DRAFT DEVELOPMENT PLAN FOR OLD PUNE CITY (2007 -2027)

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Pune Municipal Corporation -2013













Report for Preparation of Development Plan of Old City Limit

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ABBREVIATIONS

Abbreviatio	Description
AADT	Average Annual Daily Traffic
AQM	Air Quality Management
ASRI	Automotive Research Association of India
BOD	Bio-Chemical Oxygen Demand
BOT	Build Operate and Transfer
BPMC	Bombay Provincial Municipal Corporation
BRTS	Bus Rapid Transit System
BSUP	Basic services for the urban poor
BT	Bio-Technology
CDP	City Development Plan
CIRT	Central Institute of Road Transport Bhosari
CMP	Comprehensive Mobility Plan
CMP	Comprehensive Mobility Plan
COD	Chemical Oxygen Demand
COEP	College of Engineering, Pune
CPCB	Central Pollution Control Board
CWTP	Cantonment Water Treatment Plant
DCR	Development Control Rules
DDP	Draft Development Plan
DGPS	Differential Global Positioning System
DO	Dissolved Oxygen
DP	Development Plan
DPDC	District Planning Development Committee
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
ELU	Existing Land Use
ESR	Environmental Status Report
EWS	Economically Weaker Section
FSI	Floor- Space Index
GHG	Green House Gas emissions

ABBREVIATIONS

Abbreviatio	Description
GIPE	Gokhale Institute of Politics and Economics, Pune
GIS	Geographic Information System
GR	Government Resolutions
GSR	Global Software Resources
HCMTR	High Capacity Mass Transportation Route
HCMTS	High Capacity Mass Transit System
HH	Houseless Households
HIG	High Income Group
HPSV	High Pressure Sodium Vapour
IHSDP	Integrated Housing and Slum Development Program
ILFS	Infrastructure Leasing & Finacial Structure
IPT	Intermediate Public Transport
IRC	Indian Road Congress
IT	Information Technology
JNNURM	Jawaharlal Nehru National Urban Renewable Mission
KDMC	Kalyan Dombivili Municipal Corporation
KINSS	Karve Institue of Social Service
LIG	Low Income Group
LRTS	Light Rail Transit System
MASHAL	Maharashtra Social Housing and Action League
MEDA	Maharashtra Energy Development Agency
MIDC	Maharashtra Industrial Development Corporation
MIG	Middle Income Group
MOEF	Ministry of Environment and Forests
MRTS	Mass Rapid Transit System
MSEB	Maharashtra State Electricity Board
MSEDCL	Maharashtra State Electricity Distribution Corporation
MSRDC	Maharashtra State Road Development Corporation
MSTDC	Maharashtra State Transport Development Corporation
MSWM	Municipal Solid Waste Management

ABBREVIATIONS

Abbreviatio	Description
NBC	National Building Code
NEERI	National Environmental Engineering Research Institute
NGO	Non Government Orgnisation
NIBM	National Institute of Bank Management
NIC	National Informatics Centre
NMT	Non Motorised Transport
NRW	Non Revenue Water
NTDA	New Town Development Authority
NUTP	National Urban Transport Policy
PCMC	Pimpri - Chinchwad Municipal Corporation
PCMT	Pimpri-Chinchwad Municipal Transport
PCNTDA	Pimpri Chinchwad New Town Development Authority
PLU	Proposed Land Use
PMC	Pune Municipal Corporation
PMPML	Pune Mahanagarpalika Parivahan Mandal Limited
PMR	Pune Metropolitan Region
PMRDA	Pune Metropolitan Regional Development Authority
PMT	Pune Municipal Transport
POA	Plan of Action
PPP	Public private participation
RAY	Rajiv Awas Yojana
RITES	Rail India Technical and Engineering Services
ROB	Railway Over Bridge
RP	Regional Plan
RRZ	River Regulatory Zone
SCADA	Supervisory Control and Data Acquisition
SLI	Standard of Living Index
SRA	Slum Rehabilitation Authority
SEA	Strategic Environmental Assessment
SRS	Sample Registration System

ABBREVIATIONS

Abbreviatio	Description
STP	Sewage Treatment Plant
T & T	Traffic & Transportation
TAZ	Traffic Analysis Zones
TDR	Transferable Development Rights
TDS	Total Dissolved Solids
TFR	Total Fertility Rate
TPS	Town Planning Scheme
TSS	Total Suspended Solids
TH	Total Hardness
UDPFI	Urban Development Plan Formulation and
UNO	United Nation's Orgnisation
UTM	Universal Transverse Mercator
WGS	World Geodetic Survey 1984
WSA	Wilber Smith's Associate
WTP	Water Treatment Plant
PHADB	Pune Housing and Area Development Board
HDH	Housing the Dis-housed
MTDC	Maharashtra Tourism Development Corporation

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ACTS

Act	Description
MRTP	Maharashtra Regional & Town Planning Act'1966
BTP	Bombay Town Planning Act'1954
BPMC	Bombay Provisional Municipal Corporation Act'1949
MHADA	Maharashtra Housing & Area Development Act'1976
CRRI	Central Road Research Institute

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UNITS

Units	Description
Ha	Hectare
sq.km	Square Kilometer
MLD	Million Liters per Day
TMC	Thousand Million Cubic Feet
MT/Day	Metric Tone per Day
TPD	Tones per Day
MW	Mega Watt
MWH/Year	Mega Watt hour per year
MGD	Million Gallons per Day
G/C/D	Gallon per Capita per Day

CHAPTER NO. 1

HISTORY OF PUNE CITY

1.1 LOCATION AND SETTING OF PUNE

The city of Pune lies in the eastern belt of Maharashtra State on the South East of Mumbai at a distance of 178 kms and at a height of 1840 feet (560 meters) above mean sea level. It is located between 17 Degrees 50 Minutes N and 19 Degrees 24 Minutes N latitudes and 73 Degrees 19 Minutes E and 75 Degrees 10 Minutes E longitudes. Several National and State Highways pass through the city. Prominent among them are Mumbai-Banglore National highway No. 4, National highway no. 16 Pune-Nashik, State highway Pune- Ahmednagar, Pune–Solapur-Hyderabad National Highway, etc Central Railway has a connection from Mumbai-Pune double line broad gauze, while, it further goes to Solapur via Daund. Another, branch of Central Railway goes to Miraj and further to Goa from South Eastern direction via Saswad, Jejuri and Neera station etc.

The city is situated at the confluence of the rivers Mula and Mutha and bounded by Alandi Town on the northern boundary and Katraj Ghat on the southern boundary, which are located about 20 Km and 16 Km respectively from the city. Located at about 30 km from the city on the eastern side, is the village of Urali-Kanchan. The city is blessed to have a number of hills. Prominent among them are Chaturshrungi, Bhamburda Van Vihar, Law College hill, Hanuman hill, Vetal hill, SNDT hill, on the southern side, hill in Wadgaon, Dhayari, Hingane, Parvati, Bibwewadi, Dhankawadi, Katraj and Ram tekadi on the South of Pune-Solapur road.

The Mutha River flows from western side to eastern side towards Daund. Mula River, which is coming from Western side of Pune City, meets the Mutha river near Sangamwadi and then the combined rivers flow towards Solapur side. Width of Mutha River bed is 200 meters (660 feet). From the riverbed of Mutha, highest portion in the Pune City is Kedareshwar hill, which is about 612 meters from the riverbed.

Mutha River – Major Feature Of Pune City



During summer, maximum temperature in the city can go up to 44^0, while in the winter, temperature can go as low as 5 to $6^{0.}$ Average rainfall is about 62.5 cm. In short, the weather is balanced i.e clear and sub tropical. The Western portion from Mulshi, Maval, Tahsil in Pune District, contains black soil where the main crop is paddy. This is because the rainfall in this area is about 100- 105 cms. At some places, it is black. Generally, all lands to the north, west south and east have generally reddish soil. The city was the jahagiri of Chhatrapati Shri. Shivaji Maharaj till the 16^{th} century and till that period, the city was growing slowly. The place of residence of Shri. Shivaji Maharaj near Kasba Ganpati temple was known as Lal Mahal. The construction pattern was typical consisting of basements, Ground floor, Upper floor and it was a fortified structure. The city was ruled by the Maratha kingdom from 1600 to 1818 after which, the British rule came in to force. The City further extended beyond Kasba Peth up to the river towards the western side, up to Shankarsheth Road on the Southern side and up to Cantonment on the Eastern side. The City was divided in 16 Pethas which is termed as the core City. Many religious temples, Churches, Mosques were constructed in the City.

The residential development was mostly taking place in the city, with some sporadic commercial development taking place in Budhwar Peth, Ravivar Peth, Bhawani Peth and Nana Peth. The city has transformed from its embryonic form of Kasba peth to a huge city of 244 sq.km, with immense potential to become one of the top cities of India.

1.2 TEMPORAL EVOLUTION OF PUNE CITY.

It is very interesting to take a review of the temporal evolution of Pune City. From it's embryonic form covering a small area around the Kasba Peth, Pune, like all other towns has grown in size by successive annexations of peripheral areas. Following Tables indicates the temporal evolution of Pune City.

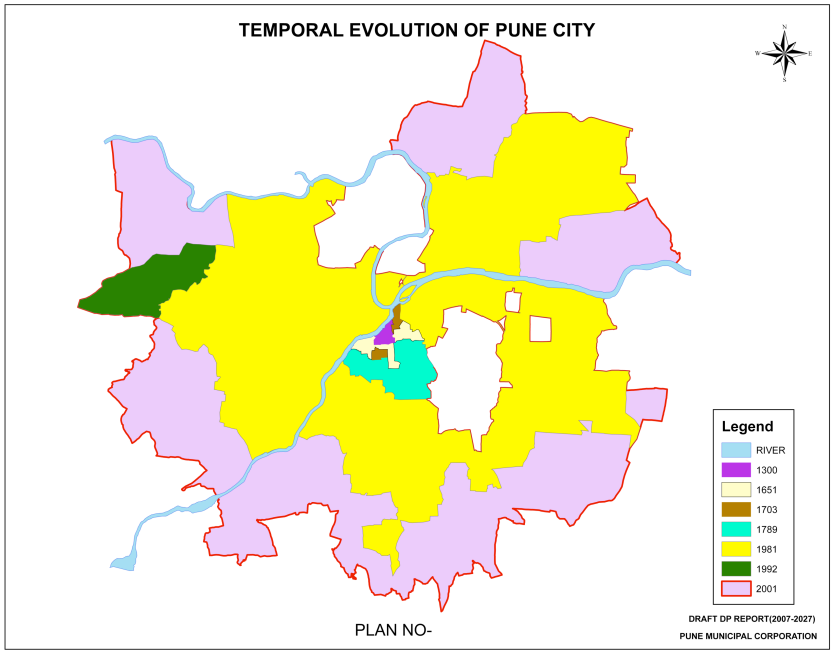


Figure No. 1-1 Temporal Evolution Of Pune City

Table No. 1-1 Temporal Evolution Of Pune City		
Sr. No.	**Year**	**Growth Of The City**
1	1857	South-Shankarsheth road to Ambil nala road North east-right bank of Mutha river East-Welesly road to new Modikhana near Nagzari
2	1889	The area between Shankarsheth road, Satara road and Golibar Maidan
3	1890	Erandwana and Bhamburda villages
4	1931	Parvati gaothan and area till Hingne Khurd
5	1935	Chaturshringi area
6	1958	Inclusion of 18 villages in the Corporation viz. Bopodi, Dhanori(part), Yerawada, Lohgaon(part), Wadgaon Sheri(part), Ghorpadi(part), Mundhwa(part), Hadapsar(part), Hingne(Bk), Dhankawdi, Pashan(part), Aundh, Wanowari, Bhosari, Dapodi, Kalas(part)
7	1975	Exclusion of some part of Bhosari from Corporation limits
8	1981	Inclusion of Sutarwadi in Corporation limits
9	1983	Inclusion of survey no. 79 of Ghorpadi
10	1997	Inclusion of 38 fringe villages and deletion of Dapodi in the Corporation limit
11	2001	Deletion of 15 complete and 5 partial villages from the Corporation

1.3 TERRITORIAL EXPANSION OF P.M.C LIMITS

Table No. 1-2 Territorial Expansion Of Limits		
Year	**Area (Sq.Km)**	**Increase(Sq.Km)**
1857	7.74	-
1889	9.86	2.12
1890	18.04	8.18
1931	18.79	0.75

1935	19.05	0.26
1958	138.9	119.85
1975	138.05	-0.85
1981	146.95	8.9
1985	146.11	-0.84
1997	376.89	230.78
2001	243.8	-133.09

1.4 POPULATION GROWTH OF PUNE

The following Table shows the growth of the city population from 1911 to 2001

Table No. 1-3	**Trend of population Growth of Pune City.**	
Year	**Population**	**Decadal Growth Rate**
1911	1,58,856	-
1921	1,98,543	25 %
1931	1,98,078	-
1941	2,57,554	30 %
1951	4,88,419	90 %
1961	6,06,777	24 %
1971	8,56,105	41 %
1981	12,03,351	41 %
1991	15,67,000	30 %
2001	25,38,000	62%
2011	31,15,454	22.73%

CHAPTER NO. 2

CLIMATOLOGY

2.1 GEOGRAPHICAL CONDITIONS

Pune is located 560 m (1,840 ft) above mean sea level on the western margin of the Deccan plateau. It is situated on the leeward side of the Sahyadri mountain range, which forms a barrier from the Arabian sea. It is a relatively hilly city, with its tallest hill, Vetal Hill, rising to 800 m (2,600 ft) above sea level. Just outside the city, the Sinhagad fort is located at an altitude of 1300m.

Central Pune is located at the confluence of the Mula and Mutha rivers. The Pavana and Indrayani rivers, tributaries of the Bhima river, traverse the northwestern outskirts of metropolitan Pune.

2.2 CLIMATE

Pune experiences three distinct seasons: summer, monsoon and winter. Typical summer months are from March to May, with maximum temperatures ranging from 35 to 39°C (95 to 102°F). While May is the warmest month in most of the Deccan Plateau, the warmest month in Pune is April. The city often receives locally developed heavy thundershowers with sharp downpours in May. Though the temperatures plunge in this month, the summer heat accompanied by high humidity can be occasionally quite oppressive. Nevertheless, the nights in Pune are significantly cooler compared to those in most other parts of this region owing to the city's high altitude.

Pune receives moderate rainfall. The city receives an annual rainfall of 625 mm, mainly between June and September as a result of the southwest monsoon. July is the wettest month of the year. Though the rainfall is comparatively lower than that in the adjoining Western ghats, steady spells of heavy rain frequently disrupt normal life in the city. The spells of continuous rainfall may stretch to many days or even a few weeks. Pune has, on record, received rainfall for 29 consecutive days (days when rainfall is greater than 2.5 mm).

However, the weather is very pleasant in the city with temperatures ranging from 20 to 28°C (68 to 82°F).

