allowance -

When horizontal exit is provided in building of mercantile, storage, industrial, business and assembly occupancies, the capacity per storey per unit width of exit of stairways in Table 6 may be increased by 50% and in buildings of institutional occupancy by 100%.

3. Combine Total Allowance -

When both automatic sprinklers and horizontal exists are provided, the capacity per unit width of exit of stairways may be double the values specified in Table 6.

For building identified in A, there shall be a minimum of two staircase and one fo them shall be an enclosed stairway and the other shall be on the external walls of buildings and shall open directly to the exterior, interior open space or to any open place of safety.

Doorways

- a. Every doorways shall open into an enclosed stairway, a horizontal exit, on a corridor or passageway providing continuous and protected means of egress.
- b. No exit doorway shall be less than 100cm in width. Doorways shall be not less than 200cm doorway shall be less than 100cm in width. Doorways shall be not less than 200cm in height. Doorways for bathrooms, water closet, stores etc. shall be not less than 75cm wide.
- c. Exit doorways shall open outwards, that is, away from the room but shall not obstruct the travel along any exit. No door, when opened, shall reduce the required width of stairway or landing to less than 90cm, overhead or sliding doors shall not be installed.
- d. Exit door shall not open immediately upon a flight or stairs; a landing equal to atleast the width of the door shall be provided in the stairway at each doorway, level of landing shall be the same as that of the floor which it serves.
- e. Exit doorways shall be openable from the side which they serve without the use of a key.

Revolving Doors

- a. Revolving doors shall not be used as required exits except in residential, business and mercantile occupancies, but shall not constitute more than half the total required door width.
- b. When revolving doors are considered as required exist way the following assumptions shall be made-
 - i. each revolving door shall be counted one half a unit exit width.

- ii. Revolving doors shall not be located at the foot of a stairway. Any stairway served by a revolving door shall discharge through lobby or foyer.

Stairways

- a. Interior stairs shall be constructed of non-combustible materials throughout.
- b. Interior staircase shall be constructed as a self contained unit with at least one side adjacent to an external wall and shall be completely enclosed. For buildings more than 15m height, all staircases shall be enclosed.
- c. A staircase shall not be arranged round a lift shaft unless the latter is entirely enclosed by a material of fire-resistance rating as that for type of construction itself. For buildings more than 15m in height, the staircase location shall be to the satisfaction of Chief fire Officer, Fire Service.
- d. Hollow combustible construction shall not be permitted.
- e. The minimum width of internal staircase shall be 1.00 m
- f. The minimum width of treads without nosing shall be 25cm for an internal staircase for residential buildings. In the case of other buildings the minimum tread shall be 30cm. The treads shall be constructed and maintained in a manner to prevent slipping. Winders shall be allowed in residential buildings provided they are not at the head of a downward flight.
- g. The maximum height of riser shall be 19cm in the case of residential buildings and 15 cm in the case of other buildings. They shall be limited to 12 per flight.
- h. Handrails shall be provided with a minimum height of 90cm from the center of the tread.
- i. The minimum headroom in a passage under the landing of a staircase and under the staircase shall be 2.2m.
- j. For buildings more than 24 m higher, access to main staircase shall be gained through at least half an hour fire resisting automatic closing doors placed in the enclosing walls of the staircases. It shall be a swing type door opening in the direction of the escape.
- k. No living space, store or other fire risk shall open directly into the staircase or staircases.
- l. External exit door of staircase enclosure at ground level shall open directly to the open spaces or can be reached without passing through any door other than a door provided to form a draught lobby.
- m. The exit sign with arrow indicating the way to the escape route shall be provided at a height of 0.5m from the floor level on the wall and shall be illuminated by electric light connected to corridor circuits. All exist way marking signs should be flushed with the wall and so designed that no mechanical damage shall occur to them due to moving of furniture or other heavy equipments. Further all landings of floor shall have floor indication boards indicating the number of floor. The floor indication board shall be placed on the wall immediately facing the flight of stairs and nearest to the landing . It shall be of size not less than 0.5x0.5m
- n. Individual floor shall be prominently on the wall facing the staircase.
- o. In case of single staircase it shall terminate at the ground floor level and the access to the basement shall be by a separate staircase. However, the second staircase may lead to basement levels provided the same is separated at ground level by either a ventilated lobby with discharge points at two different ends or through enclosures.

Fire Escapes or External Stairs

- a. Fire escapes shall not be taken into account in calculating the evacuation time of a building.
- b. All fire escapes shall be directly connected to the ground.
- c. Entrance to fire escape shall be separate and remote from the internal staircase.
- d. The route to fire escape shall be free of obstructions at all times, except a doorway leading to the fire escape which shall have the required fire resistance.
- e. Fire escape shall be constructed of non-combustible materials.
- f. Fire escapes stairs shall have straight flight not less than 75cm wide with 25 cm treads and risers not more than 19 cm. The number of risers shall be limited to 16 per flight.
- g. Handrails shall be of a height not less than 90cm.

Spiral Stairs (fire escape) -The use of spiral staircase shall be limited to low occupant load and to a building of height 9 m unless they are connected to platforms, such as balconies and terraces to allow escapes to pause.

A spiral fire escape shall be not less than 150cm in diameter and shall be designed to give adequate head room.

Ramps

- a. Ramps with a slope of not more than 1 in 10 may be substituted for and shall comply with all the applicable requirements of required stairway as to enclosure, capacity and limiting dimensions., Large slopes shall be provided for special uses but in no case greater than 1 in 8. For all slopes exceeding 1 in 10 and

where the use is such as to involve danger of slipping, the ramp shall be surfaced with approved non-slipping material.

- b. The minimum width of the ramps in hospitals shall be 2.25m.
- c. Handrails shall be provided open both sides of the ramp.
- d. Ramps shall lead directly to outside open space at ground level or courtyards or safe place.
- e. For building above 24 m in height, access to ramps from any floor of the building shall be through smoke stop door.

Corridors

- a. The minimum width of a corridor in a residential building shall be 1.0 m and in all other buildings shall be 1.5m
- b. In case of more than one main staircase of the building interconnected by a corridor or other enclosed space, there shall be at least one smoke stop door across the corridor or enclosed space between the doors in the enclosing walls of any two staircases.

Refuge Area-For all buildings exceeding 15 m in height, refuge area shall be provided as follows :

- a. for floors above 15 m and upto 24 m –one refuge area on the floor immediately above 18m.
- b. for floors above 24 m and upto 36 m-one refuge area on the floor immediately above 24m.
- c. for floors above 36 m-one refuge area per every five floors above 36m

Refuge area shall be provided on the external walls as cantilever projections or in any other manner (which will not be covered in FAR) with a minimum area of 15 sq mtr. And to be calculated based on the population on each floor at the rate of 1 sq.m. per person.

Lifts

- a. All the floors shall be accessible for 24 hours by the lifts. The lifts provided in the buildings shall not be considered as a means of escape in case of emergency.
- b. Grounding switch at ground floor level to enable the fire service to ground the lift in case of an emergency shall also be provided.
- c. The lift machine room shall be separate and no other machinery shall be installed therein.