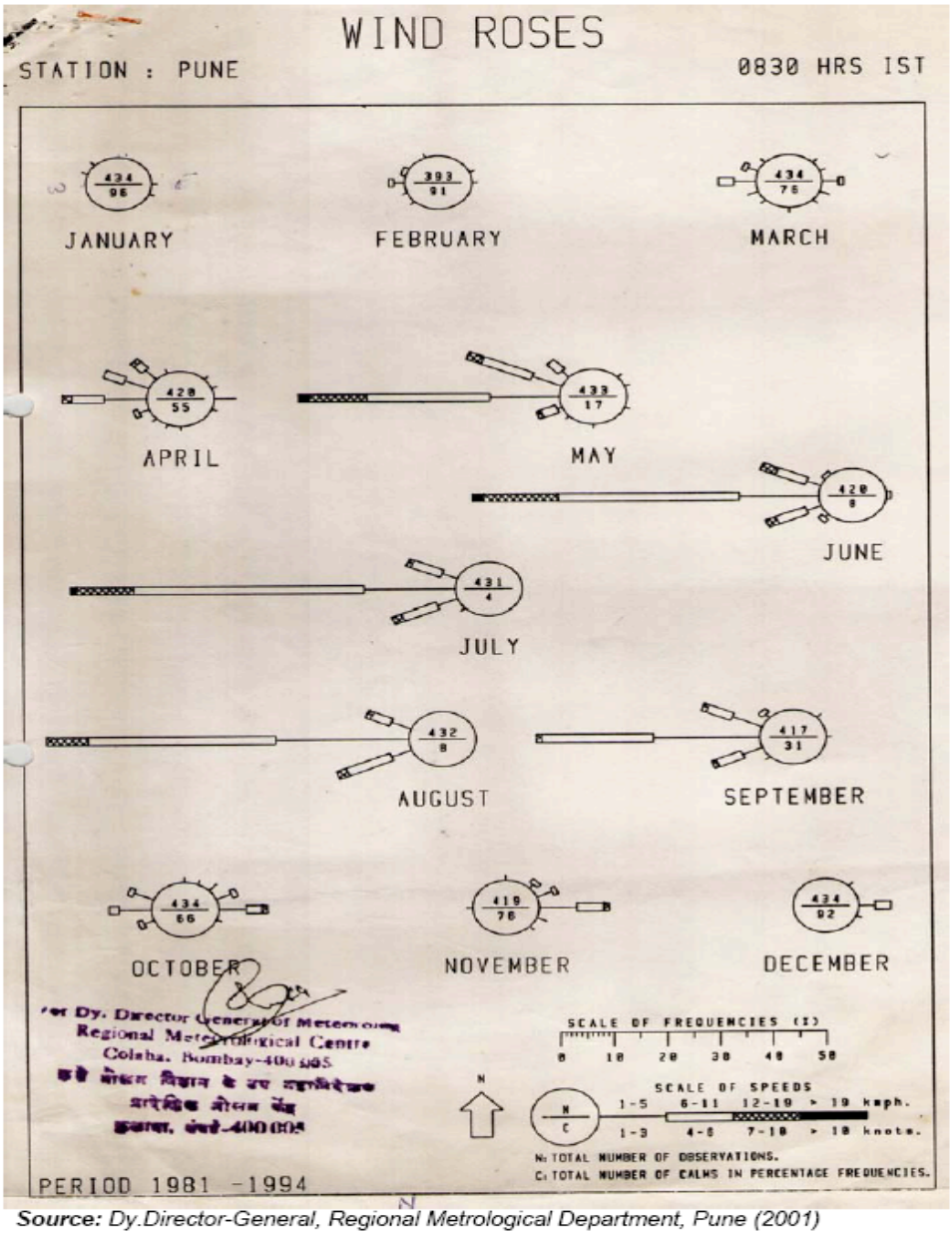
Pune experiences winter from November to February. Pleasant windy days, clear skies and cool nights make it the most enjoyable time of the year. The day temperature hovers around 29°C (84°F) while the night temperature dips below 10°C (50°F) for most of December and January, often dropping to 5 or 6°C (42°F). On particularly cold days, the wind is extremely chilly due to the dryness in the air. Rainfall is rare in winter.

Temperature records : The highest temperature recorded was 110 °F (43.3°C) on 30 April 1987 and 7 May 1889. The lowest temperature recorded during 1881-1940 was 35 °F (1.7°C) on 17 January 1935. More recently, Pune recorded a lowest temperature of 2.8°C in January 1991.

2.3 WINDS

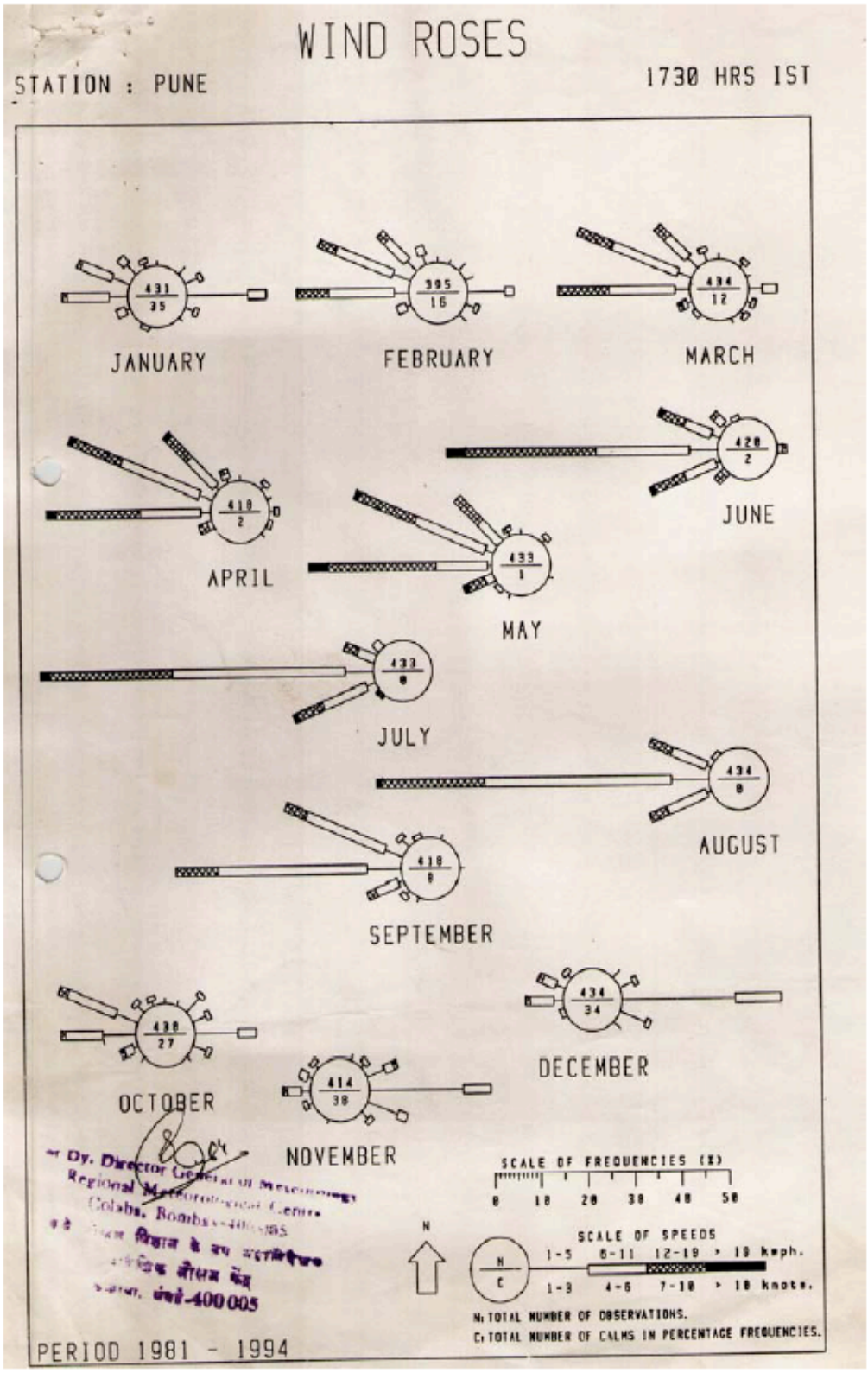
For Pune station, wind rose diagram is available for the period between 1981 to 1994 from the office of Dy. Director-General, Regional Meteorological Department, and Mumbai. The wind rose diagram for 8.30 hrs in the morning and 5.30 hrs in the evening is shown below:

Figure no 2-1:- Wind Rose for 8.30 hrs.



Source: *Dy.Director-General, Regional Metrological Department, Pune (2001)*

Figure no 2-2. Wind Rose for 5.30 hrs.



Source: *Dy.Director-General, Regional Metrological Department, Pune (2001)*

CHAPTER NO. 3

PUNE CITY IN ITS REGIONAL SETTING

3.1 INTRODUCTION

3.1.1 The first Regional Plan (RP) for Pune Metropolitan Region (1970-91) comprised of area around Pune city, Haveli Tahsil, Part of Mawal, Mulshi and Khed Tahsil (Alandi MC). Pune Metropolitan Region(PMR) mainly comprises of Pune Municipal Corporation, Pimpri Chinchwad Municipal Corporation, Talegaon & Alandi Municipal Council, Pune, Khadki & Dehu Road Cantonments & 129 villages.

3.1.2 The Regional Plan for PMR was published on 4th March, 1970 after following all legal procedures and subsequently sanctioned by the Government in February 1976. This RP was further revised & draft RP for PMR and Pune District was published in 1993 & sanctioned in November 1997, to come into force thereafter. The concept of preparation of District RP is a part of State Policy connected to State Five Year Plan (DPDC).

3.1.3 The Pune District area comprises of 1500 sq. km. accommodating 55.11 Lakh populations (1991). There are two Municipal Corporations – PMC and PCMC, 3 Cantonments – Pune, Kirkee and Dehu Road, 11 Municipal Councils and 1753 villages. As per the population projection stated in R.P Report, more than 50% (51%) population has been accommodated in urban area by 1991. The total population of district for 2011 was estimated to be 94.80 Lakh of which 71.29 Lakh would reside in urban areas, their extentions, proposed new towns, and urban centers. Thus, the percentage of urban population in the region was projected to rise from 51% of 1991 to 75% by 2011.

3.2 DIVISION OF PUNE REGION

The Pune region is mainly divided into following three sub regions as shown in PLAN NO 3-1

1. Pune Metropolitan Area (PMR)

2. Western Ghat Area – (Mawal, Mulshi Taluka)

3. The remaining Eastern & Central part of the region – (Shirur, Daund, Baramati & Indapur sub region

For the sub region no. 1 (PMR), 8 sectors have been formed in the Pune RP from 'A' to 'H' which have been described below :

Table No. 3-1 Division of the Pune Region

Sector	Area	Population (2011)	Residential Area	Industrial Area
A	Dehu, Talawade, Chikhali, Moshi, Dudulgaon	75,000	860	102
B	Kiwale, Ravet, Mamurdi, Punavale, Tathawade, Wakad, Hinjewade	80,000	561	105
C	Baner, Balewadi, Mhalunge, Sus area	100,000	1300	Nil
D	Bawdhan (Bk & Kh), Kothrud, Warje, Shivane, Kondhave, Dhavade	120,000	804	Nil
E	Hingne (Kh), Wadgaon (Bk & Kh), Wadgaon-Dhayari, Narhe, Nanded, Kirkatwadi, Khadakwasla	150,000	710	110
F	Ambegaon (Bk & Kh), Dhankawadi, Katraj, Kondhave (Kh & Bk)	160,000	1417	71
G	Undri, Pisoli, Mohammadwadi, Hadapsar, Phursungi, Manjari (Bk), Mundhwa, Urali Devachi	170,000	1575	119
H	Wagholi, Wadgaon-sheri, Kharadi, Dighi, Kalas, Dhanori, Bopkhel, Charholi (Bk), Longaon	220,000	3142	94
	Area in Ha	**Total**	**10368**	**600**

Source: - Regional Plan Report (1991-2011)

3.3 CO-ORDINATED APPROACH OF REGIONAL PLAN

1. New town to be established at a distance of 80 to 100 kms from Pune – between Baramati and Kurkumbh industrial area with 5 to 7 lakhs population together with peripheral ring towns of 0.50 to 1.50 lakhs each around existing / proposed industrial area at nodal points.

2. To take care of housing need, residential townships are suggested at 25-30 Km & 50-80 Km distance as ring towns. These towns are named as Inner Residential Ring Towns (25-30 Km away from Pune) for carrying total population of 7.75 lacs & Outer Ring Towns (50 – 80 km away from Pune) for carrying total population of 7.60 lacs.

3. Regional plan shows industrial & residential zone to satisfy the housing need of the industrial development. The existing development in these areas shows that the Industrial areas are developing but the residential area is not having the same pace of development. The impact is thereby coming on the adjoining urban settlements in respect of Housing & transportation.

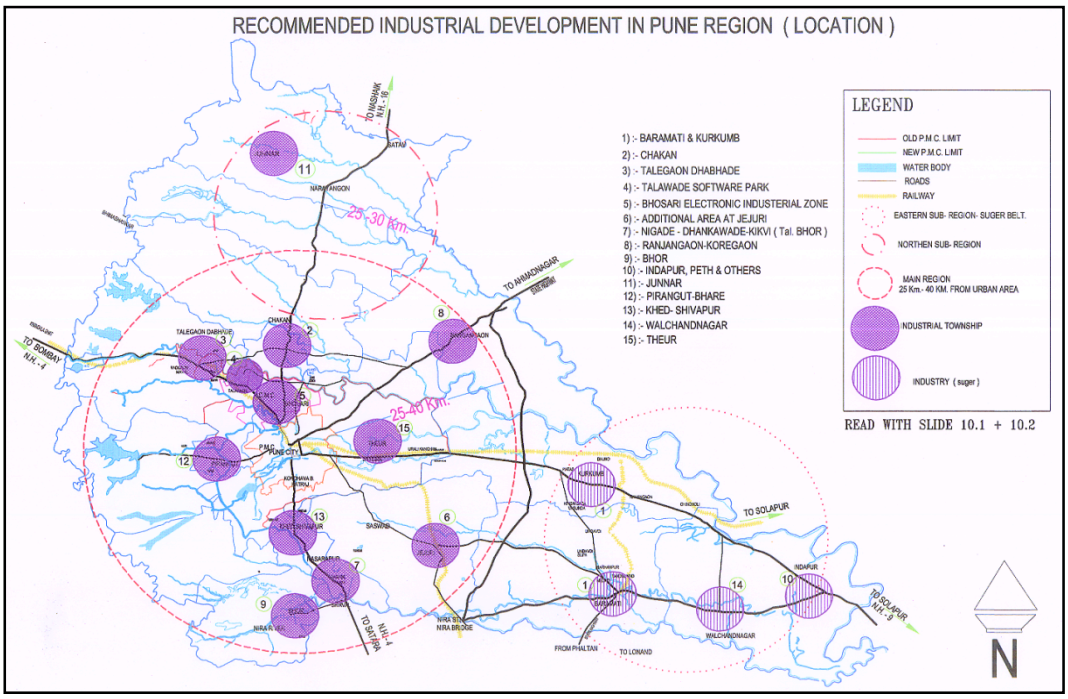


Figure No. 3-1 Map showing Industrial Development in Pune District.

3.4 MAJOR PROBLEMS IN PMR AS MENTIONED IN RP (1976-1991)

- Higher population growth.
- Short comings in implementation of Pimpri-Chinchwad New Town Development.
- Lop sided Industrial growth in PMR – in Western Corridor.
- Traffic congestion on city roads, unprecedented growth in two wheeler traffic, parking problems, break down stage of traffic movement.
- Water supply.
- Housing shortage and increase in slums, unaffordable housing situation.
- Artificial scarcity in Housing stock due to operation of Urban land Ceiling Act, 1976.
- Unauthorized constructions and non-agricultural use on agriculture zoned lands.
- Developments in Grampanchayat area, without regard to building regulations and without obtaining Non-agricultural permission.

3.5 MAJOR PROPOSALS AND RECOMMENDATIONS (PMR)

1. It would be seen from the recommendations regarding the development in PMR that emphasis has been given on controlling the development in the fringe area of PMC & PCMC comprising of 53 villages. Population is likely to be accommodated to the extent of 10.75 lakhs by 2011.
2. 53 villages on the fringe of PMC, PCMC were identified as influence villages having rapid growth. There is a view that these villages should be included in PMC (38), PCMC (15).
3. Accordingly, the PMC & PCMC limit was extended to include 38 villages in PMC & 15 villages in PCMC on the 11th September, 1997.