Fire Protection Requirements

Buildings shall be planned, designed and constructed to ensure fire safety and this shall be done in accordance with para IV Fire Protection of national Building code of India, unless otherwise specified in these by-laws. In the case of buildings (identified in A), the building schemes shall also be cleared by the Chief Fire Officer, Fire Service.

The additional Provisions related to fire protection of buildings more than 15 m is height and buildings identified in A, shall be as given follows.

Additional Fire Protection Requirements for Buildings more than 15m. in Height & Buildings as Covered by Section A.

General

1. In addition to the provisions of part IV Fire Protection of National Building Code of India, the Chief Fire Officer, Fire Service may insist on suitable provisions in the buildings from fire safety and fire fighting point of view depending on the occupancy and height of buildings.
2. Staircase Enclosures

- The internal enclosing walls of staircase shall be of brick or R.C.C. construction having fire resistance of not less than two hours. All enclosed staircases shall have access through self-closing doors of at least half-hour fire resistance- These shall be single swing doors opening in the direction of the escape. The door shall be fitted with check action door closers.
- The staircase enclosure on external wall of the building shall be ventilated to atmosphere at each landing.
- Permanent vent at the top equal to 5% of the cross sectional area of the enclosure and openable sashes' at each floor level with area equal to 15% of the cross sectional area of the enclosure of external wall shall be provided. The roof of the shaft shall be at least 1m above the surrounding roof. There shall be no glazing or glass bricks in any internal enclosing wall of a staircase. If the staircase is in the core of the building and cannot be ventilated at each landing, a positive pressure of 5-mm. w.g. by an electrically operated blower/blowers shall be maintained.
- The mechanism for pressurizing the staircase shaft shall be so installed that the same shall operate automatically and also with manual operation facilities, when the automatic fire alarm operates.

Lift Enclosures

- The walls enclosing lift shafts shall have a fire resistance of not less than two hours. Shafts shall have permanent vents at the top not less than 1 800 sq. mm. in clear area. Lift motor rooms preferably be sited at the top of the shaft and shall be separated from lift shafts by the enclosing wall of the shaft or by the floor of the motor rooms.
- Landing doors in lift enclosures shall open in the ventilated or pressurized corridor/lobby and shall have fire resistance of not less than one hour.
- The number of lifts in one lift bank shall not exceed four. Shaft for fire lift in a lift bank shall be separated from each other by a brick masonry or RCC wall of fire resistance of not less than two hours.

- If the lift shaft and lift lobby are in the core of the building a positive pressure of not less than 2.5 mm and not more than 3 mm. w.g. by an electrically operated blower shall be maintained in the lift lobby and positive pressure of not less than 5 mm w.g. shall be maintained in the lift shaft. The mechanism for pressurising the lift shaft and lift lobby shall be so installed that they shall operate automatically when the automatic fire alarm operates. The mechanism shall have facilities to operate manually.
- Exit from the lift lobby shall be through a self-closing smoke stop door of half-hour fire resistance.
- The lift machine room shall be separate and no other machinery shall be installed therein.
- Lifts shall not normally communicate, with the basement. However, one of the lifts may be permitted to reach the basement levels provided the lift lobby at each basement level is pressurized and separated from the rest of the basement areas, by smoke actuated fire resisting door of two hours fire resistance.

3. Basements

- Each basement shall be separately ventilated. Vents with cross sectional area (aggregate) not less than 2.5% of the floor area spread evenly round the perimeter of the basement shall be provided in the form of grills or breakable stall-boards light or payment light or by way of shafts.
- The staircase of basements shall be of enclosed type having fire resistance of not less than two hours and shall be situated at the periphery of the basement and shall communicate with basement through a lobby provided with fire resisting self-closing doors of half-hour fire resistance. If the travel distance exceeds 18.50m additional staircases at proper places shall be provided.

4. Service Ducts

- Service ducts for electrical conduits, cables etc. shall be enclosed by walls having a fire resistance of not less than two hours. Doors for inspection or access shall also have a fire resistance of not less than two hours.
- If the Cross-sectional area exceeds 1 sq. m. it shall be sealed where it passes a floor by carrying the floor through the duct. The floor within the duct shall be pierced for any service pipe or ventilation trunk and shall fit as closely as possible around any such pipe or trunk.

5. Refuse Chutes and Refuse Chambers

- Hoppers to refuse chutes shall be situated in well ventilated positions and the chutes shall be continued upwards with an outlet above roof level and with an enclosure wall of non-combustible material with fire resistance of not less than two hours. The hoppers shall not be located within the staircase enclosure.
- Inspection panel and hopper (charging station) opening shall be fitted with tight fitting metal doors, covers, having a fire resistance of not less than one hour.
- Refuse chutes shall not be provided in staircase walls, air-conditioning shafts, etc. K-6.4 Refuse chambers shall have walls and floors of roofs constructed of noncombustible and impervious material and shall have a fire resistance of not less than two hours. They shall be located at a safe distance from exit routes.

6. Lifts and Fire Lifts

- Public address system in the lift car with speaker/telephone assembly shall be provided.
- Provisions for a fire lift shall be made as per the following details:

- a. To enable Fire Services personnel to reach to the upper floors with the minimum delay, one of the lifts shall be so designed so as to be available for the exclusive use of the Firemen in an emergency and be directly accessible to every dwelling lettable floor space on each floor.
- b. The lift shall have a floor area of not less than 1.5 sq.m. It shall have loading capacity of not less than 500 kg. (8 persons lift) with automatic closing doors.
- c. The electric supply shall be on a separate service from electric supply mains in a building and cables run in route safe from fire, that is, within the lift shaft. In case of failure of normal electric supply it shall automatically trip over to alternate supply.
- d. The operation of a fire lift is a simple toggle or two button switch situated in a glass fronted box adjacent to the lift at the entrance level. When the switch is on, landing call-points will become inoperative and the lift will be on car control only. When the switch is off, the lift will return to normal working. This lift can be used by the occupants in normal times.
- e. The words "FIRE LIFT" shall be conspicuously displayed in fluorescent paint on the lift landing doors at each floor level.
- f. For buildings above 15 m in height collapsible gates shall not be permitted for lifts and shall have solid doors with fire resistance of 2 hours.

7. Building Services

• Electrical Services

- a. The electric distribution cables/wiring shall be laid in separate duct. The duct shall be sealed at every alternative floor with non-

combustible materials having the same fire resistance as that of the duct.

- b. Water mains, telephone lines, intercom lines, gas pipes or any other service line shall not be laid in the duct for electric cables.
- c. Separate circuits for water pumps lifts, staircases and corridor lighting and blowers for pressurizing system shall be provided directly from the main switchgear panel.

• Staircase and Corridor Lighting

- a. The staircase and corridor lighting shall be on separate service and shall be independently connected so as it could be operated by one switch installation on the ground floor, easily accessible to fire fighting staff at any time irrespective of the position of the individual control of the light points, if any.
- b. Staircase and corridor lighting shall also be connected to alternate supply from parallel high-tension supply or to the supply from the stand-by generator.
- c. Emergency lights shall be provided in staircase corridor.

- Alternate Source of Electric Supply - A stand-by electric generator shall be installed to supply power to staircase and corridor lighting circuits, fire lifts, the stand-by fire pump, pressurization fans and blowers, smoke extraction and damper system in case of failure of normal electric supply. The generator shall be capable of taking starting current of all the machines and circuits stated above simultaneously. If the stand-by pump is driven by diesel engine, the generator supply need not be connected to the stand-by pump. Where parallel HV/ LV supply is provided with appropriate transformer for emergency, the provision of generator may be waived in consultation with Chief Fire Officer.

- Transformers

- a. If transformers are housed in the building below the ground level it shall be necessarily in the first basement in separate fire resistance room of 4 hours rating. The room shall necessarily be at the periphery of the basement. The entrance to the room shall be provided with a steel door of 2 hours fire rating. A curb of a suitable height shall be provided at the entrance in order to prevent the flow of oil from ruptured, transformer into other parts of the basement. The direct access to that transformer room shall be provided preferably from outside. The switchgears shall be housed in a separate room separated from the transformer bays by a fire-resisting wall with fire resistance not less than four hours.
- b. The transformer shall be protected by an automatic high-pressure water spray or a foam sprinkler system. When housed at ground floor level it/they shall be cut-off from the other portion of premises by Fire Resisting Walls of 4 hours fire resistance. They shall not be housed on upper floors.
- c. A tank of RCC construction of adequate capacity shall be provided at lower basement level, to collect the oil from the catch pit in case of emergency. The pipe connecting the catch-pit to the tank shall be of non-combustible construction and shall be provided with a flame-arrester.

- Air-conditioning

- a. Proper arrangements by way of automatic fire dampers working on smoke/heat detectors for isolating all ducting at every floor from the main riser shall be made.
- b. When the automatic fire alarm operates, the respective air handling units of the air conditioning system shall automatically be switched off.

- c. Automatic fire dampers shall be so arranged so as to close by gravity in the direction of the air movement and to remain tightly closed upon operation of a smoke/heat detector-cum-fire alarm.
- d. Air ducts saving main floor areas corridors, etc. shall not pass through the stair wall.
- e. Wherever the ducts pass through fire walls or floors the opening around the ducts shall be seated with fire resisting materials such as rope asbestos, mineral wool, etc. The air filters of the air-handling units shall be of non-combustible materials.
- f. Automatic fire dampers shall be provided at the inlet of the fresh air duct and the return air duct of each compartment/stop on every floor.

Note: The use of type of detectors shall be to the satisfaction of Chief Fire Officer.

- Boiler Room-Provisions of Boiler and Boiler Rooms shall conform to Indian Boiler Act. Further, the following additional aspects may be taken into account in the location of Boiler/Boiler Room:

- a. The boiler shall not be allowed in sub-basement but be allowed in the basements away from the escape routes.
- b. The boilers shall be installed in a fire resisting room of 4 hours fire resistance rating, and this room shall be situated on the periphery of the basement. Catch pit shall be provided at the low level.
- c. The boiler room shall be provided with fresh air inlets and smoke exhausts directly to the atmosphere.
- d. Foam inlets shall be provided on the external walls of the building at the ground floor level to enable the fire services to use foam in case of fire.

8. Provision of First Aid Fire Fighting Appliances

- The first aid fire fighting equipments shall be provided on all floor including basements, occupied terrace, lift rooms in accordance with IS : 2217-1982 Recommendations for providing First Aid Fire Fighting Arrangements in Public Buildings in consultation with the Chief Fire Officer.
- The fire fighting appliances shall be distributed over the building in accordance with IS 2190 Code of Practice for selection, installation and maintenance of portable first aid fire appliances.

Fixed Fire Fighting Installations

- Buildings above 15m in height depending upon the occupancy use shall be protected by wet riser or sprinkler installation system with the fire service connections at the base or sprinkler installation as per details given below :

Type of the Building Occupancy	Requirements
(a) Apartment building below 15m. in height irrespective of floor area	Nil
(b) Apartment buildings exceeding 15m. in height	Wet Risers and (or) Down Comers
(c) Non-apartments buildings 15m. and above in height irrespective of floor area	Wet Risers and (or) Down Comers
(d) All basements, sub-basements having special risks like storage of hazardous Sprinkler" System and explosive material in	High Pressure Water Spray or foam

a building 15m. and above

(e) Any of the above categories may incorporate an automatic sprinkler*/drencher system if the protective methods.

Those buildings provided with smoke/heat detection system backed by 24 hour caretaker (trained in fire fighting) staff, the installation of sprinklers need not be insisted.

The hydrants shall be provided within the courtyard, the location of which shall be decided in consultation with the Chief Fire Officer.

Note: The Dry Riser installations may be permitted by the Chief Fire Officer, Fire Service, for buildings under (b) and (c) for heights above 15m. and below 24m. if he is satisfied with the arrangements for water supply

- The Wet Riser installations shall conform to IS: 3844-1966 Code of Practice for Installation of internal fire hydrants in multi-storey buildings.

In addition, Wet Risers shall be designed for Zonal distribution ensuring that unduly high pressure are not developed in risers and have ripes.

In addition to wet risers, first aid hose reels shall be installed on all the floors of the buildings and shall conform to IS: 884-1969 specification for first aid hose reel for fire fighting (fixed installations). The first aid hose

reel shall be connected to one of the female couplings of twin couplings of landing valves of the wet riser installations by means of adopter.

- The riser shall be fed through the booster pump from either of the two water sources round the clock :
 - a. Town mains of suitable size which can supply requisite quantity of water.
 - b. Static tanks. The capacity of the static tank shall be given as below :
 - i. Apartment building 15m. and above in height 50,000 liters but below 24m. in height.
 - ii. Non-apartment building 15 m. and above but below 1,00,000 liters 24m. in height used for mixed occupancies like offices, shops, department stores
 - iii. Apartment buildings 24m. and above in height 1,00,000 liters
 - iv. Non-apartment buildings 24m. and above in height 2,00,000 liters

Note 1. In case of group housing of apartment buildings 15m and above in height but below 24m. a centrally located tank having a capacity of 2,00,000 liters may be provided.

Note 2. The above quantities of water shall be exclusively for fire fighting and shall not be utilized for domestic or other use.

- Static Water Storage Tank - A satisfactory supply of water for the purpose of fire fighting shall always be available in the form of underground static storage tank with capacity specified for each building by the local Fire Authority with arrangements of replenishment by town's main or alternative source of supply @ 1,000 litres per minute.

The static storage water supply required for the abovementioned purpose should entirely be accessible to the fire engines of the local Fire Service. Provision of suitable number of manholes shall be made available for inspection, repairs, and insertion of suction hose etc. The covering slab shall be able to withstand the vehicular load of 18 tons.