3.6 RECOMMENDATIONS IN RP

1. No more addition to existing Defense land.
2. Control over development on the road from Chandani chowk to National Defence Academy Gate.
3. High capacity Mass Transportation Route. (as per 1987 D.P.)
4. South-Easterly bypass in continuation to Westerly diversion connecting Satara road to Solapur road. –
5. 90 mtrs North Easterly diversion route with railway track. - 90 mtr wide Westerly Expressway from Somatane phata to Shirval. -
6. Traffic & Transportation proposals made in the earlier studies to be incorporated.
7. Development control to be exercised as per standardized Development control rules for 'A' class municipal councils with suitable modification. – (upto 10 kms from local authourity boundary)
8. More than 10,000 hectare has been proposed for residential purposes in fringe area in 8 sectors.
9. Govt. gairan lands are proposed to be utilized for Public-Semi-Public use as far as possible
10. Out of 51.35 lakhs population in PMR by 2011, population of 21 lakh would be accommodated in Pune city, 12 lakhs in PCMC, 2.65 lakhs in Cantonments, 10.75 lakhs in fringe area and the remaining towns will accommodate the balance population.

3.7 MAJOR ROAD AND DEVELOPMENT PROGRAMMES IN PUNE REGION

- Completion of Westerly diversion
- South-Easterly diversion from Katraj to Loni
- 90 mtr wide North-Easterly diversion
- 90 mtr wide Westerly Expressway
- Upgrading, strengthening and improvements of the following:-
    1. State Highway road link connecting Ring towns.
    2. State highway link from Pune-Nagar highway connecting Nhavara-Kadgaon, Supa-Sangvi
    3. Jejuri-Morgaon-Baramati road
    4. Saswad- Pisarve – Supa - Undavadi road

5. Patas- Wasumbhe -MDR 53
6. MDR 63 – Sarole -Baramati via Nira.

3.7.1 Railways

- Quadruplicating of the Railway track from Pune to Lonavala
- Strengthening and improvement of services between Pune-Daund.
- Improving the services between Pune and Jejuri including introduction of new shuttle services
- Conversion of Daund-Baramati narrow gauge railway line to broad gauge
- Extension of the Daund - Baramati broad gauge line upto Lonand via Phaltan

3.7.2 Airport

Proposal to set up one International Airport near Khed (to the north of Chakan) is under consideration.

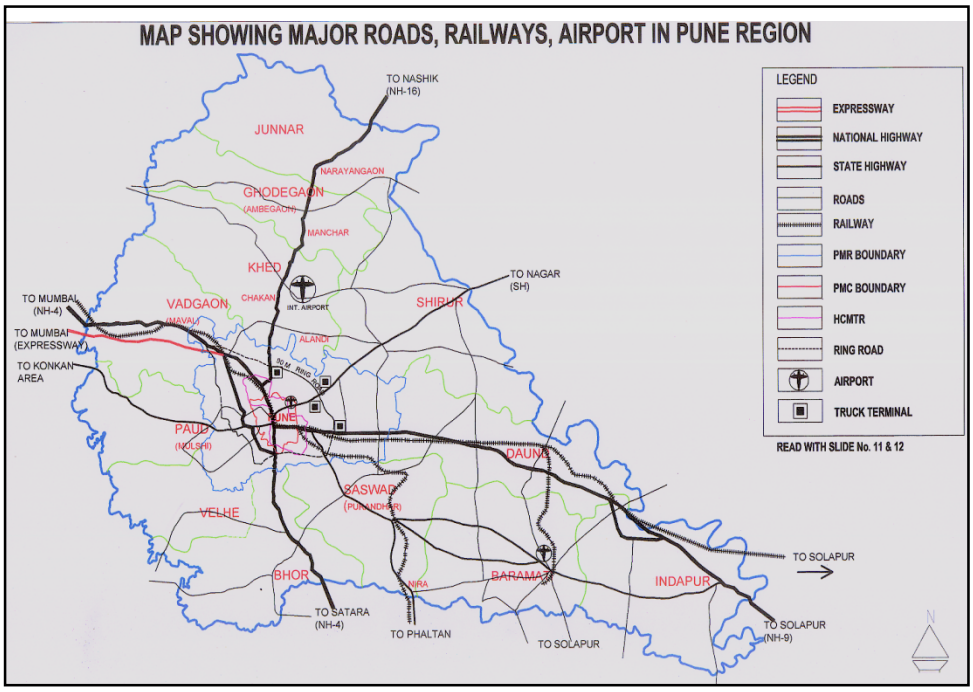


Figure No. 3-2. Map showing Mode of Transport in Pune District.

3.8 OVERALL IMPACT OF REGIONAL PLAN PROPOSALS ON PUNE CITY

- The generation of jobs & employment of workers has taken place due to industrial growth but no industry which has come up in this area in last decade or so has provided any housing for their workers.
- There is a huge influx of Industrial workers in the City which has resulted in bringing pressure on infrastructure of the City.
- A proposal of setting of IT Park at Hinjewadi abutting WEH, is a proposal considered by State Govt. of Maharashtra in its priority sector.
- The State Govt. of Maharashtra has considered the IT sector as a major foreign exchange generating section which is capable of generating lakhs of jobs. This is a direct impact on the PMC limit and has been considered while drafting proposals for DP.
- The major impact would be seen on Housing, T&T and provision of Infra Services and civic amenities.
- Sus & Mhalunge villages which lie on either side of express highway are two sensitive villages lying on the fringe of PMC limit & prone to development due to low land values & typical location. Since there is no controlling Authority to keep a watch & permit the development in this area, Gunthewari development may take place & as a result, the impact of this population would directly come on PMC infrastructure. This is an indirect burden on future development.
- The Express Highway is the main access to the fringe area. As as result, undeveloped lands are the main target of developers & lot of schemes under section 20 of the ULC Act 1976 have come up in such areas.

- Part of areas from the villages which are located outside PMC limit are also growing very fast resulting in an increased pressure on infrastructure of PMC.
- Absence of proper road network also may cause traffic hazards in peak hours.
- Adequate provisions of Public transport have to be considered right now by undertaking to the quick modification to the sanctioned RP with a view to connect the existing road network in and around these areas.

3.9 PUNE METROPOLITAN REGIONAL DEVELOPMENT AUTHORITY (PMRDA)

The Regional Plan of Pune was sanctioned by the State Government in 1997. The recommendation of formation of 'Pune Metropolitan Regional Development Authority' for the entire District was made in Appendix 'Y' of the report. Section 243(Z)(E) of the Constitution stipulates the formation of such an Authority. As per the 74th Constitutional amendment which came in to force from 1993, a Metropolitan Planning Committee (MPC) has to be formed for all cities having a population in excess of ten lakhs. This MPC has to prepare a draft Development Plan for the region. Members have been elected on the MPC and a couple of meetings have taken place.

CHAPTER 4

EARLIER PLANNING EFFORTS IN PUNE

4.1 INITIAL PLANNING EFFORTS :

4.1.1 Town Planning Schemes

Immediately after the introduction of the Bombay Town Planning Act of 1915, the then Poona City Municipality took steps to control the development of the growing town on the west and the north of the City by undertaking a Town Planning Schemes. T.P.S.No.1. Bhamburda, which was finalised in the year 1931. This was followed by three more schemes, viz. Town Planning Scheme No. III of Parvati and Gultekdi, Town Planning Scheme No. II of Somwar-Mangalwar Peth and T.P.S. Sangamwadi which was lately undertaken by P.M.C. Prior to the merger of suburban Municipality in PMC, the then suburban Municipality undertook T.P.S. Pune suburban No.1 which was finalized in 1930. These Schemes included most of the remaining areas on the southern and eastern parts of the City, which were open. In addition to these Town Planning Schemes, subsequently two T.P.S. mainly for industrial development were taken in the eastern part of the city viz. in Hadapsar area.

The area of the city was covered by various TPS the details of which are as below :

Table No. 4-1 Town Planning Schemes in Pune City

Sr. No.	Name of T.P. scheme	Area in ha	Date of Implementation
1	TPS no.1(bhamburda)	545.60	16/8/1979
2	TPS suburban no.1	19.20	16/8/1973
3	TPS no.2 Somwar, Mangalwar Peth	20.66	1939
4	TPS Yerawada	162.80	1/6/1983
5	Hadapsar Industrial TPS no.1	11.40	1/6/1977
6	Hadapsar Industrial TPS no.2	146.00	1/7/1978
7	TPS Sangamwadi	452.4	1/6/1975
8	TPS no.3 Parvati	720.00	15/9/1989

The total area covered under all TPS is about **2078 Ha**. i.e. **20.78 sq.km**.

4.1.2 Other planning schemes undertaken and developed by PMC

In addition to all the TPS mentioned above, the PMC undertook various road schemes in order to achieve proper connectivity as follows:

1) Scheme of Tilak road running from Swargate to Lakdi bridge (Sambhaji bridge)

2) Scheme of Laxmi road running from Lakdi Bridge to Quarter Gate through the heart of the town. This was an east-west road.

3) Ganesh Road Scheme which joined the Jijamata Baug to the Phadke Howd.

4) Phule Market Road from Phule Market to the Govind Halwai Chowk.

5) Bajirao Road from Parvati Naka to Vishrambaug Wada.

6) Mankeshwar Road from Ram baug to Omkareshwar.

7) In addition, the PMC also undertook work of shifting of Timber market from Gultekadi to presently located timber market in Bhavani Peth. This is an ambitious scheme implemented in the outer area. The present timber market is an area planned for building material business.

The Pune Municipality had thus not only controlled the development of the out-laying open areas but also provided new avenues for traffic and development in the city. This development had proceeded on the systematic lines of urban development. The old city of Pune was however very congested and despite the developments of new roads and road widening schemes, it was realized that the town proper could not be improved to the standards laid down in the Town Planning norms or to those standards which were followed in the schemes of Town Planning which were in hand at that time. The Municipality had prescribed regular lines of streets for practically all the roads in old city. This, partially regulated the construction of buildings.

4.2 STATUTORY DEVELOPMENT PLANS

Before 1954, there was no statutory Plan for Pune City. The local authorities were permitted to undertake the improvement of certain areas in their jurisdiction, by preparing Town Planning Schemes, under the provisions of the Bombay Town Planning Act of 1915.

4.2.1. Master Plan 1952 for the City

The Pune Municipal Corporation was established on 15-2-1950. The work of preparation of Master Plan was taken up in hand immediately after the establishment of the Corporation. A Draft Master Plan of Greater Poona was first prepared by the Corporation in the year 1952 and this draft master plan was then duly published for information of the public and for eliciting opinions and suggestions thereon. After considering all the relevant suggestions, the Corporation finally by Resolution number 76, dated 27-4-1955, approved this Draft Master Plan with certain modifications. The area covered under this Plan was consisting of 20 wards, having an area of 26,545.44 acres (107.43 square kilometer) and a population of 4,85,485. This master plan is shown in PLAN NO. 4-1.

4.2.2 The Development Plan of 1966.

Although a Master Plan for the Poona City had already been prepared in 1952, the State Government desired under their letter No. TPC/1257/36339-M dated 23-9-1957 that a Development Plan for Poona should be prepared afresh in accordance with the Bombay Town Planning Act, 1954. As per the instructions issued by the Government in this behalf, the PMC declared its intention to prepare a Development Plan for the entire area under it's jurisdiction under the Corporation Resolution No. 312 dated 20-11-1958. The work of preparing the Plan was then taken up. In its main outlines; this Development Plan was based on the Master Plan that was already prepared in 1952, with some changes. The work of preparing this Development Plan was completed in 1964 and it was sanctioned with many amendments by the Government, Urban Development and Public Health Department Notification

No. TPS-1365-14, dated 7-7-1966 to come in to force from 15-8-1966. The plan of 1966 DP is shown in PLAN NO. 4-2. The Maharashtra Regional and Town Planning Act, 1966 replaced the 1954 Act and as provided under the provisions, the Development Plan sanctioned under the earlier Act continued as the one sanctioned under the new Act.

4.2.2.1 Evaluation of Development Plan of 1966

It was proposed to carry out the implementation of the Development Plan of 1966 in the following manner :

1. Widening of Roads :
2. Under regular line of streets as per BPMC Act 1949
3. Under the Land Acquisition Act,1984
4. Under the provisions of Bombay Town Planning Act of 1954, by preparing schemes.
5. Acquisition of sites reserved for various public purposes under Land Acquisition Act1894
6. By provisions of amenities such as construction of schools , dispensaries, libraries, markets , theatres, parks ,gardens etc.
7. Improvement of the various congested localities and slum areas.

Out of the 459 sites designated in the sanctioned Development Plan of 1966, only 110 sites were proposed in the plan submitted to the Government by the Pune Municipal Corporation, while 349 sites were introduced at the Government level, while sanctioning the Plan. Total area admeasuring 1559 Ha was reserved under the various 458 public sites.

The total cost of acquisition of all these sites was estimated to be Rs 1,15,63,400=00. If we consider the extent to which the proposals in this Development Plan were implemented, we find that out of the 26,84,166 sq. m of roads that were proposed in the Development Plan, only 11,05,470 sq. m of roads were actually implemented. Also, out of the 37,34,964 sq. m of reservations that were proposed in the Plan, only 7,57,212 sq. m of the reservations were actually implemented on site. If we consider the

implementation of reservations, it has been only 7.27 %. The following table gives the details regarding the implementation of reserved sites.

Table No 4-2 Sites Reserved And Implemented In 1966 Development Plan

Sector	No. of Sites designated	No. of Sites deleted later	No. of Sites implemented	Balance Sites
I	114	8	5	101
II	110	11	7	92
III	87	12	9	66
IV	30	1	5	24
V	36	6	1	29
VI	82	8	3	71
Total	459	46	30	383

Out of 413 sites, only 30 sites were implemented. This picture would have been very different if TPS were undertaken in sufficient numbers to implement the proposals of the Plan. However, no new TPS was undertaken.

4.2.2.2. Implementation of road proposals of 1987 DP .

Table No. 4-3 Implementation Of Roads In 1987 DP		
Width of road (M)	**Length proposed in 1987 DP (km)**	**Length of road implemented (km)**
Widening Up to 6 m	1.789	0.532
9	12.038	3.804
12	29.548	15.423
15	13.401	6.277
18	17.839	12.352
20	23.99	15.069
21	0.290	0.036
24	39.588	27.349
27	1.89	1.89
30	50.14	33.852
36	23.24	22.308
42	2.716	2.716
45	14.617	12.123
60	11.929	11.929

It can be seen, that about 68.30 % of road length proposed in DP of 1987 have been implemented, which is fairly satisfactory as compared to the implementation of reservations for social amenities.

Table No 4-4 Sites Reserved And Implemented In 1987 Development Plan				
Sector	No. of Sites designated	No. of Sites deleted	No. of Sites implemented	Balance Sites
I	95	6	16	73
II	138	3	37	98
III	116	2	34	80
IV	78	4	17	57
V	70	4	16	50
VI	110	3	14	98
Total	607	20	134	453

Out of 609 sites, only 134 sites were implemented. If we consider the both fully and partly developed reservations, the overall implementation of the reservations has been 22%.

4.3 The Development of plan of 1987 and its implementation.

Under the provisions of Section 38 of MR and TP Act 1966, at least once in ten years (now it is 20 years) from the date on which a Development Plan has come in to operation, the planning authority can revise the Development Plan. The revision of the Development Plan was due in 1976. Accordingly, the PMC declared its intention to revise the Development Plan on 15-3-1976, as per the section 23 of the MR and TP Act of 1966. After following all the procedures of the MR and TP Act of 1966, the proposed draft revised DP was submitted to the State Government as per section 30, in 1982. The State Government, after scrutinizing the submitted Plan and suggesting various modifications, finally accorded sanction to the first revised Development Plan of Pune, under Government Notification, Urban Development Department No. TPS 1884/1377/Cr-220/84/(iii) UD-7 dated 5-1-1987.

4.4. Planning unit of 1987 plan

The area under the jurisdiction of Pune Municipal Corporation was about 146 sq.km, which included the area of 4.96 sq.km. of the congested parts of the city. The entire area within the municipal limits was considered under six sectors.

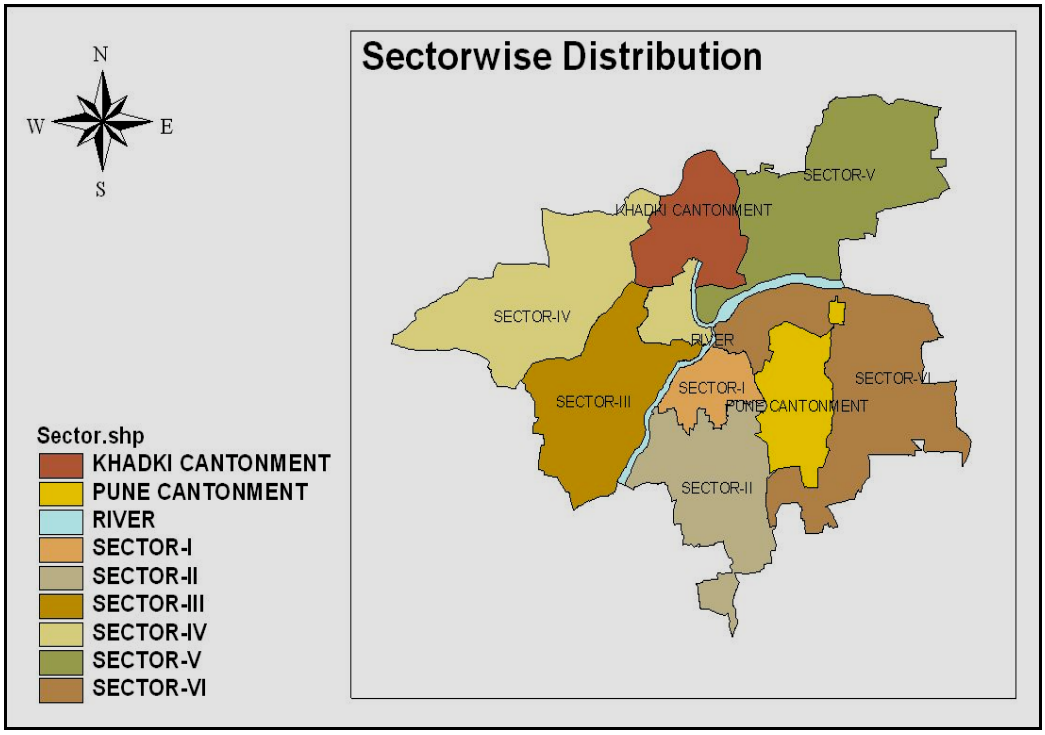


Figure No. 4.1 Sectors in 1987 Development Plan.

Sector I – Congested area (Core city)

Sector II – Southern suburbs, which includes Parvati, Dhankawadi, Katraj, Munjeri,etc

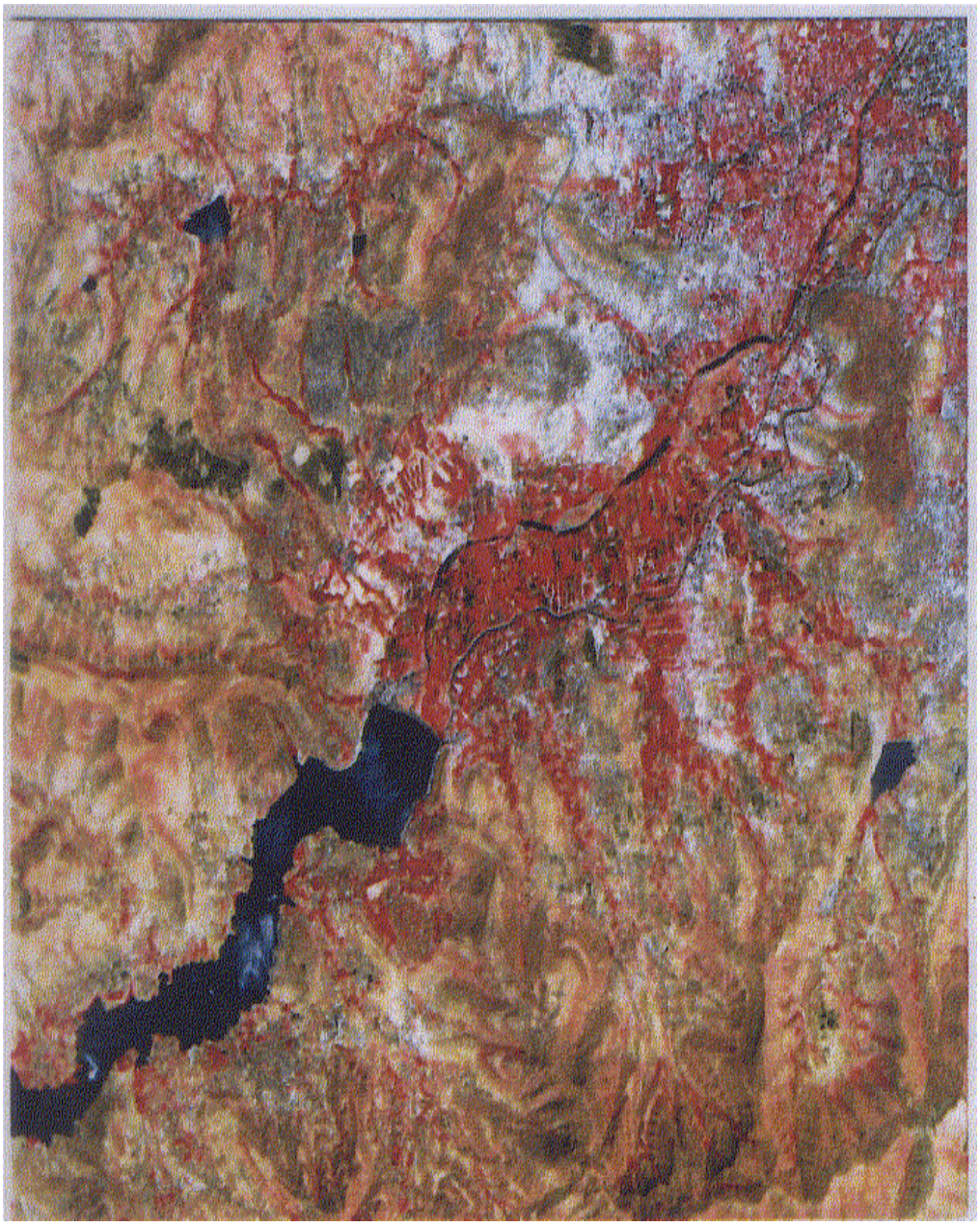
Sector III – Southwestern suburbs, which includes Erandawane, Kothrud, Hingne Budruk, Bhamburda, etc

SectorIV – Northwestern suburbs, which includes Shivajinagar, Sangamwadi, Aundh, Pashan, Bopodi etc

Sector V – Northeastern suburbs, which includes Lohgaon, Yerawada, Wadgaon Sheri, Kalas, Dhanori, etc

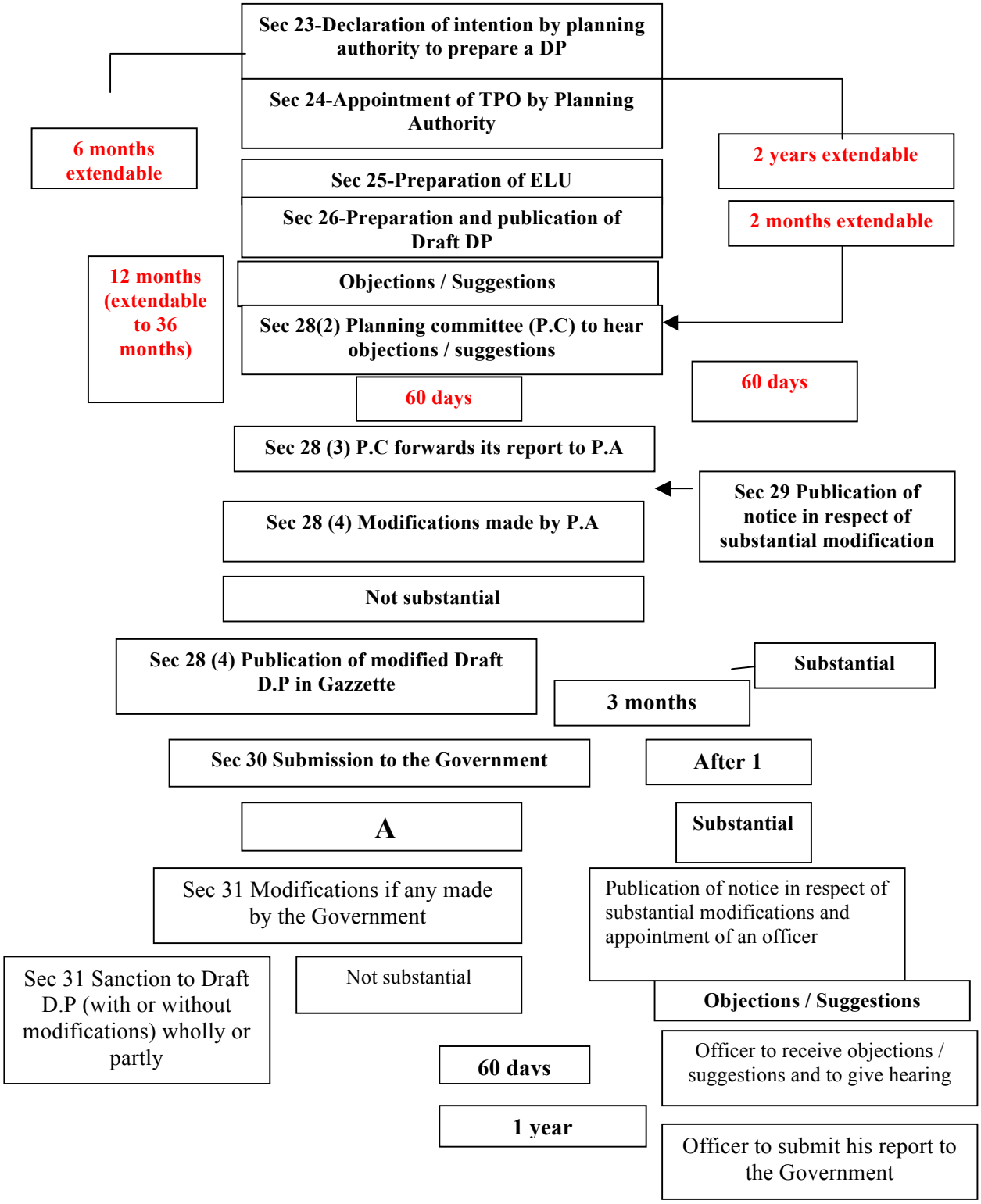
Sector VI – Eastern suburbs, which includes Hadapsar, Ghorpadi, Mundhwa, Wanawadi, Kondhava, etc.

Figure No. 4-3 Satellite Imagery Of Pune City



4.5 Legal Framework

Legal framework of preparation of development plan and the procedure is as defined abelow.



4.6 Public amenities provided in 1966 DP and retained in 1987 DP (first revision)

The total no. of Reservations that were earmarked in the Development Plan of 1987 were 526. The following table gives details regarding the Reservations from the sanctioned Development Plan of 1966, which were retained in the 1987 Plan.

Table No. 4-5 Sites from the sanctioned development plan of 1966 that were retained in the 1987 plan):

Sector	No. of Sites originally earmarked in the 1966 D.P	No. of Sites retained in the 1966 D.P after deletions	No. of Reservations retained in 1987 D.P (for same purpose)	No. of Reservations retained in 1987 D.P (with changed purpose)	Total
I	114	106	94	7	101
II	110	99	54	38	92
III	87	75	46	20	66
IV	30	29	17	7	24
V	36	30	25	4	29
VI	82	74	42	29	71
Total	459	413	278	105	383

4.7 Deletion of reservations from the sanctioned development plan of 1987.

It was expected that the PMC should develop all the sites that were earmarked in the sanctioned Development Plan of 1987. Making Budgetary provisions for acquiring these sites, developing these sites and in turn implementing the proposals of Development Plan was the duty of the PMC. Since 1987, there were 29 deletions made in the Reservations from time to time from the revised DP . The details of these deletions are as given in STATEMENT NO-4-1. In addition to the 1987 comprehensive planning was prepared in 1992 for Pashan Sutarwadi area for an area of about 813.36 ha. Also the some parts of agricultural land was converted into residential in 2000. All the reservations are considered in this reservation of Development Plan.

4.8 Details of implementation of the revised development plan:

The following table deals with area kept under reservations in these six sectors and the area of the reservations that has been implemented till date.