- To prevent stagnation of water in the static water storage tank the suction tank of the domestic water supply shall be fed only through an overflow arrangement to maintain the level therein at the minimum specified capacity.
- The static water storage tank shall be provided with a fire brigade collecting breaching with 4 Nos.-65 mm dia. instantaneous male inlets arranged in a valve box at a suitable point at street level and connected to the static tank by a suitable fixed pipe not less than 15 cm. dia. to discharge water into the tank when required at a rate of 1,000 liters per minute.
- Automatic Sprinklers-Automatic high pressure water spray or foam sprinklers system shall be installed.
 - a. In basements, sub-basements which are used as car parks, storage of combustible article, laundry etc.
 - b. On floors used as departmental stores, shops and traders involving fire risks.
 - c. On all floors of the buildings other than apartment buildings, if the height of the building exceeds 45m.
- Carbon-di-Oxide Fire Extinguishing System. Fixed CO₂ fire extinguishing installation shall be provided as per IS: 6382-1971 Code of Practice for design and installation of fixed CO₂ fire extinguishing system on premises where water or foam cannot be used for fire extinguishments because of the special nature of the contents of the buildings/ areas to be protected.

9. Fire Alarm System

- All buildings above 15m. in height shall be equipped with fire alarm system as given in below
- a. Residential Building (Dwelling Houses, Boardinghouses & Hotels)
- b. All residential buildings like dwelling houses (including flats), boardinghouses and hostels shall be equipped with manually operated electrical fire alarm system with one or more call boxes located at each floor. The location of the call boxes shall be decided after taking into consideration the floor plan with a view to ensure that one or the other call box shall be readily accessible to all occupants of the floor without having to travel more than 22.5m.
- c. The call boxes shall be of the 'break-glass' type without any moving parts, where the call is transmitted automatically to the control room without any other action on the part of the person operating the call box.
- d. All call boxes shall be wired in a close circuit to a control panel in the control room, located such that the floor No. from where the call box is actuated is clearly indicated on the control panel. The circuit shall also include one or more batteries with a capacity of 48 hrs. normal working at full load. The battery shall be arranged to be a continuously trickle charged from the electric mains.
- e. The call boxes shall be arranged to sound one or more sounders so as to ensure that all occupants of the building shall be warned whenever any call box is actuated.
- f. The call boxes shall be so installed that they do not obstruct the exit ways and yet their location can easily be noticed from either direction. The base of the call box shall be at a height of 1 m from the floor level.

All other Buildings-All buildings other than as indicated above shall, in addition to the manually operated electrical fire alarm system, be equipped with an automatic fire alarm system. The latter shall be in addition to the

alarm, which may be sounded by the actuation of any automatic fire extinguishing system, which may be installed in any particular occupancy in accordance with these byelaws. Unless otherwise decided by the Chief Fire Officer, the detectors for the automatic fire alarm system shall conform to IS: 217S-1962 Heat Sensitive Fire Detectors and the system shall be installed in accordance with IS: 2189-1962 Code of Practice for Automatic Fire Alarm system, or any other relevant Indian Standards prepared from time to time.

Note: Several types of fire detectors are available in the market, but the application of each type is limited and has to be carefully considered in relation to the type of risk and the structural features of the building where they are to be installed.

Control Room

- There shall be a control room on the entrance floor of the building with communication system (suitable public address system) to all floors and facilities for receiving the message from different floors. Details of all floor plans along with the details of fire fighting equipment and installations shall be maintained in the Control Room. The control room shall also have facilities to detect the fire on any floor through Indicator Boards connecting fire detecting and alarm system on all floors. The staff incharge of control room shall be responsible for the maintenance of the various services and fire fighting equipment and installations.

10. House Keeping

- To eliminate fire hazards a good house keeping inside the building and outside the building shall be strictly maintained by the occupant's and/or the owner of the building.

11. Fire Drills and Fire Orders

- Fire notices/orders shall be prepared to fulfill the requirements of the fire fighting and evacuation from the building in the event of fire and other incidents. The occupants shall be made thoroughly conversant with their action in the event of the emergency, by displaying fire notices at vantage points. Such notices should be displayed prominently in broad lettering.

Annex IX

Land Assembly Options

Compulsory Acquisition through Land Acquisition Act 1894: Legal provision for acquisition of Land

The Land Acquisition Act 1894, provides the basis for acquisition of land for public purpose in India. The step by step procedure involved in acquiring land through this instrument is notification of intention to acquire, joint measures of land, notification signifying the final decision to acquire land, notices to land owners to hear claims for compensation and to decide ownership, declaration of land acquisition award and finally taking over of physical possession of land. The Guwahati Metropolitan Development Authority Act, 1985, under Section 56 provides powers to the State Government for acquisition of land.

Within the framework of land acquisition through Land Acquisition Act, CIDCO in Navi Mumbai and DDA in Delhi made some special efforts for smooth acquisition process. These are:

CIDCO Navi Mumbai Model

The land development strategy in Navi Mumbai started with the concept of Land Banking. The entire area of Navi Mumbai was notified for acquisition, primarily to use it as a major resource for development, to achieve equitable distribution of benefits of the development to all those affected by the project of urbanisation, and to achieve a better environment. Large scale acquisition of private land and transfer of

Government land and salt pan lands was taken as a prime strategy for land assembly.

A. Financing Arrangement

It was contemplated in the Maharashtra Regional and Town Planning Act, 1966, the State Government would be approached for assistance in financing Capital Expenditure. CIDCO was also supposed to raise loan in the open market and to secure funds from other financial institutions like Life Insurance Corporation of India, Housing and Urban Development Corporation of India, etc. CIDCO had an authorised capital of Rs. 5 Crores and a subscribed capital of Rs. 3.95 crores, which was fully contributed by the State Government in 1970.

It was stated in the development plan that the cost incurred by the Government on the acquisition of lands will be accounted as Government's own Capital Outlay. Section 26(v) of the Maharashtra Regional and Town Planning Act, 1966, requires that the Planning Authority submit estimates of the cost of acquisition of lands required for public purposes. The corporation then may make "On Account Advance Payments" to the Government from the proceeds of land disposal to meet the Government's outlay on the payment of compensation for compulsory acquisition.

An important feature in CIDCO's financial arrangement was that CIDCO provided a means of tapping private capital and using it for a public

purpose. The initial seed capital was supposed to be a public loan which had to be returned with interest. But all development costs, including the costs of providing improved urban and social amenities had to be met by realising funds through the disposal of developed plots. Disposal had to be done by lease and not by sale as it was desired that all the land in the project should always vest in the public authority, but the lease amount is to be realised by way of a premium paid at the time of taking possession of a plot, so that development costs are recovered as early as possible. Thus, possibility of employing private capital to use land as a resource and serve a public purpose.

B. Innovative Techniques

a) Voluntary Surrender/Deposit Scheme

With the acquisition of their land, the agriculturists receive substantial amounts as compensation. It is likely that these amounts be quickly spent with adverse effects on the farmers future. An innovative scheme was formulated according to which, if an owner of the land in selected areas voluntarily offers his land to Government at an agreed rate, the amount so agreed can be placed in deposit with CIDCO at a rate of interest such that the yield will approximate to the net amount the land holder now gets from his land by way of crop yield. The land holder will go on getting this yearly amount from CIDCO as interest until he wants repayment of his deposit.

b) Rehabilitation

Right in the initial years when CIDCO had not yet become financially self-sufficient and had neither created its individual resource base, it ventured

into the complex issues related to rehabilitation which affect most of the large urban development projects. CIDCO established a rehabilitation cell and took up the task of rehabilitation by three specific measures:

(a) *Individual oriented programmes*: Education, training and providing employment to the villagers to integrate them with the urbanisation process.