Table No. 4-6

Implementation of Reservations - SECTOR I

		TOTAL RESERVATIONS		FULLY DEVELOPED RESERVATIONS		NOT DEVELOPED RESERVATIONS	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	22	3.72	7	1.15	15	2.57
2	HS	2	0.36	1	0.243	1	0.117
3	PS&HS	0	0.37	0	0	0	0.37
4	D/MH/H/HC/FPC	8	1.43	0	0	8	1.43
5	SC	4	0.43	1	0.07	3	0.36
6	CPG	12	2.54	1	0.15	11	2.39
7	PG	5	2.14	1	0.11	4	2.03
8	G	6	2.42	1	0.83	5	1.59
9	PARK	0	0	0	0	0	0
10	FB	1	0.325	0	0	1	0.325
11	P	9	1.76	2	0.47	7	1.29
12	PMPML	1	0.16	0	0	1	0.16
13	MK	2	0.15	0	0	2	0.15
14	MP	0	0	0	0	0	0
15	PO	3	0.1807	0	0	3	0.1807
16	PUMPING STATION	0	0	0	0	0	0
17	C-2	0	0	0	0	0	0
18	CC	0	0	0	0	0	0
19	EWS	0	0	0	0	0	0
20	HLW	0	0	0	0	0	0
21	BU&CR	0	0	0	0	0	0
22	AIR	0	0	0	0	0	0
23	DB	2	0.34	0	0	2	0.34
24	WH	1	0.02	0	0	1	0.02
25	CP	1	0.028	0	0	1	0.028
26	GOVT OFFICE	1	0.552	0	0	1	0.552
27	HDH	4	0.96	0	0	4	0.96
28	MSEB/EXTN TO MSEB	2	0.907	1	0.355	1	0.552
29	ITI	0	0	0	0	0	0
30	EXTEN TO COEP	0	0	0	0	0	0
31	VM	1	0.14	0	0	1	0.14
32	TW	0	0	0	0	0	0
33	APMC	0	0	0	0	0	0
34	ON	0	0	0	0	0	0

35	MWO/CH/LIB	0	0	0	0	0	0
36	PC	0	0	0	0	0	0
37	CART STAND	0	0	0	0	0	0
38	BIRD SANCTURY	0	0	0	0	0	0
39	TE	0	0	0	0	0	0
40	CH&SC	0	0	0	0	0	0
41	TRUCK PARKING	1	0.11	1	0.11	0	0
42	EXTEN TO T M	0	0	0	0	0	0
43	STADIUM	0	0	0	0	0	0
44	RGY	0	0	0	0	0	0
45	TIMBER INDUSTRY	0	0	0	0	0	0
46	STEEL YARD	0	0	0	0	0	0
47	MUSEUM	1	0.281	0	0	1	0.281
48	PUBLIC HOUSING	0	0	0	0	0	0
	TOTAL	**89**	**19.3237**	**16**	**3.488**	**73**	**15.8357**

NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA

Table No. 4-7

Implementation of Reservations - SECTOR II

		TOTAL RESERVATIONS		FULLY DEVELOPED RESERVATIONS		NOT DEVELOPED RESERVATIONS	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	25	18.21	7	5.07	14	13.14
2	HS	9	14.57	2	3.42	5	11.15
3	PS&HS	0	0	0	0	0	0
4	D/MH/H/HC/FPC	4	10.58	0	0	4	10.58
5	SC	10	2.35	6	1.73	0	0.62
6	CPG	24	5.56	4	1.04	20	4.52
7	PG	11	13.04	5	2.44	6	10.6
8	G	9	11.16	2	2.69	7	8.47
9	PARK	4	129.35	1	0	3	129.35
10	FB	3	2.26	0	0	3	2.26
11	P	11	3.86	4	0.87	7	2.99
12	PMPML	4	4.29	0	0	3	4.29
13	MK	0	0	0	0	0	0
14	MP	0	0	0	0	0	0
15	PO	0	0	0	0	0	0
16	PUMPING STATION	1	0.11	0	0	0	0.11
17	C-2	1	2.14	0	0	1	2.14
18	CC	2	6.57	0	0	2	6.57
19	EWS	7	55.96	4	35.85	3	20.11
20	HLW	0	0	0	0	0	0
21	BU&CR	0	0	0	0	0	0

22	AIR	0	0	0	0	0	0
23	DB	0	0	0	0	0	0
24	WH	0	0	0	0	0	0
25	CP	0	0	0	0	0	0
26	GOVT OFFICE	0	0	0	0	0	0
27	HDH	0	0	0	0	0	0
28	MSEB/EXTN TO MSEB	0	0	0	0	0	0
29	ITI	0	0	0	0	0	0
30	EXTEN TO COEP	0	0	0	0	0	0
31	VM	0	0	0	0	0	0
32	TW	0	0	0	0	0	0
33	APMC	2	13.98	1	12.78	0	1.2
34	ON	1	1.04	0	0	0	1.04
35	MWO/CH/LIB	0	0	0	0	0	0
36	PC	0	0	0	0	0	0
37	CART STAND	0	0	0	0	0	0
38	BIRD SANCTURY	0	0	0	0	0	0
39	TE	1	1.2	0	0	0	1.2
40	CH&SC	0	0	0	0	0	0
41	TRUCK PARKING	0	0	0	0	0	0
42	EXTEN TO T M	2	2.274	0	0	2	2.274
43	STADIUM	1	0.54	1	0.54	0	0
44	RGY	1	6.75	0	0	1	6.75
45	TIMBER INDUSTRY	1	21	0	0	1	21
46	STEEL YARD	1	40.52	0	0	0	40.52
47	MUSEUM	0	0	0	0	0	0
48	PUBLIC HOUSING	0	0	0	0	0	0
	TOTAL	**135**	**367.314**	**37**	**66.43**	**82**	**300.884**
NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA							

Table No. 4-8

Implementation of Reservations - SECTOR III

		TOTAL RESERVATIONS		FULLY DEVELOPED RESERVATIONS		NOT DEVELOPED RESERVATIONS	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	15	11.01	7	3.25	8	7.76
2	HS	6	9.03	2	3.89	4	5.14
3	PS&HS	0	0	0	0	0	0
4	D/MH/H/HC/FPC	7	5.6	2	2.94	5	2.66
5	SC	14	3.04	6	1.33	8	1.71
6	CPG	15	4.62	5	1.83	10	2.79
7	PG	10	9.59	2	1.46	8	8.13

8	G	7	5.49	1	0.87	6	4.62
9	PARK	2	20.69	0	0	2	20.69
10	FB	1	1	0	0	1	1
11	P	6	5.42	1	0.6	5	4.82
12	PMPML	3	3.61	0	0	3	3.61
13	MK	1	0.4	0	0	1	0.4
14	MP	0	0	0	0	0	0
15	PO	2	0.12	0	0	2	0.12
16	PUMPING STATION	2	1.96	1	1.04	1	0.92
17	C-2	11	16.69	5	7.82	6	8.87
18	CC	1	12.14	0	0	1	12.14
19	EWS	5	55.47	0	0	5	55.47
20	HLW	1	0.4	0	0	1	0.4
21	BU&CR	2	7.41	0	0	2	7.41
22	AIR	1	1.42	1	1.42	0	0
23	DB	0	0	0	0	0	0
24	WH	0	0	0	0	0	0
25	CP	0	0	0	0	0	0
26	GOVT OFFICE	0	0	0	0	0	0
27	HDH	0	0	0	0	0	0
28	MSEB/EXTN TO MSEB	0	0	0	0	0	0
29	ITI	0	0	0	0	0	0
30	EXTEN TO COEP	0	0	0	0	0	0
31	VM	0	0	0	0	0	0
32	TW	0	0	0	0	0	0
33	APMC	0	0	0	0	0	0
34	ON	0	0	0	0	0	0
35	MWO/CH/LIB	0	0	0	0	0	0
36	PC	0	0	0	0	0	0
37	CART STAND	0	0	0	0	0	0
38	BIRD SANCTURY	0	0	0	0	0	0
39	TE	0	0	0	0	0	0
40	CH&SC	0	0	0	0	0	0
41	TRUCK PARKING	0	0	0	0	0	0
42	EXTEN TO T M	0	0	0	0	0	0
43	STADIUM	0	0	0	0	0	0
44	RGY	0	0	0	0	0	0
45	TIMBER INDUSTRY	0	0	0	0	0	0
46	STEEL YARD	0	0	0	0	0	0
47	MUSEUM	0	0	0	0	0	0
48	PUBLIC HOUSING	2	27	1	0.5	1	26.5
	TOTAL	**114**	**202.11**	**34**	**26.95**	**80**	**175.16**
NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA							

Table No. 4-9							
Implementation of Reservations - SECTOR IV							
		TOTAL RESERVATIONS		**FULLY DEVELOPED RESERVATIONS**		**NOT DEVELOPED RESERVATIONS**	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	12	6.34	5	2.09	7	4.25
2	HS	3	6.15	0	0	3	6.15
3	PS&HS	3	5.5	1	1.8	2	3.7
4	D/MH/H/HC/FPC	4	1.72	1	0.55	3	1.17
5	SC	4	0.675	2	0.3	2	0.375
6	CPG	10	2.61	2	0.36	8	2.25
7	PG	8	10.14	2	2.5	6	7.64
8	G	1	3.14	0	0	1	3.14
9	PARK	3	8.87	0	0	3	8.87
10	FB	1	0.48	0	0	1	0.48
11	P	3	1.06	1	0.375	2	0.685
12	PMPML	4	4.65	1	0.315	3	4.335
13	MK	0	0	0	0	0	0
14	MP	0	0	0	0	0	0
15	PO	2	2.6	0	0	2	2.6
16	PUMPING STATION	2	0.37	0	0	2	0.37
17	C-2	1	0.7	0	0	1	0.7
18	CC	1	3.885	0	0	1	3.885
19	EWS	3	35.15	0	0	3	35.15
20	HLW	0	0	0	0	0	0
21	BU&CR	1	1	0	0	1	1
22	AIR	0	0	0	0	0	0
23	DB	0	0	0	0	0	0
24	WH	0	0	0	0	0	0
25	CP	0	0	0	0	0	0
26	GOVT OFFICE	0	0	0	0	0	0
27	HDH	0	0	0	0	0	0
28	MSEB/EXTN TO MSEB	0	0	0	0	0	0
29	ITI	1	1.87	0	0	1	1.87
30	EXTEN TO COEP	1	1.8	0	0	1	1.8
31	VM	1	0.2	0	0	1	0.2
32	TW	1	2.185	1	2.185	0	0
33	APMC	0	0	0	0	0	0
34	ON	2	2.94	0	0	2	2.94
35	MWO/CH/LIB	1	0.42	0	0	1	0.42
36	PC	1	0.02	1	0.02	0	0
37	CART STAND	0	0	0	0	0	0
38	BIRD SANCTURY	0	0	0	0	0	0
39	TE	0	0	0	0	0	0
40	CH&SC	0	0	0	0	0	0
41	TRUCK PARKING	0	0	0	0	0	0
42	EXTEN TO T M	0	0	0	0	0	0
43	STADIUM	0	0	0	0	0	0
44	RGY	0	0	0	0	0	0
45	TIMBER INDUSTRY	0	0	0	0	0	0
46	STEEL YARD	0	0	0	0	0	0
47	MUSEUM	0	0	0	0	0	0

48	PUBLIC HOUSING	0	0	0	0	0	0
	TOTAL	**74**	**104.475**	**17**	**10.495**	**57**	**93.98**
NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA							

Table No. 4-10

Implementation of Reservations - SECTOR V

		TOTAL RESERVATIONS		FULLY DEVELOPED RESERVATIONS		NOT DEVELOPED RESERVATIONS	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	12	14.02	5	6.56	7	7.46
2	HS/HS&HE	4	11.65	2	1.27	2	10.38
3	PS&HS	0	0	0	0	0	0
4	D/MH/H/HC/FPC	6	2.68	2	0.38	4	2.3
5	SC	7	1.18	1	0.11	6	1.07
6	CPG	7	1.05	2	0.41	5	0.64
7	PG	9	9.03	2	2.01	7	7.02
8	G	5	8.9	1	1.76	4	7.14
9	PARK	2	7.8	1	3.66	1	4.14
10	FB	1	0.28	0	0	1	0.28
11	P	0	0	0	0	0	0
12	PMPML	2	1.46	0	0	2	1.46
13	MK	0	0	0	0	0	0
14	MP	0	0	0	0	0	0
15	PO	0	0	0	0	0	0
16	PUMPING STATION	2	0.47	0	0	2	0.47
17	C-2	0	0	0	0	0	0
18	CC	0	0	0	0	0	0
19	EWS	3	34.45	0	0	3	34.45
20	HLW	0	0	0	0	0	0
21	BU&CR	0	0	0	0	0	0
22	AIR	0	0	0	0	0	0
23	DB	0	0	0	0	0	0
24	WH	0	0	0	0	0	0
25	CP	0	0	0	0	0	0
26	GOVT OFFICE	0	0	0	0	0	0
27	HDH	0	0	0	0	0	0
28	MSEB/EXTN TO MSEB	0	0	0	0	0	0
29	ITI	0	0	0	0	0	0
30	EXTEN TO COEP	0	0	0	0	0	0
31	VM	0	0	0	0	0	0
32	TW	1	1.7	0	0	1	1.7
33	APMC	1	6.98	0	0	1	6.98
34	ON	0	0	0	0	0	0

35	MWO/CH/LIB	0	0	0	0	0	0
36	PC	1	0.6	0	0	1	0.6
37	CART STAND	0	0	0	0	0	0
38	BIRD SANCTURY	1	9.36	0	0	1	9.36
39	TE	1	0.23	0	0	1	0.23
40	CH&SC	1	0.59	0	0	1	0.59
41	TRUCK PARKING	0	0	0	0	0	0
42	EXTEN TO T M	0	0	0	0	0	0
43	STADIUM	0	0	0	0	0	0
44	RGY	0	0	0	0	0	0
45	TIMBER INDUSTRY	0	0	0	0	0	0
46	STEEL YARD	0	0	0	0	0	0
47	MUSEUM	0	0	0	0	0	0
48	PUBLIC HOUSING	0	0	0	0	0	0
	TOTAL	**66**	**112.43**	**16**	**16.16**	**50**	**96.27**
NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA							

Table No. 4-11

Implementation of Reservations - SECTOR VI

		TOTAL RESERVATIONS		FULLY DEVELOPED RESERVATIONS		NOT DEVELOPED RESERVATIONS	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	15	8.89	1	0.84	14	5.76
2	HS	7	7.31	0	0	7	7.31
3	PS&HS	0	0	0	0	0	0
4	D/MH/H/HC/FPC	4	1.69	4	1.69	0	0
5	SC	12	5.15	4	2.1	8	3.05
6	CPG	4	2.29	0	0	4	1.65
7	PG	22	16.71	1	0.61	21	16.1
8	G	17	25.98	2	2.88	15	22.6
9	PARK	4	9.54	0	0	4	9.54
10	FB	1	1	0	0	1	1
11	P	6	1.29	1	0.113	5	1.1775
12	PMPML	3	4.33	0	0	3	4.33
13	MK	0	0	0	0	0	0
14	MP	0	0	0	0	0	0
15	PO	1	0.900	0	0	1	0.9
16	PUMPING STATION	1	0.22	0	0	1	0.22
17	C-2	0	0	0	0	0	0
18	CC	2	6.54	0	0	2	6.54
19	EWS	5	29.25	0	0	5	29.25
20	HLW	0	0	0	0	0	0
21	BU&CR	1	1.95	1	1.95	0	0
22	AIR	0	0	0	0	0	0
23	DB	0	0	0	0	0	0
24	WH	0	0	0	0	0	0
25	CP	0	0	0	0	0	0

26	GOVT OFFICE	0	0	0	0	0	0
27	HDH	0	0	0	0	0	0
28	MSEB/EXTN TO MSEB	0	0	0	0	0	0
29	ITI	1	3.11	0	0	1	3.11
30	EXTEN TO COEP	0	0	0	0	0	0
31	VM	0	0	0	0	0	0
32	TW	1	3.4	0	0	1	3.4
33	APMC	0	0	0	0	0	0
34	ON	0	0	0	0	0	0
35	MWO/CH/LIB	1	0.06	0	0	1	0.06
36	PC	0	0	0	0	0	0
37	CART STAND	1	0.8	0	0	1	0.8
38	BIRD SANCTURY	0	0	0	0	0	0
39	TE	0	0	0	0	0	0
40	CH&SC	0	0	0	0	0	0
41	TRUCK PARKING	0	0	0	0	0	0
42	EXTEN TO T M	0	0	0	0	0	0
43	STADIUM	0	0	0	0	0	0
44	RGY	0	0	0	0	0	0
45	TIMBER INDUSTRY	0	0	0	0	0	0
46	STEEL YARD	0	0	0	0	0	0
47	MUSEUM	0	0	0	0	0	0
48	PUBLIC HOUSING	0	0	0	0	0	0
	TOTAL	**109**	**134.75**	**14**	**10.18**	**95**	123.082
NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA							

Table No. 4-12

Implementation of Reservations - SECTOR I TO VI

		TOTAL RESERVATIONS		FULLY DEVELOPED RESERVATIONS		NOT DEVELOPED RESERVATIONS	
Sr No	**Reservations**	**No**	**Area**	**No**	**Area**	**No**	**Area**
1	PS	101	62.19	32	18.96	69	43.23
2	HS	31	49.07	7	8.823	24	40.247
3	PS&HS	3	5.87	1	1.8	2	4.07
4	D/MH/H/HC/FPC	33	23.7	9	5.56	24	18.14
5	SC	51	12.825	20	5.64	31	7.185
6	CPG	72	18.67	14	3.79	58	14.88
7	PG	65	60.65	13	9.13	52	51.52
8	G	45	57.09	7	9.03	38	48.06
9	PARK	15	176.25	2	3.66	13	172.59
10	FB	8	5.345	0	0	8	5.345
11	P	35	13.39	9	2.4275	26	10.9625
12	PMPML	17	18.5	1	0.315	16	18.185
13	MK	3	0.55	0	0	3	0.55
14	MP	0	0	0	0	0	0
15	PO	8	3.8007	0	0	8	3.8007
16	PUMPING STATION	8	3.13	1	1.04	7	2.09