(b) *Village oriented programmes*: Devising ways to upgrade the village infrastructure to bring it at par with the newly built city around them, and

(c) *Land compensation*: Making villagers effective partners in the development of the new city by sharing the assets created in the new city with them.

c) Entrepreneurship Development

The Project Affected Persons in Navi Mumbai are encouraged to take up petty civil work contracts from CIDCO. Necessary policies adopted by CIDCO are:

- a) Awarding works worth upto Rs. 2,00,000 and 20 percent of works worth more than Rs. 200,000 only to registered PAP contractors.
- b) Allowing 10 percent price preference over the lowest tender to PAP contractor while awarding the remaining 80 percent large contracts.
- c) Awarding sanitation (public health) and horticulture contracts exclusively to the PAP's.

d) Strengthening of Village Infrastructure

Villages within the Navi Mumbai project area are provided Grant-in-aid (GIA) for building various village amenities and facilities. A fixed amount is annually budgeted to be utilised on providing infrastructure facility to the villages which include drainage, water supply, approach roads, construction of schools, community halls, crèches, crematoria, health centres, community toilet blocks, drains etc.

e) Land Compensation Schemes (GES Scheme and 12.5% Scheme)

Village sites were exempted from acquisition, with the objective of protecting the culture of the inhabitants as well as to provide for accommodating the natural growth of the village families. With a view to accommodate the natural growth of the village families even beyond the first generation, the government of Maharashtra approved a scheme of earmarking certain area around the village as Gaathan Expansion Scheme (GES) in which plots were to be carved out and allotted to the villagers at nominal cost. The scheme was an outcome of a movement by the PAPs against the acquisition of their lands by government for the Navi Mumbai project, led by peoples representatives.

When it was first introduced as the GES Scheme, some of its features were:

- a) Ten percent of the total land of the village was fixed to be reserved for this scheme around the village. Out of this, 50% would be carved out as residential plots for the villagers and the rest for the provision of roads, open spaces and other facilities in the scheme. Each land holder would thus get 5 percent of his surrendered land

back as a GES plot, subject to a minimum of 100 and a maximum of 500 sq.m.

- b) These plots would be sold at a rate which shall be twice the acquisition cost plus Rs. 5 per sq.m.
- c) Even the landless labourers whose livelihood is lost due to urbanisation were to be allotted a 40 sq.m. plot.
- d) The transfer of these plots to others was restricted.

There were many modifications made in the scheme after it was renamed as the 12.5% Compensation Scheme. These were as follows:

- a) 12.5% of the acquired land to be earmarked as a housing scheme for the villagers, 70 percent of which will be carved out as residential plots.
- b) These pockets will not be necessarily close to the original villages.
- c) The maximum permissible buildable area on plots allotted to villagers will be one and a half times higher than that permissible on other residential plots in Navi Mumbai. In addition 15 percent of the buildable area on these plots will be permitted to be utilised for commercial purpose.
- d) There is no upper limit of plots' sizes to be returned to the villagers.
- e) Land price and restrictions on sale of this land remain the same as in the case of the earlier GES scheme.

The scheme reduced the resistances to the land acquisition by PAP's but the low development cost (Rs. 5 per sq.m.) levied did put substantial financial burden on the organization i.e. CIDCO.

DDA Delhi Model

Most important initial document regarding Urban Land Policy as enunciated along with the preparation of Master Plan for Delhi in 1962 was the communication of Ministry of Home Affairs, Government of India regarding Control on Land Values in the Urban Areas of Delhi, i.e. Acquisitions, Development and Disposal of Land in Delhi. The important content of the communication are as follows:

- (I) About 8,000 acres of land should be acquired, in the first instance, under the provision of the Land Acquisition Act, 1894. The land so acquired was to be developed by various authorities i.e.
 - a) Central Public Works Department
 - b) Delhi Development Authority
 - c) Delhi Municipal Corporation
- (II) The developed land was to be provided for:
 - a) Public and private institutions for public utilities and community facilities like open spaces, parks, playgrounds etc.
 - b) Industrial and commercial use and
 - c) Housing plots for individuals including those whose land had been acquired by the Government under this scheme.
- (III) All the land acquired under the schemes would be Nazul and will vest with the President and will be given out in his name only on lease-hold basis to local bodies and private parties including co-operative societies, industrialists, individuals and institutions.
- (IV) For achieving optimum utilisation of land, the following was recommended:
 - a) The size of residential plots was restricted to 800 sq.yds, which was subsequently reduced to 400yds.
 - b) Allotment of land only to such institutions which subserve directly the interest of the population of Delhi.
 - c) Setting up of housing and other areas. Those which could be located else where to be discouraged.
 - d) No plot should be allotted to any person who or any of his/her dependent relations own a house or residential plot in Delhi, New or Delhi Cantonment
- (V) Encouragement to private investment in housing was envisaged through regular auction of residential plots to higher income group (general auction) where this group could also provide for rental housing.
- (VI) The entire responsibility for acquisition, development and disposal of land under the scheme was that of the Chief Commissioner (now Lt. Governor), Delhi.
 - (a) **Progress of Land Acquisition In Delhi**

The large-scale land acquisition for Delhi Mster Plan started in 1959. The first major notification under Section 4 of 1894 Act was issued on November 13, 1959 for 34000 acres of land. By October, 1961 by additional notifications nearly 55000 acres of land were notified for acquisition. In subsequent years upto 1965 the Government had issued notification for nearly 73000 acres (cumulative). Notification for 25000 acres were issued by 1965 under section 6 of Act as against the

preliminary notification under section 4 issued for 73,000 acres. In 1966 under section 6 ,notification for another 27,000 acres were issued. Subsequent notifications were issued for land required from time to time.

(b) Financial Arrangement

For implementation of the scheme of 'Large Scale Acquisition, Development and Disposal of Land' in Delhi, Government initially provided a Seed Capital of Rs.5 crore to the Chief Commissioner, now Lieutenant Government Delhi, who is also the ex-officio Chairman of the Delhi Development Authority. The Revolving Fund mechanism was intended as a self financing mechanism to sustain the urban planning effort in Delhi by establishing a revolving cycle of acquisition-development-disposal-acquisition.

To operate the revolving fund. Ministry of Finance, Government of India prescribed the accounting procedure to be followed. According to this procedure, all receipts are required to be credited into the revolving fund and the expenditure is required to be met there from by drawl of cheques by Commissioner, Delhi Administration. The Rs. 5 crore revolving fund was augmented by another Rs.7.31 cores (1968-69) to meet the requirements of the scheme.

(c) Extra Effort

To respond to the required rate of land development to meet the growing space need of urban activities finance is needed by the development agency, although its deficiency is specially felt in the initial years. Both the agencies CIDCO and the DDA adopted some special method techniques in the initial years and later years with considerable success.

Some important practices resorted by the DDA have been discussed in the section which could be of use to the development/housing agencies.