17	C-2	13	19.53	5	7.82	8	11.71
18	CC	6	29.135	0	0	6	29.135
19	EWS	23	210.28	4	35.85	19	174.43
20	HLW	1	0.4	0	0	1	0.4
21	BU&CR	4	10.36	1	1.95	3	8.41
22	AIR	1	1.42	1	1.42	0	0
23	DB	2	0.34	0	0	2	0.34
24	WH	1	0.02	0	0	1	0.02
25	CP	1	0.028	0	0	1	0.028
26	GOVT OFFICE	1	0.552	0	0	1	0.552
27	HDH	4	0.96	0	0	4	0.96
28	MSEB/EXTN TO MSEB	2	0.907	1	0.355	1	0.552
29	ITI	2	4.98	0	0	2	4.98
30	EXTEN TO COEP	1	1.8	0	0	1	1.8
31	VM	2	0.34	0	0	2	0.34
32	TW	3	7.285	1	2.185	2	5.1
33	APMC	3	20.96	1	12.78	2	8.18
34	ON	3	3.98	0	0	3	3.98
35	MWO/CH/LIB	2	0.48	0	0	2	0.48
36	PC	2	0.62	1	0.02	1	0.6
37	CART STAND	1	0.8	0	0	1	0.8
38	BIRD SANCTURY	1	9.36	0	0	1	9.36
39	TE	2	1.43	0	0	2	1.43
40	CH&SC	1	0.59	0	0	1	0.59
41	TRUCK PARKING	1	0.11	1	0.11	0	0
42	EXTEN TO T M	2	2.274	0	0	2	2.274
43	STADIUM	1	0.54	1	0.54	0	0
44	RGY	1	6.75	0	0	1	6.75
47	MUSEUM	1	0.281	0	0	1	0.281
48	PUBLIC HOUSING	2	27	1	0.5	1	26.5
	TOTAL	**587**	**936.06**	**134**	**133.71**	**453**	**802.36**
NOTE: PARTLY DEVELOPED RESERVATIONS ARE CONTINUED WITH THE RESPECTIVE REMAINING AREA							

4.9 Hurdles in implementation of development plans:

It is clear that both the Development Plans, i.e. 1966 and 1987 have to a large extent remained as paper plans only, with the extent of implementation of both the plans being extremely pathetic. The various reasons attributed to the non-implementation of Development Plans in general and those of Pune in particular, are as under.

The Development Plan of a city or a town attempts to evolve scientific and rational policies to meet the functional needs of the city and aspirations of

its citizens in a perspective of 20-25 years. Such methodology followed in plan preparation has not been found very effective. The basic criticism of such methodology is that it neither matches the pace of urban growth nor does it cope with the changing development needs of the society. The gap between the plan targets and the actual development has thus got widened. Although Master Plans are generally prepared for the planning areas identified under the respective Acts, they mainly confine to the precincts of city limits and seldom take in to consideration the developments taking place on the urban fringes and adjoining peripheral areas due to statutory requirements. In other words, more often there would be a mis-match between the development proposals embodied in the Master Plan and the actual development taking place on the edges of the urban areas termed as peri- urban areas, thereby defeating the very purpose of the Master Plan.

The Master Plans are supposed to take note of the regional and national goals of development but in the absence of well conceived urban development policies at national and state level, these are not reflected in the Master Plan of an individual town / city.

4.10 Concept of TDR and accommodation reservation:

The Development Plan of Pune City was sanctioned on 5/1/1987.There were about 500 sites admeasuring about 600 Ha in area reserved for various public purposes in the Development Plan. These reservations are shown against a number of public utilities and are estimated to cost more than Rs 1500 Crores at the prevailing market rates. In view of the limited financial resources available with the utilities and consequently the paucity of funds for such huge compensation, the state government vide their order-dated 5/6/1997, have introduced a concept of Transferable Development Rights (T.D.R) for the city of Pune. T.D.R is a recent innovative land assembly technique introduced by the Government of Maharashtra for cities having a population of 2 lakhs and above, wherein participation of the land owners is sought for the purpose of implementation of the planning proposal.

With this concept, if land owner hands over the possession of the reserved land to the Pune Municipal Corporation, free of cost and without any encumbrance, a ‘Development Rights Certificate’ will be granted to him, to

entitle him to construct a built up area equivalent to the permissible FSI of the land handed over by him on one or more plots in the zones specified. The PMC has a mandate to regulate the activities pertaining to T.D.R.

There are certain types of reservations that can be developed by the principle of Accommodation Reservation. It allows the land owners to develop the sites reserved for an amenity in the Development Plan using full permissible F.S.I on the plot, subject to agreeing to entrust and hand over the built up area of such amenity to the local authority free of all encumbrances and accept the full F.S.I as compensation in lieu thereof. The area utilised for the amenity shall not form part of the F.S.I calculations. The reservations that are commonly developed under this principle are Parking, Shopping Centre, C2, Dispensaries, etc. In view of the fact that the Corporation saves both the cost of acquisition and the cost of development of the sites in case of Accommodation Reservation, This tool have become really popular nowadays and relieves to a large extent, the burden of developing the reservations.

4.11 Draft development plan for the newly merged villages

As has been mentioned earlier, 38 villages were merged in the limits of Pune Municipal Corporation on 11th September 1997. In the year 2001, 15 complete villages and 5 part villages were delinked from the limits of PMC. The area of these 23 villages is 97.84 sq. km. The total area of Pune city is now 243.84 sq. km. The 23 villages assume the shape of a garland around the neck of the old city. The draft Development Plan for the 23 villages was submitted to the State Government on 31st December 2005. The State Government has accorded part sanction to the Development Plan.

STATEMENT NO 4-1

LIST OF MODIFICATIONS DURING 1987 TO 2008 U/S 37, 50 OF MRTP ACT							
SECTOR-I							
Sr. No.	Reservation as per DP	Address	Area(Ha) as per DP	37(1) Directives Intial or 50(2)	Reservation as per Modification	37(1) fully or Partly reservation changes and Area	Government sanction
1	HS-1	344 to 346, Narayanpeth.	0.2163	37 (2)	Residential Zone	Partly	TPS1896/149/CR/8/96/UD -13, Dt- 3/2/2000
		343 & 347, Narayanpeth.			Parking	partly	TPS-1807/1742/CR-886/07/UD-13, Dt-16/10/2007
2	PSP Zone (M/78)	380 To 382 & 721, Narayanpeth	0.726	37 (2)	Residential Zone	0.726	TPS-1889/1898/CR-191/89/UD-13, dt. 07/03/1995
3	MK- 4	F.P. No 53/1, Mangalwarpeth	0.1177	37 (2)	Residential Zone	649 sqmt (partly)	TPS/1892/432/92/UD-13, Dt-21/5/96
4	Burial Ground	95 (pt) Sadashivpeth		37(2)	PSP -Zone		TPS-1897/848/CR-18/2000/UD-13.dt01/03/2000
5	M-53 (Extn. To KEM)	553,558,559 & 589, Rasta Peth	0.7807	50 (2)	Residential	0.725	TPS-1887/1793/CR-263/87/UD-7, dt. 22-11-1988
					K.E.M. Hospital's Staff Quarter	0.0557	
6	50' Road widening	383 & 403 , Narayanpeth		37 (2)	Reduction of Road Widening from 50' to 30'	-	TPS-1888/1688/CR-264/88/UD-13, dt. 29/07/1989

7	HDH (M-10)	715 To 717,755To 760, Guruwarpeth	0.6883	37 (2)	Residential Zone	0.6883	TPS-1800/167/UD-13. dt. 28-10-2004
8	P - 11	1349,1350. Shukrawarpeth	0.0922	37 (2)	Residential Zone	0.0922	TPS-1887/673/CR-74/87/UD-13. dt. 16-12-1991
9	PO-2	434, Shaniwar peth	0.0319	Purchase Notice	Residential Zone	0.0319	-
10	Slum Improvement Zone (M - 69)	1044, Nanepeth	1.1184	37 (2)	Residential Zone		TPS-1888/2467/CR-368/88/UD-13. dt. 24-04-1992
11	P - 10	1328,1329. Shukrawarpeth	0.0885	37 (2)	Residential Zone	0.0885	TPS-1887/673/CR-74/UD-13. dt. 22-04-1991
12	9.mt. Road	365,367,368 & 401. Sadashivpeth		37 (2)	Residential Zone	-	TPS-1800/522/UD-13.dt.29/09/2001
13	HDH-1	F.P. No 29-A-2, TPS-III	0.2027	37 (2)	Residential Zone	0.2027	TPS-1889/1457/CR-136/89/UD-13. dt. 29/10/1991
14	Public Semi Public Zone	931,607, Khadakmal, Shukrawar Peth	-	37(2)	Residential Zone		TPS/1801/UOR/55/UD -13, Dt-22/06/2003
TOTAL NO-14				*SOURCE: Town Planning Dept (Central Bldg) & D.P.B.P.(PMC)*			
LIST OF MODIFICATIONS DURING 1987 TO 2008 U/S 37, 50 OF MRTP ACT							
SECTOR-II							
Sr. No.	Reservation as per DP	Address	Area(Ha) as per DP	37(1) Directives Intial or 50(2)	Reservation as per Modification	37(1) fully or Partly reservation changes	Government sanction

						and Area	
1	Hill Top Hill Slope	S.No.631(pt), Bibwewadi	0.2	37 (2)	PSP -Zone		TPS-1894/862/UD-13, dt. 15-03-1995
2	EWS-12	S.No.672/11(pt), Bibwewadi	0.31	37(2)	Residential Zone	500 sqmt	TPS-1891/1850/CR-203/91-UD-13.dt.04-03-1994
		S.No.672/8, Bibwewadi	0.25	50(2)	Residential Zone	0.25	TPS-1889/1616/CR-146/UD-13.dt.01-08-1991
3	G-9	F.P.No. 540/1 Parvati	1.94	37(2)	Fire-Brigade (FB-2)	0.32	TPS-1801/488/UD-13. dt.13-02-2004
		F.P.No. 540/2 Parvati			Civic & Cultural Centre	0.32	
		F.P.No. 540/3 &4 Parvati			PSP Zone		
4	FB-2	F.P.No541, Parvati	0.66	37(2)	Sewage Treatment Plant	0.66	TPS-1801/488/UD-13. dt.13-02-2004
5	Hill Zone	S.No.87/1/A/1,Parvati		37(2)	Residential Zone		TPS-1887/88/CR-257/UD-13, Dt- 28/05/1992
		S. No. 86(pt), Parvati					TPS-1887/1980/CR-257/88/UD-13.dt.04-04-2002
6	Hill Zone	S.No.11 Hiss no. 1A/1/1/2, 12,	0.9	37(2)	Residential Zone	0.30 0.60	TPS-1895/480/CR-58/95/UD-13,dt.02-03-1996

		Dhankawadi					
7	Sr. no.19, Dhankawadi (G-17)	Dhankawadi	1.38	37(2)	Residential Zone	Partly	TPS-1894/1856/CR-114/94/UD-13. dt.13/07/2006
8	Agriculture Zone	Katraj	7A, 7B, 8 & 9, Katraj	37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt-27/6/2000
9	PS-46	S.No.585 (pt), Munjeri	0.87	50(2)	Residential Zone	0.87	TPS-1885/3429/CR-350/UD-13. dt.29-08-1990
10	PS-49	S.No. 673 (pt), Bibwewadi	0.88	37(2)	Residential Zone	0.6772	TPS-1803/1104/CR-334/06/UD-13,dt.14-09-2007
11	Hill Top Hill Slope	S.No.76 to 81,Plot No.927 to 941,Parvati			Residential Zone		TPS-1887/830/CR-151/87/UD-13. dt.28-12-1989
12	HS-8	F.P.No. 498,TPS-iii	0.56	37(2)	Residential Zone	0.56	TPS-1888/2690/CR-393/88/UD-13.dt.5-10-1991
13	G-14	F.P.No.438,P.No. 1-3 & 8-9	1.49	37(2)	Residential Zone	Partly	TPS-1892/1286/CR-88/92/UD-13.dt.12-02-1993
14	PK-6	Sv No 87 (pt) Parvati	0.2	47	Residential Zone	Partly	
TOTAL NO-14				*SOURCE: Town Planning Dept (Central Bldg) & D.P.B.P.(PMC)*			
LIST OF MODIFICATIONS DURING 1987 TO 2008 U/S 37, 50 OF MRTP ACT							
SECTOR-III							

Sr. No.	Reservation as per DP	Address	Area(Ha) as per DP	37(1) Directives Intial or 50(2)	Reservation as per Modification	37(1) fully or Partly reservation changes and Area	Government sanction
1	Water Body Zone	S. No. 282, Shivajinagar	-	37(2)	PSP zone	0.23	TPS-1800/351/CR-75/2000/UD-13, dt- 12/01/2005
2	Proving Ground	S. No. 41(pt), Kothrud		50(2)	EWS-21		TPS 1803/2192/CR 28/2004/UD-13, dt. 26 May 2004
					CPG-52A	0.012	
3	EWS-23	S. No. 18 (CTS N0-205), Hingane bk.	21.85	50(2)	PH-23	10.92	TPS-1893/1045/CR-54/93/UD-13, Dt-5/06/1997
					Residential	10.92	TPS-1895/2641/UD-13, Dt. 17.08.2001
		S. Nos. 16, 18, 19, 53 & 54 (all parts), hingane (Bk.)			Residential		TPS-1802/512/UD-13, Dt-12/06/2003
4	EWS-15	S. No. 110/1/A, Kothrud	10.00	50(2)	Residential	6.82 (Partly)	TPS-1895/CR-169/95/UD-13, Dt-28.02.2005
		115/1-2-A, Kothrud			Residential		TPS-1886/1448/CR-216/88/UD-13
5	EWS-30A (HS-17)	Final Plot Nos.	0.608	37(2)	Parking (34A)	0.4531	TPS- 1894/716/PR-48/99/UD-13, Dt- 3/6/1999

		576/1,2&3, TP Scheme-1, Shivaji Nagar				0.1549	TPS-1803/1615/UD-13, Dt-10/8/2004
6	EWS-25	S. No. 31& 30/2B/1, Hingane Bk.	0.80	50(2)	Residential	0.8	TPS-1889/956/CR-121/UD-13, Dt-03/01/1990
7	EWS-20	S. No. 50, Kothrud	3.6	37(2)	Residential	2.50	TPS-1892/1140/UD-13
8	EWS-27 (PH-27)	S. No. 8 to 13, Erandwana	8.7	50(2)	hospital, medical, Research Centre & Medical College (27-A)	Partly	TPS-1899/612/CR-129/99/UD-13, Dt-04/10/1999
					Land deleted from Public Housing		TPS-1896/2592/96/UD-13, Dt-26/11/2001
					Residential Zone		TPS-1886/1448/CR-216/88/UD-13, dt- 15/02/1989
9	EWS-24	S. No 6, 7, 8, Hingane Bk.	13.5	37(2)	Road area merged in res EWS-24 & road shifted in S. No.6		TPS-1894/1549/UD-13
10	EWS-22	S. No. 159(pt), 160(pt), Kothrud	5.00	50(2)	Residential	5.00	TPS-1896/CR-52/UD-13
11	Municipal Purpose-1	CTS No. 113 to 151& 163, 164(pt), Shivajinagar	1.31	37(2)	PSP Zone	0.0393	TPS-1890/96/CR43/90/UD-13, Dt-19/04/2000
					Residential	0.1683	
					Partly Parking	0.4767	
12			12.14	37(2)	Residential Zone	1.65	