In the initial years form 1961 to 1970 the house building co-operative societies which operated in Delhi, large number of such societies were unable to purchase land in the open market. These societies asked for acquisition and allotment of land. The situation was best utilised by the Land and Building Department of Delhi administration to take money form these societies which indirectly added to the revolving fund. Thus a method was found to :

- a) Take advance money form these societies for acquisition of land at pool rate which was generally higher than the rate of acquisition and for peripheral development,
- b) To do land acquisition form the advance money,
- c) Allot land after acquisition,
- d) Do peripheral development i.e. Zonal road, water sewer and electric lines from out of the advance money.

If we examine the details of the receipts of DDA from 1961 to 1971, it becomes clear that initially till 1961 the amount received from the sale of undeveloped land was more than the amount received in the later years. This amount decreased as the organization started getting regular returns from the sale of developed land after 1970's. This clearly highlights that the organization, in need of finances during the initial years, can undertake new and innovative techniques to improve its financial positions.

Thus during the initial difficult years finances in advance were available from the societies. Similarity raw (undeveloped land) was allotted to Central Public Works Department for employee housing and Municipal

Corporation of Delhi who were executing the Plan scheme of Jhuggi Jhompari resettlement. Thus substantial amount from the sale of undeveloped land became available to Delhi Administration and indirectly to the DDA. In 1970 the Government decided to shift emphasis towards the co-operative housing sector from the plotted development to group housing.

(d) Self Financing Housing

This is another scheme of advance money, though in this case, the land is already acquired and is available with the DDA when such scheme is floated. In this scheme the applicant is registered after he has paid the registration amount and he pays money in advance used for the land development and construction of houses. So far (1996) eight self financing schemes were floated in which 77672 persons were registered and 66909 were made allocations.

(e) Conversion of Leasehold to Freehold

In 1992-93 Government of India had announced the Scheme for conversion of Leasehold tenure to Freehold. Under this scheme residential plots upto certain size and flats built by DDA could be converted from leasehold tenure to freehold tenure by payment of a fixed one time amount. A sum of Rs. 167.51 crores was accumulated upto 1995-96 starting from 1992-93. This amount has been made into an 'Urban Development Fund'.

(f) Land Acquisition Related - Alternative Plot Scheme :

The provisions for alternative residential plots to the land owners whose land was acquired was in the scheme of Large Scale Acquisition, Development and Disposal of land. The policy followed was to allot alternative plots of area equivalent to 40 percent of the area of land acquired from the persons concerned, subject to a maximum size of 800 sq.yds. and minimum size of 125 sq.yds initially. The cases where the land acquired was less than 150 sq.yds. were not considered for allotment of any plot. The maximum size of plot was reduced from 800 sq.yds. to 400 sq.yds. and later to 250 sq.yds.

(g) Fixation of minimum price of land acquisition

Land in Delhi is acquired under the provisions of the Land Acquisition Act. The price to be paid is the market price as per the act. However the market price as worked out by the Government is usually less than the free market price as the registered sales for the nearby land are generally less because of many factors. The result of this state of affairs was that farmers were eager to sell off land to un-authorised colonisers rather than the Government, which resulted in large number of unauthorised colonies. Delhi Government in 1989 decided a minimum rate of Rs. 6 lakh per acre as floor price which for most of the area was almost 3 times the price being fixed as per the Land Acquisition Act. Thus the farmers became quite eager to give land to DDA rather than the unauthorised coloniser. Subsequently this rate was increased to Rs 13 lakh per acre and it is further enhanced from time to time.

Greater Noida Model

The Greater Noida Model, had certain features and after effects which have been itemized below based on the presentation made by the Chief Planner, Greater Noida. These are:

(a) Problems faced by acquiring body

- The land acquisition process is very time consuming – which in turn delays the process of urban development.
- Interest burden on the amount is deposited with SLAO/DM, which directly effects cost.
- Unauthorized constructions taken place during the process of acquisition.
- Uncertainty on compensation rate.
- Enhancement of rate in revisions/appeals in different courts.

(b) Problems faced by farmers

- Low compensation rate
- Variation of rate due to belting system
- Delay in compensation distribution
- No proper rehabilitation policy (housing and employment)
- Problems in the payment of compensation

(c) In 1994, Greater Noida also faced the following problems:

- Agitation from farmers stopping the development work
- Stay orders obtained from local / high court

- Agitation was supported by Builders / Colonizers and cooperative societies, who had purchased land before the creation of the authority.

(d) The Authority negotiated with the farmers on:

- Compensation rate
- Compensation distribution process

An out of court settlement was made after the declaration of award and submitted in the District Judge court during references. The above mentioned policy was adopted for a single village.

(e) In 1996-97, villagers again started agitation for:

- Increase in compensation rates decided in 1994 (Rs 110/- per sq. yard).
- Employment / Jobs in the local industries
- Allotment of developed plots in the schemes at cheaper rate for family expansion

(f) Negotiations were made to arrive at:

- Compensation rate linked to Consumer Price Index
- Rate is revised at every financial year (Rs. 110/-per sq. yard in 1994, increased to Rs 139/- per sq. yard in 1997 and Rs 232/- per sq. yard in 2002)
- Compensation rate irrespective of location (No belting system)
- Additional 15% on basic rate as rehabilitation package.

- Allotment of 10% of the acquired land or 5% of net developed land for residential use adjacent to village abadies (Plot sizes 40 sqm. – 2500 sqm.)
- Payment of development charges by the villagers.
- Distribution of compensation through special camps to reduce harassment and corruption.
- In case of urgency – land on the fixed rate can directly be purchased from villagers.

In Noida, where villagers, whose land were acquired, were eligible to get a developed plot in the schemes. The value of plots were 5 to 6 times the allotment rate. Noida also adopted the similar policy like Greater Noida i.e. A uniform land compensation rate is fixed for whole of development area for each financial year linked with Consumer Price Index (CPI).

Now in 2002, Noida/Greater Noida do not have any dispute in the land acquisition for the last 5 years. They have a Land Bank of 2000-3000 Acres (800 to 1200 ha.)

Gujarat Model

(a) Town Planning Schemes

The Town Planning Schemes, popularly known as T.P. Schemes, are prepared and implemented under the Gujarat Town Planning & Urban Development Act. 1976. In fact the T P Schemes are in vogue since 1917 A.D. It is a German model, adopted by England and effectively implemented in Gujarat & Maharashtra. The schemes were first prepared under the Bombay Town Planning Act 1915, then the Bombay Town Planning Act 1954, now revised as the GTP & UD Act 1976. Provision of

Town Planning Scheme in all these three acts remains more or less same, with some variation.

The Town Planning Scheme is an instrument to implement the master plan/development plan. The Town Planning Scheme may be prepared for an area as envisaged in the Sec. 40 of the GTP & UD Act 1976 for areas.

- Under the course of development
- Already developed
- or likely to be developed in near future

The process of preparation of Town Planning Schemes in Gujarat has been discussed below in detail.