12	Civic & Cultural Centre	S. No. 7,8,10,12,19& 20 (all parts), Kothrud	12.14	37(2)	Residential Zone	1.65	TPS-1893/898/CR-45/93/UD-13, Dt- 24/12/93
					20 M wide East Road	0.762	
					Agricultural/ Green zone	3.00	
					CC	2.28	
13	PSTN-4	F.P. No. 267/1, TPS-1	0.06	50(2)	Residential	0.06 (fully)	TPS-1889/1884/CR-185/89/UD-13, Dt-22/01/03
14	Defence Zone	S. No109, Kothrud	0.58	37(2)	Residential	0.58 (fully)	TPS 1800/666/CR-39/2000/UD-13, Dt-05/07/2000
15	Agriculture Zone	1(PT), 2(PT), 3(PT), 4(PT), 5, 6(PT), 9(PT), 10(PT0, 11(PT), 15, 12(PT), 14, 16(PT), 20(PT), 51(PT), 53(PT), Hingane		37(2)	Residential		TPS-1899/606/CR-139/99/UD-13, dt-27/6/2000
16	12 M wide Road	S. No. 123, 124, Kothrud	-	37(1)	Residential		
17	PS-54	S. No. 34(pt), 35(pt), Hingane	0.78	37(2)	Residential		TPS-1807/1447/CR-837/07 DT- 30/03/2010
18	PS&PG&G	S. No. 129 TO 134, Kothrud	-	37(2)	Residential		TPS-1809/1044/CR-1897/ 2010 DT 20/09/2010
19	PMT BUS STATION	F. P. 621/2B	-	37(1AA)	Partly Parking & partly Bus station		TPS-1805/1038/ CR-1451/2008 DT 09/03/2010

TOTAL NO-19				*SOURCE: Town Planning Dept (Central Bldg) & D.P.B.P.(PMC)*			
LIST OF MODIFICATIONS DURING 1987 TO 2008 U/S 37, 50 OF MRTP ACT							
SECTOR-IV							
Sr. No.	Reservation as per DP	Address	Area(Ha) as per DP	37(1) Directives Intial or 50(2)	Reservation as per Modification	37(1) fully or Partly reservation changes and Area	Government sanction
1	EWS-33	S. No. 161/2/1B& 162/1+2/1B, Aundh	28.00	37(2)	Residential Zone	0.12	TPS/1890/736/UD-13, dt-23/09/1993
		S. no. 161/2(pt), 161/1+2(pt), Aundh		37(1)	Residential Zone	0.06	TPS-1895/104/CR-45/UD-13, dt-27/09/1995
		S. No. 161 & 162, Aundh		37(1)	Residential Zone	0.24	TPS-1889/1/UD-13, dt-3/02/1989
2	TV-2	F. P. No. 466, T.P. Scheme-I	0.36	50(2)	Residential Zone	0.36	
3	EWS - 34	S.No. 69 (pt),Bopadi	5.36	50(2)	Residential Zone	1.79	TPS-1889/956/CR-121/UD-13. dt.3/1/1990
4	PSP ZONE(PG-37)	Aundh		37 (2)	Residential Zone	0.52	
5	Agriculture zone	S.No.13, Pashan	15.15	37 (2)	Residential Zone	14.55	TPS-1894/1366/CR-70/94/UD-13. dt 20/03/1999
					Playing Ground &	0.6	

					Primary school		
6	Agriculture zone	S. No. 6 to 13, Aundh		37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt-27/6/2000
7	PS-74	S.No.69,70,71.Aundh	0.56	37 (2)	Residential Zone	0.56	TPS-1892/2588/CR-223/92/UD-13. dt.18/01/2005
8	PSP	S.No. 19(A)/2B,SNo.18, Pashan	0.9	50(2)	Residential Zone	0.9	TPS-1810/1756/CR-2452/2010/UD-13
9	42 Mt. Road	Haris bridge, Khadki ward No. 7		37(2)			TPS-1802/1800/CR-93/06/UD-13 dt.27/03/2006
10	Extn.to PS-76	S.No 65B, Bopadi	0.726	37 (2)	Residential Zone	0.726	TPS-1894/1812/CR-415/06/UD-13. dt.19/06/2008
11	PSP	S.No.129(pt)+130(pt), Aundh	0.52	37(2)	Residential Zone	0.52	TPS-1888/386/CR-68/91/UD-13. dt.09/08/1995
TOTAL NO-11				*SOURCE: Town Planning Dept (Central Bldg) & D.P.B.P.(PMC)*			
LIST OF MODIFICATIONS DURING 1987 TO 2008 U/S 37, 50 OF MRTP ACT							
SECTOR-V							
Sr. No.	Reservation as per DP	Address	Area(Ha) as per DP	37(1) Directives Intial or 50(2)	Reservation as per Modification	37(1) fully or Partly reservation changes and Area	Government sanction

1	EWS - 41	S.No. 199,200,201. Yerawada	10.02	50(2)	Residential Zone	10.02	TPS-1884/1377/CR-220/84(iii)/UD-13 .dt. 07/11/1988
2	HS- 27	S. No. 191(pt), Yerawada	1.12	37(2)	Residential Zone	1.12	TPS - 1894/UOR-162/CR-633/07/UD-13 .dt.20/03/2007
3	HS & PG (M-281)	S. No. 191-A, Yerawada	5.25	37(2)	Residential Zone	5.25	TPS - 1894/UOR-162/CR-633/07/UD-13 .dt.20/03/2007
4	Hosp - 10	S. No. 191-A (pt), Yerawada	0.4	37(2)	Residential Zone	0.4	TPS - 1894/UOR-162/CR-633/07/UD-13 .dt.20/03/2007
5	Agriculture Zone	S. No. 20, Yerawada		37(2)	Residential Zone		TPS - 1894/UOR-162/CR-633/07/UD-13 .dt.20/03/2007
6	Residential Zone	S.No. 192, Yerawada	15.579	37 (2)	C-2 , Zone	15.579	TPS-1388/1703/CR-255/UD-13. dt03/04/1990
7	PSP- Zone	S.No.144,145(pt), Yerawada	14.42	37 (2)	Residential Zone		TPS-1894/UOR-162/UD-13. dt.16/10/2001
8	Agri. Zone	S.No.102/A,TPS-1,F.P.No.3, Yerawada	2.06	37 (2)	Residential Zone	2.06	TPS-1801/145/UD-13.,dt.18/05/2006
TOTAL NO-8				*SOURCE: Town Planning Dept (Central Bldg) & D.P.B.P.(PMC)*			
LIST OF MODIFICATIONS DURING 1987 TO 2008 U/S 37, 50 OF MRTP ACT							
SECTOR-VI							

Sr. No.	Reservation as per DP	Address	Area(Ha) as per DP	37(1) Directives Intial or 50(2)	Reservation as per Modification	37(1) fully or Partly reservation changes and Area	Government sanction
1	M/324- Agri. Zone (G-38)	S. No. 93(p), 30. 90, 91, 93 A/1, A-2+B-2, Wanwadi	2.4575	37(2)	Residential Zone		TPS-/1899/606/CR-139/99/UD-13, dt-27/06/2000
	M/322- Agri. Zone (G-39)	S. No. 106-A(pt), 85(pt), Hadapsar	5.865				
	M/328- Agri. Zone (IC-14)	s. No. 152-A/1(pt), 152/A/2(pt), Hadapsar	1.7325				
	M/328- Agri. Zone (C-2/19)	S. No. 256, 152-A, 152-C, Hadapsar	6.2				
	M/328- Agri. Zone (C-2/20)	S. No. 257-A, 115, 149, 288-A, 288-B, 289, 151, hadapsar	12.32				
2	Agriculture Zone	S. No. 34 to 40, Ghorpadi		37(2)	Residential Zone		TPS-1804/1747/GHORPADI/UD-13, Dt-21/03/2006
3	Agriculture Zone	S. No. 47 to 54 & 60 to 75, Ghorpadi		37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt- 27/6/2000

4	Agriculture Zone	115, 116, 127 to 130, 133 to 146, 149, 151, 288-A, 288-B, Hadapsar		37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt- 27/6/2000
5	Agriculture Zone	156(P), 157, 158, 159, 160, 161, 162(P), 163A(P), 164 Hadapsar		37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt- 27/6/2000
	Green Belt	156(p), Hadapsar					TPS-1895/2475/CR-347/95/UD-13, dt-
6	Agriculture Zone (M/306)	207 to 211 & 266, 277, Hadapsar		37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt- 27/6/2000
7	EWS-55	77, 78, 79, 80, 81, 82 Hadapsar	15.4	37(2)	Residential Zone	5.13	TPS-1899/606/CR-139/99/UD-13, dt- 27/6/2000
		S.No.160A,312,77-82,86-89, Hadapsar		50 (2)	Residential Zone	2.00	TPS-1889/956/CR-121/UD-13 dt-03/01/1990
8	Agriculture Zone	9, 10, 11, kondhwa		37(2)	Residential Zone		TPS-1899/606/CR-139/99/UD-13, dt- 27/6/2000
9	Green Belt Zone (PK-22)	S. No. 5, 6, 7, Wanawadi	0.69	37(2)	Residential Zone 15 M wide green Belt along Nala to be retained as it is	0.69	TPS/1898/422/CR-77/98/UD-13, dt-3/12/2002
10	EWS-46	F. P. No. 404, 405, 411, 414, 415, 416, 417, 418, Sangamwadi	3.83	37(2)	Residential Zone	0.3	TPS 1884/956/CR-121/UD-13, Dt- 3/01/1990

11	Govt. Offices (M/330)	S. No. 464, 461 & surrounding area	1.6075		PMT Bus Station	1.6075	TPS-1889/3208/CR-375/89/UD-13, dt-23/9/94
12	Transport & Communication Zone	S. No. 320 (p), near Alankar over Bridge			Commercial Zone		TPS-1803/558/CR-45/2003/UD-13, dt. 14/2/2006
13	I.T.I-1	S.No.165-A, Hadapsar	3.11	37(2)	P.S.P - Zone	0.36	TPS-1803/2367/UD-13. dt.24-08-2004
					Cultural Center	0.8	
					I.T.I. with senior college	1.95	
14	PSP Zone	S. No. 58(pt), Wanawadi		37(2)	Residential Zone		TPS-1889/978/CR-210/UD-13, dt-12/1/2000
15	PSP- Zone	S.No. 327,CTS. No. 28, Bund Garden	17.363	37 (2)	Commercial Zone	0.4	TPS-1804/1608/UD-13., dt.15/09/2005
16	PMT-16	S.No.226 A/2, Hadapsar	3.0375	37(2)	Residential Zone	0.65	TPS-1888/216/CR-28/88/UD-13. dt.03/06/1996
17	P.S.P. Zone	S.No.57,Wanawadi		37 (1)	Residential Zone		TPS-1896/129/CR-15/96/UD-13. dt.16-08-1996
18	PS-2	S.No.210 (pt), 211 (pt) Hadapsar	0.35		Residential Zone		
19	G-2	S.No.156 (pt) Hadapsar	1.32		Residential Zone		TPV-1/2261 dt.16-08-1996
TOTAL NO-19				*SOURCE: Town Planning Dept (Central Bldg) & D.P.B.P.(PMC)*			

STATEMENT NO. 4-2

RESERVATION AS PER 1987 DEVELOPMENT PLAN

SR NO	Sector	Reservation	Village/Peth	SNo/FPNo/CTS No.	Area (Ha)
1	I	PS-1	BHUDHWAR PETH	1102, 1110, 1111	0.127
2	I	PS-2	SHUKRAWAR PETH	361	0.300
3	I	PS-5	RAVIWAR PETH	1195, 1196, 1197	0.011
4	I	PS-6	BHAVANI PETH	1152	0.014
5	I	PS-6A	BHAVANI PETH	1018 TO 1020	0.253
6	I	PS-7	GURUWAR PETH	15A, 218 TO 222, 223, 233, 234	0.345
7	I	PS-7A (M-24)	GURUWAR PETH	78	0.199
8	I	PS-8	GURUWAR PETH	702, 703	0.023
9	I	PS-9	GANJ PETH	16	0.018
10	I	PS-10 EXTN	SADASHIV PETH	1649	0.038
11	I	PS-11	KASABA PETH	233, 234	0.035
12	I	PS-12	BUDHWAR PETH	526	0.029
13	I	PS-13 EXTN	BUDHWAR PETH	754	0.037
14	I	PS-16	KASABA PETH	1305, 1306,	0.462
15	I	PS-17	BUDHWAR PETH	753, 754, 767	0.194

16	I	PS-18	MANGALWAR PETH	286	0.025
17	I	PS-19	GANESH PETH	301A, 313	0.103
18	I	PS-20	GANESH PETH	199A, 199B, 199C	0.154
19	I	PS-21	RASTA PETH	204/A2	0.014
20	I	PS-22	NANA PETH	560 TO 562	0.749
21	I	PS-23	NANA PETH	261(PT)	0.097
22	I	PS&PG-24	NANA PETH	594 TO 602, 603(PT), 604(PT)	0.502
23	I	HS-2	Bhavani peth	111	0.243
24	I	HS-4	SHANIWAR PETH	511	0.119
25	I	EXTN MD-1	SHUKRAWAR PETH	757 TO 760,	0.055
26	I	MD-2	GURUWAR PETH	468	0.116
27	I	MD-3	KASABA PETH	1145, 1196 TO 1200	0.069
28	I	MD-5	GANESH PETH	198	0.138
29	I	FPC&HDH	NANA PETH	441B-2	0.238
30	I	HC-1	BUDHWAR PETH	1014 TO 1016, 1029 TO 1031	0.181
31	I	MH/1	SHUKRAWAR PETH	668 TO 671	0.120
32	I	MH&PG-2	RAVIWAR PETH	1089(PT), 1090(PT)	0.520
33	I	SC-1 SUPER MARKET	BUDHWAR PETH	1112, 1113, 1114(PT)	0.163
34	I	SC-1 EXTN TO VEG	SHUKRAWAR PETH	1/1 to 1/10	0.131

		MARKET			
35	I	SC-3 MVM-3	MANGALWAR PETH	372373	0.077
36	I	SC-4 MVM-4 EXTN VEG MARKET	GANESH PETH	59,60	0.060
37	I	CPG-1	SHUKRAWAR PETH	1436(PT), 1437	0.164
38	I	CPG-4	GANESH PETH	171A(PT), 171B(PT), 172, 173	0.132
39	I	CPG-5	BHAVANI PETH	49	0.431
40	I	CPG-10A	SHUKRAWAR PETH	1368 (PT), 1369	0.087
41	I	CPG-11	SADASHIV PETH	1133(PT), 1134, 1135	0.181
42	I	CPG-12	SADASHIV PETH	1063 to 1068	0.156
43	I	CPG-13	SADASHIV PETH	1158(PT)	0.170
44	I	CPG-18	KASABA PETH	1366, 1367	0.178
45	I	CPG-19	KASABA PETH	1377, 1383, 1384	0.105
46	I	CPG-20	KASABA PETH	539, 540	0.199
47	I	CPG-22D	NANA PETH	1052, 1053, 1054	0.502
48	I	CPG (M-71)	SADASHIV PETH	469	0.218
49	I	PG-1	GANESH PETH	760, 761, 762(PT)	0.807
50	I	PG-2	GANJ PETH	21	0.074
51	I	PG-4	SHANIWAR PETH	372	0.192
52	I	PG -6	RAVIWAR PETH	824-2, 825	0.115