(i) Draft Scheme

An Appropriate Authority selects an area of 90 to 100 Ha. approximately and prepares a draft T.P. Scheme in consultation with the Chief Town Planner, Gujarat State. Master Plan proposals like roads and land reserved for Public purpose or for the purpose of appropriate authority are incorporated in draft T.P. Scheme.

The entire area is surveyed along with revenue records which helps in updating the revenue record. Any dispute about land ownership is resolved first by appropriate authority, who prepares draft T.P. Scheme and then solved by the Town Planning Officer when he draws preliminary and final scheme (Sec. 53). All owners of individual land (survey number or its fragments), known as “original plot (O.P.) are listed and shown on map. These lands are then reconstituted giving appropriate shape for optimum development and each owner is given an independent land with direct

access from T.P. scheme road. These are known as semi final plots. Thus each land has access from TP Scheme roads. To acquire roads and land reserved for public purpose, reconstitution of plot is done after judicious deduction of land from each original plot (O.P.). Such deducted lands are accumulated as per reservation of lands. Thus the proposals of Master Plan are implemented through reconstitution of plot without indulging into land acquisition process. The infrastructure, like water supply, drainage, street light etc. are laid down on roads, and estimates are prepared by the appropriate authority. Each owner is served notice for “Hearing” and his opinion/objection/ suggestion are recorded and as far as possible incorporated in the draft scheme. As per provisions made in the Act, owners meetings are conducted by the appropriate authority. The draft scheme is then submitted to the state government by the appropriate authority for sanction.

(ii) The Preliminary Scheme

The State government then appoints a Town Planning Officer (TPO) as a Quasi Judicial Officer. The TPO then divides the draft scheme into preliminary scheme & final scheme. The Town Planning officers conducts fresh survey, makes changes in draft T.P. Schemes and he, serves notice to each owner of original plot for hearing. The preliminary scheme consists the physical part i.e. ownership, area statement, extent to which an original plot is proposed to a final plot (Reconstitution) and services to be provided in the scheme. The preliminary scheme is then submitted to the state government for sanction. As soon as the preliminary scheme is sanctioned;

- all lands (roads & Reservations) vest absolutely in appropriate activities, free from encumbrances.

- all reconstituted plots become the subject.

(iii) The Final Scheme

After the submission of preliminary scheme, the Town Planning officer then draws the final scheme consisting the financial part of T.P. Scheme. These are, values of original plot, semi-final plot, final plot, cost of scheme, compensation (\pm) incremental values contribution, betterment charge etc. All these values are decided after giving “sufficient opportunities” to each owner of plot. The difference between S.F. value & O.P value is given as \pm compensation. The difference between Final Plot value & O.P. value is known as incremented value. Each owner, so benefited in T.P. Scheme will have to give 50% of incremented value as “Contribution”. All lands so acquired for roads & public purpose by way of reconstitution, cost of implementation is met with by contribution. e.g. the provision of infrastructure facility, reconstitution of plot and ownership generally result in to “unearned profit” to each landowner who generally does not object for some deduction of his land.

The final scheme is then, submitted to the state government. After obtaining sanction, the appropriate authority starts collection of betterment charge.

This model eliminates acquisition process by way of reconstitution of land. The cost of infrastructure is recovered through contribution. All urban centres in Gujarat successfully Implement Development Plan by way of T.P. Scheme. The appropriate authority has not to incur any land acquisition, cost or cost of infrastructure. There is cent per cent public participation as all land owners are heard by the appropriate authority at draft TP Scheme stage and Quasi Judicial Officer at Final Stage.

Stages of Preparation of the Town Planning Scheme

The preparation of a Town Planning Scheme in Gujarat involves following stages:

- Declaration of Intention to make a Scheme by appropriate authority
- Preparation of Draft TP Scheme
- Publication of Draft TP Scheme (within one year)
- Inviting Suggestions/Objection
- Submission to State Government for Sanction (4 months from publication)
- Sanction by State Govt. & appointment of Town Planning Officer
- Splitting up of TP Scheme- Preliminary Scheme and Final Scheme
- Preliminary Scheme: Survey, Hearing of each owner, reconstitution of each original plot to Final plot, Reservation for public purpose
- Final Scheme: Cost of Scheme, Compensation, Incremental value, contribution on each plot.
- Award of preliminary scheme (one year from appointment)
- Sanction of TP Scheme & land vest absolutely in appropriate authority.
- Implementation of TP Scheme
- Award of Final Scheme by Town Plan Officer
- Constitution of Board of Appeal & hearing
- Submission of Final TP Scheme
- Sanction of Final Scheme by State government
- Appropriate Authority gets betterment accrued on each plot
- Variation of TP Scheme (if required)

The Gurgaon (Haryana) Private Developers Model

Gurgaon in Haryana and is only 30 km. away from the national capital, New Delhi. The Haryana development & Regulation of Urban Areas Act of 1975 enables private developers to apply for licenses to assemble parcels of land in a designated area. After assembly, the developer would apply for permission to develop, which is permitted by Haryana Urban Development Authority under a set of conditions such as allotment of a fixed proportion of plots to the middle income groups on no profit and not loss basis and also to the poor on subsidized basis. The plan for the land is prepared by the private developer and is got approved as per provisions of the relevant laws.

The agreement between the owner of land, or developer, intending to set up a colony (hereinafter called the owner) and the Director, Town and Country Planning, Haryana contains the following conditions.

- a) The owner shall deposit 30% of the amount realised by him from plot holders, from time to time, within 10 days of its realisation in a separate account in a scheduled bank and this amount shall be used only for internal development of the colony.
- b) The owner shall undertake to pay proportionate external development charges with a break-up of 25% within one month and the balance 75% in two years in four equal half-yearly installments. Interest at the rate of 18% per annum shall be charged on deferred payments.
- c) If there is any delay in payment of installments, penal interest at the rate of 3% per month on the belated amount shall be charged in addition.

- d) Enhanced compensation on land, if any, will be payable by the owner.
- e) Some amount has been added for the construction of internal community buildings in the external development charges and for this, no recovery shall be made from the plot holders. However, grants will be given by the HUDA for the internal buildings constructed by the owner of the colony.
- f) The owner shall pay electrification charges directly to the Haryana State Electricity Board (HSEB). No external development charges would be recovered from the EWS/LIG categories.
- g) The owner shall be responsible for the maintenance of services for a period of 5 years from the date of issue of completion certificate or transfer of services to the local authority whichever is earlier.
- h) The owner shall complete the internal development works within two years of the grant of the license. The owner shall pay a service charge on the total plotted area of the colony, excluding areas for social infrastructure.
- i) The owner shall give requisite land for the water and sewage treatment works, oxidation ponds at his own cost till the external sewerage system is completed by the Haryana Urban Development Authority (HUDA).
- j) The owner shall reserve 20% of the total number of residential plots for the EWS/LIG. For the allotment of these plots, the owner shall invite applications and would allot only to eligible persons falling in this category by draw of lots.
- k) The owner shall further reserve 25% of the residential plots for allotment on 'No Profit No Loss' basis and would also allot the

applicants registered with him via draw of lots. Lot of these plots, 75% would be allotted in the general category and the balance 25% to – (i) Non-Resident Indians (NRIs) against foreign exchange; ii) alternate allotment to those whose lands were required by the owner, and iii) 5% at the discretion of the owner.

- l) The balance 55% residential plots of 125 sq.m. and above would be sold by the owner in the free market subject to the condition that he will not get a net profit of more than 15%
- m) The owner shall submit the list of allottees to the Director twice a year.

Annex X

Norms to provide facilities in the Public Buildings excluding Domestic Buildings for Physically Challenged Persons

1. Definitions

Ambulant Disabled People: Disabled who are able to walk but who may depend on prostheses (Artificial Limbs) orthoses (Calipers), Sticks, crutches or walking aids.

Non-Ambulant Disabled People: Disabled people with impairments that confine them to wheelchair.

Wheel Chair: Chair used by disabled people for mobility.

(i) Size of small wheel chair: 750 x 1050 mm

(ii) Size of large wheel chair: 800 x 1500 mm

2. Scope

These bye-laws are applicable to public buildings and exclude domestic buildings. Building which shall provide access to ambulant disabled and Non-Ambulant disabled are listed below. Distinction is made for buildings to be designed for the use of large wheel chairs and small wheel chair.

3. Building to be designed for Ambulant Disabled People

Higher Secondary School, Conference Hall, Dance Halls, Youth Centres, Youth Clubs, Sport Centres, Sport Pavilions, Boat Club Houses, Ice Rinks, Bowling Centres, Swimming Pools, Police Stations, Law Courts, Courts Houses, Sport Stadiums, Theaters, Concert Halls, Cinemas, Auditorias, Small Offices (the maximum plinth area 1400 sq.mt) Snack Bars, Cafes and banqueting rooms (for capacity above 50 dinners).

Note:

i) In sport stadiums provisions shall be made for non-ambulant spectators (small wheel chair)

ii) @ 1:1000 up to 10,000 spectators and @ 1:2000 for spectators above 10,000.

iii) In Theaters, Concert Halls, Cinemas and Auditoria provisions shall be made for nonambulant spectators (Small Wheel Chairs) @ 1/250 up to 1000 spectators and 1/500 for spectators above 1000.

4. Building to be designed for Non-Ambulant Disabled People

Schools for physically handicapped, cremation, buildings as mentioned in 3, Botanical Gardens, Religious Buildings, Old People Clubs, Village Halls, Day Centers, Junior training Centres, Post Offices, Banks,

Dispensaries, Railway Stations, Shops, Super Markets, and Departmental Stores.

Notes: Large wheel chair criteria shall be applicable on ground floors of the following building, post offices, banks, dispensaries, railway station, shops, supermarkets, and departmental stores.

5. Building to be designed for Non-Ambulant People (using small wheel chairs)

Public lavatories in Tourist Sports, Clubs Motels, Professional and Scientific Institution, Museum, Art Galleries, Public Libraries, Laborites, Universities, Collage for further Education, Teachers Training Colleges, Technical College, Exhibition Halls Dentist Surgeries, Administrative Department of the Hospitals, Service Stations, Car Parking, Buildings Airports Terminals, Bus Terminals, Factories Employing Handicapped for Sedentary Works, Large Offices, (with plinth area abode 1400 sq.mt.), Tax Offices, Passport Offices, Pension Offices, and Labour Offices, Cafes, Banqueting Rooms and Snack Bars (For capacity above 100 dinners).

6. Buildings Requirements:

6.1 The following building requirements are to be provided for building mentioned above.

6.2 Site Planning

Access path from plot entry and surface parking to building entrance shall be minimum of 1800 mm wide having regular surface without any steps. The parking of vehicles of disabled people two equivalent car spaces (ECS) shall be provided near entrance of 30 m from building entrance.

7. Approach to Plinth Level

Ramp shall be provided to enter the building, minimum width of ramp shall be 1800 mm with maximum gradient 1:12, length of ramp shall not exceed 9.0 m having 900 mm high hand rail on both sides extending 300 m on both sides of ramps. Minimum gap from the adjacent wall to the handrail shall be 50 mm. Entrance landing shall be provided adjacent to ramp with the minimum dimension 1800 X 2000 mm.

Minimum Clear opening for the entrance door shall be 1000 mm.

Threshold shall not be raised more than 12 mm.

For stepped approach size of tread shall not be less than 275 mm and maximum riser shall be 150 mm.

8 Stairways

Height of the riser shall not be more than 150 mm and width of the tread not less than 275 mm, nosing if provided shall not extend beyond 25 mm. Maximum number of risers on a flight shall be limited to 12.

9. Lifts

Whenever lift is required as per bye-laws, provision of at-least one lift shall be made for Non-Ambulant disabled (using small wheel chairs with the following minimum dimensions of lift). Clear internal depth 1090 mm

Clear internal width 1750 mm

Entrance door width 910 mm

A handrail not less 600 mm long at 1000 mm above floor level shall be fixed adjacent to the control panel.

10. Toilets

10.1 One special W.C. in a set of toilet shall be provided for the use of disabled. No additional provision of W.C. is to be made for disabled. Size of the W.C. shall depend on the category of disabled for whom it is has been provided. All doors in W.Cs shall open outside. The type of W.C. shall be European with seat height as 500 mm. Handrails, where provided shall have min 25 mm dia.

10.2 Provision of W.Cs in buildings without lift

Provision of special W.C. shall be made on all floors for buildings designed for ambulant disabled persons. For buildings designed for non-ambulant disabled special W.C. shall be provided at Ground Floor. Size of W.C. shall depend on the type of wheel chair used by the disabled.

10.3 Provisions of W.Cs in buildings with lift

Provision of Special W.C. shall be made on all floors. Size will depend on the category of disabled for whom it has been provided.

10.4 Toilet Details

10.4.1 For Toilets Designed for Ambulant Disabled

The minimum size of W.C. shall be 1075 x 1650 mm with a minimum depth of 1450 mm from entry door 900 mm. Long handrail on the side

closer to W.C. with a clear width between the handrails shall be 900 mm and height of handrails shall be 800 mm from floor level. Minimum size of the clear door opening shall be 780 mm.

10.4.2 For Toilets Designed for Non-Ambulant Disabled Small Wheel Chair

The minimum size of W.C. shall be 1350 x 1500 mm with a minimum depth of 1500 mm from entry door. 900 mm long handrail on the side closer to W.C. shall be provided. To provide movement space for wheel chair, W.C. seat shall be fixed towards one side to the opposite adjacent wall. The centerline of W.C. from the adjacent wall shall be 400 mm and minimum 950 mm from the other wall.

Minimum size of the clear door opening shall be 780 mm.

10.4.3 For Toilets Designed for Non-Ambulant Disabled Using Large Wheel Chair

The minimum size of W.C. shall be 1500 X 1750 with a minimum depth of 1750 mm for entry door. 900 mm long handrail on the side wall closer to W.C. shall be provided. To provided movement space for wheel chair, W.C. seat shall be fixed towards one side of the opposite wall. The centerline of the W.C. from the adjacent wall shall be 400 mm and a minimum of 1100 mm from the other wall. Min. size of clear door opening shall be 860 mm.