53	I	PG-7	BHAVANI PETH	800A	0.427
54	I	G-1	NAVI PETH	65(PT), 93(PT), 94	0.500
55	I	G-2	KASABA PETH	1279, 1305, 1306,1308	0.332
56	I	G-5	NANA PETH	395A,395B, 404A, 404B, 405, 406	0.600
57	I	G-6	NANA PETH	1009, 1010	0.156
58	I	G+TOWN HALL-1	SADASHIV PETH	1914 TO 1919	0.833
59	I	G+PG-1	BHAVANI PETH	103A/1(PT)	0.530
60	I	G & P ON STILTS & MUSEUM	SHUKRAWAR PETH	1354, 1371 TO 1373	0.281
61	I	FB-1	NANA PETH	400, 401, 402-C, 403	0.325
62	I	P-1	BUDHWAR PETH	1115/1, 1115/2	0.259
63	I	P-4	NARAYAN PETH	671	0.048
64	I	P-7	NARAYAN PETH	420 TO 422	0.178
65	I	P-9	GHORPADE PETH	674	0.273
66	I	P-12	SADASHIV PETH	12, 14	0.273
67	I	P-13	SADASHIV PETH	468(PT)	0.140
68	I	P-14	NAVI PETH	458(PT), 459 (PT)	0.109
69	I	P-17	NARAYAN PETH	709, 710, 437C-1 TO 437C-6	0.268
70	I	PARKING	NARAYAN PETH	343, 347	0.216

71	I	PMT-1	BUDHWAR PETH	277 TO 280, 854	0.163
72	I	PO-1	SADASHIV PETH	FPNo32-B PNo13,TPS-III	0.056
73	I	PO-2A	NARAYAN PETH	393(PT), 394(PT), 395(PT), 396C	0.065
74	I	PO-3A	GANESH PETH	233, 234, 235(PT), 236(PT)	0.060
75	I	MK-3	KASABA PETH	1144, 1202	0.036
76	I	MK-4	MANGALWAR PETH	FP NO 45, 53(PT)	0.118
77	I	TRUCK PARKING (M-73)	BHAVANI PETH	86A-B,87,87A,87/2	0.118
78	I	DB-1	SHANIWAR PETH	244	0.279
79	I	DB-2	KASABA PETH	1268(PT)	0.065
80	I	WH	SADASHIV PETH	749	0.030
81	I	CATTLE POND	BHAVANI PETH	869, 870, 871	0.028
82	I	GOVT OFFICES (M-68)	RASTA PETH	471(PT)	0.552
83	I	HDH	RASTA PETH	506,508(PT),509 TO 510(PT), 548(PT)	0.123
84	I	HDH (M-9)	BHAVANI PETH	844	0.340
85	I	HDH(M-32)	SHANIWAR PETH	242(PT), 244(PT)	0.279
86	I	HDH (M-71)	SADASHIV PETH	469	0.218
87	I	Extnto MSEB-1	RASTA PETH	470(PT)	0.355

88	I	MSEB (M-68)	RASTA PETH	481(PT)	0.552
89	I	VM&MP(M-26)	GURUWAR PETH	436	0.143
90	II	PS-27	TPS-III	271	0.860
91	II	PS-28	TPS-III	228	0.199
92	II	PS-29	TPS-III	153-A 154	1.040
93	II	PS-30	BHAVANI PETH	646 647	0.400
94	II	PS-31	TPS-III	389(PT)	0.710
95	II	PS-32	TPS-III	528, PLOT NO 14 TO 18	0.400
96	II	PS-33	TPS-III	9	0.157
97	II	PS-34	TPS-III	571B(PT), 572A(PT)	0.350
98	II	PS-35	TPS-III	550B	0.300
99	II	PS-36	TPS-III	543(PT)	0.400
100	II	PS-37	TPS-III	513D	0.440
101	II	PS-39	TPS-III	478B	0.760
102	II	PS-40	PARVATI	47(PT)	0.290
103	II	PS-41	PARVATI	52(PT), 53(PT)	1.200
104	II	PS-42	PARVATI	85 86 PT	1.200
105	II	PS-44	TPS-III	467 472A 472(PT)	1.250
106	II	PS-45	TPS-III	475A (PT)	0.400

107	II	PS-47	BIBWEWADI	687 (PT)	0.240
108	II	PS-48	BIBWEWADI	680 681 (PT)	1.120
109	II	PS-49	BIBWEWADI	670A(PT)	0.880
110	II	PS-49A	KATRAJ	127 PT	1.400
111	II	PS-49B	KATRAJ	126(PT), 127(PT)	1.400
112	II	PS-49C	DHANKAWADI	6(PT), 9(PT)	1.200
113	II	PS (A-R)	BIBWEWADI	662(PT), 665(PT)	0.270
114	II	PS (A-R)	KATRAJ	11(PT)	0.480
115	II	HS-6	TPS-III	572(PT), 573(PT), 575B(PT)	1.620
116	II	HS-7	TPS-III	543 PT	0.670
117	II	HS-9	PARVATI	47(PT)	1.260
118	II	HS-10	KATRAJ	130-133 PT	2.750
119	II	HS-11	TPS-III	447(PT)	1.000
120	II	HS-12	BIBWEWADI	572 PT	1.690
121	II	HS-13	BIBWEWADI	634(PT), 635(PT)	1.870
122	II	HS-13A	KATRAJ	136 PT	1.800
123	II	HS-13B	DHANKAWADI	4(PT), 5(PT)	1.350
124	II	D-6	TPS-III	303	0.040
125	II	D-7	TPS-III	427E/2	0.040

126	II	HMH-1	TPS-III	490, 491, 492, 495, 496	4.500
127	II	H-2	BIBWEWADI	689 691A 691B PT	6.000
128	II	SC-5	TPS-III	987-1	0.660
129	II	SC-6	PARVATI	85 PT	0.020
130	II	SC-7	PARVATI	49 50 PT	0.270
131	II	SC-9	BIBWEWADI	693 PT	0.200
132	II	SC-10	BIBWEWADI	587B PT	0.200
133	II	SC-11	BIBWEWADI	588 PT	0.200
134	II	SC-12	BIBWEWADI	687 PT	0.200
135	II	SC-13	BIBWEWADI	634 PT	0.200
136	II	SC-13A	DHANKAWADI	6(PT)	0.200
137	II	SC-13B	DHANKAWADI	6(PT) 9 PT	0.200
138	II	CPG-23A	BHAVANI PETH	775	0.290
139	II	CPG-23	TPS-III	383	0.170
140	II	CPG-24	TPS-III	48(PT)	0.060
141	II	CPG-25	TPS-III	47(PT), LAYOUT OS	0.210
142	II	CPG-26	TPS-III	4/3E	0.120
143	II	CPG-27	TPS-III	4/2(PT)	0.200
144	II	CPG-28	TPS-I	989(PT), LAYOUT OS	0.140

145	II	CPG-29	TPS-I	1002-3(PT), LAYOUT OS	0.300
146	II	CPG-30	TPS-I	999(PT)	0.130
147	II	CPG-31	TPS-III	528(PT)	0.430
148	II	CPG-32	PARVATI	90(PT), LAYOUT OS	0.430
149	II	CPG-33	PARVATI	85(PT), LAYOUT OS	0.320
150	II	CPG-34	PARVATI	85(PT), LAYOUT OS	0.100
151	II	CPG-35	PARVATI	88(PT)	0.270
152	II	CPG-36	PARVATI	86(PT), LAYOUT OS	0.140
153	II	CPG-37	PARVATI	80(PT), 81(PT)	0.350
154	II	CPG-38	PARVATI	80(PT), LAYOUT OS	0.200
155	II	CPG-39	PARVATI	76PT), LAYOUT OS	0.140
156	II	CPG-40	PARVATI	76(PT), LAYOUT OS	0.200
157	II	CPG-41	PARVATI	65(PT)	0.040
158	II	CPG-43	BIBWEWADI	692(PT)	0.540
159	II	CPG-44	BIBWEWADI	678(PT)	0.180
160	II	CPG-45	BIBWEWADI	676(PT), LAYOUT OS	0.480
161	II	CPG-46	BIBWEWADI	672(PT), LAYOUT OS	0.120
162	II	PG-8	TPS-III	294 294A	0.420
163	II	PG-9	TPS-III	48 (PT)	0.100

164	II	PG-10	TPS-III	558	0.610
165	II	PG-12 (PVG & PMC)	PARVATI	43 44 (PT)	2.040
166	II	PG-14	PARVATI	91 (PT)	0.960
167	II	PG-15	PARVATI	85 86 (PT)	0.480
168	II	PG-16	PARVATI	85 86 (PT)	0.480
169	II	PG-17A	TPS-III	397(PT), 398	0.800
170	II	PG	KATRAJ	9	0.250
171	II	PG	KATRAJ	10	2.850
172	II	PG (M-123)	BIBWEWADI	634 (PT)	2.850
173	II	PK-2+3	TPS-III	517, 517B,C, 518(PT), 519, 521A, 521B, 523	53.400
174	II	PK-5	PARVATI	88(PT)	0.250
175	II	PK-9	BIBWEWADI	676(PT), 677A, 677B, 678(PT)	0.750
176	II	PK-10	KATRAJ	4(PT), 145, 146	75.000
177	II	STADIUM	TPS-III	344/1&2	0.540
178	II	G-7	TPS-III	388/C	1.190
179	II	G-9	TPS-III	539, 540/5	1.940
180	II	G-10	TPS-III	480 (PT)	0.670
181	II	G-12	PARVATI	65(PT)	0.970
182	II	G-13	PARVATI	65(PT)	0.900

183	II	G-14	TPS-III	438(PT)	1.490
184	II	G-15	TPS-III	427D/4	1.500
185	II	G-17	DHANKAWADI	19 PT	1.380
186	II	G (A-R)	BIBWEWADI	662(PT)	1.120
187	II	FB-2	TPS-III	541	0.660
188	II	FB-3	BIBWEWADI	732(PT)	0.600
189	II	FB-4	BIBWEWADI	578(PT)	1.000
190	II	P-20	TPS-III	394(PT)	1.120
191	II	P-21	TPS-III	38B PT	0.180
192	II	P-22	TPS-III	526A	0.090
193	II	P-22A	TPS-III	527, 528(PT)	0.050
194	II	P-23	PARVATI	45(PT)	0.050
195	II	P-24	TPS-III	425(PT)	0.050
196	II	P-25	TPS-III	425(PT)	0.130
197	II	P-26	TPS-III	416	0.090
198	II	P-27	BIBWEWADI	692 693 PT	0.200
199	II	P-27A	TPS-III	489A, 490(PT)	1.290
200	II	P (M-132)	TPS-III	588	0.400
201	II	C-2/1	BIBWEWADI	584(PT), 585(PT)	2.140

202	II	PMT-3	TPS-III	585	1.630
203	II	PMT-3A	TPS-III	583(PT), 584	0.160
204	II	PMT-4	TPS-III	581A	0.160
205	II	PMT-5	BIBWEWADI	669(PT)	0.120
206	II	PSTN-1	TPS-III	494(PT)	0.110
207	II	CC-1	BIBWEWADI	682(PT), 683 (PT) 684(PT)	6.370
208	II	ON-1	KATRAJ	136(PT), 137(PT)	1.040
209	II	EWS-2A	TPS-III	537	4.400
210	II	EWS-4	DHANKAWADI	11 (PT)	4.560
211	II	EWS-5	DHANKAWADI	13 14 (PT)	14.200
212	II	EWS-7	BIBWEWADI	580	1.550
213	II	EWS-12	BIBWEWADI	672	1.350
214	II	EWS-13	BIBWEWADI	670A 670B 671	5.400
215	II	EWS-14	BIBWEWADI	639 640 645 646 647 648 659 661 665 666	24.500
216	II	APMC-1 (BAMBOO TRADE MARKET)	BIBWEWADI	559(PT)	1.200
217	II	EXTENSION TO AMPC	BIBWEWADI	562(PT), 571(PT)	12.780
218	II	RGY-1	BIBWEWADI	587A(PT)	6.750
219	II	TEL-1	TPS-III	477, 477A	1.200

220	II	TI-1	BIBWEWADI	577(PT), 578(PT)	21.000
221	II	SY-1	BIBWEWADI	659 660 (PT)	40.520
222	II	CIVIC & CULTURAL CENTRE	TPS-III	540/2	35.720
223	II	EXTN TO TIMBER MARKET (M-102)	TPS-III	286 TO 289(PT)	19.160
224	II	EXTN TO TIMBER MARKET (M-102)	TPS-III	281 TO 284	1.91
225	III	PS-50	KOTHRUD	121 (PT)	0.550
226	III	PS & PG (PS-51)	KOTHRUD	130 (PT)	1.200
227	III	PS-52	KOTHRUD	40, 41 (PT)	0.750
228	III	PS+PG	KOTHRUD	25(PT), 166(PT), 167A(PT)	1.260
229	III	PS-54	HINGNE(BK)	34(PT), 35 (PT)	0.780
230	III	PS-55	ERANDWANA	8, 13 (PT)	0.900
231	III	PS-56	TPS-I	103, 104 PT	0.440
232	III	PS-57	TPS-I	110, 111, 112(PT)	1.000
233	III	PS-58	TPS-I	15 (PT)	0.630
234	III	PS-59	TPS-I	566A(PT) PLOT NO 5 TO 10	0.768
235	III	PS-61	BHAMBHURDA	103	1.000
236	III	PS-62	TPS-1	407, 408 (PT)	0.440
237	III	PS-63	TPS-I	417, 418(PT), 419	0.492

238	III	PS-1	HINGNE(BK)	11(PT), 12(PT)	0.400
239	III	PS-2	HINGNE(BK)	11(PT)	0.400
240	III	HS-14	KOTHRUD	50(PT)	1.070
241	III	HS-15	HINGNE(BK)	40(PT)	1.600
242	III	HS-16	ERANDWANA	36, 38(PT)	0.940
243	III	HS-18	TPS-I	456, 458, 459 (PT)	1.230
244	III	HS&PG	BHAMBHURDA	270 (PT)	2.750
245	III	HS-1	HINGNE(BK)	9(PT)	1.440
246	III	MHD-3	ERANDWANA	35, 36(PT)	0.360
247	III	MHD-4	TPS-I	226/1, 2, 3(PT)	0.210
248	III	MHD-5	TPS-I	383	0.350
249	III	D&MH	HINGNE(BK)	12(PT)	0.120
250	III	H-3	KOTHRUD	87(PT), 161(PT)	1.680
251	III	H-4	TPS-I	24(PT), 24A(PT)	0.290
252	III	HOSP, MEDICAL RESERCH CENTRE, COLLEGE-27A	ERANDWANA	8(PT), 13(PT)	2.590
253	III	SC-14	KOTHRUD	129(PT)	0.200
254	III	SC-15	KOTHRUD	88(PT)	0.200
255	III	SC-16	KOTHRUD	40, 41 PT	0.200

256	III	SC-17	KOTHRUD	135(PT)	0.200
257	III	SC-18	KOTHRUD	82(PT)	0.200
258	III	SC-19	KOTHRUD	22(PT)	0.200
259	III	SC-20	HINGNE(BK)	33 (PT)	0.200
260	III	SC-21	HINGNE(BK)	1 (PT)	0.200
261	III	SC-22	ERANDWANA	12(PT), 16(PT), 22(PT)	0.200
262	III	SC-23	ERANDWANA	39 (PT)	0.200
263	III	SC-24	TPS-I	721	0.070
264	III	SC-25	TPS-I	29/1(PT)	0.400
265	III	SC-26	BHAMBHURDA	102(PT)	0.370
266	III	SC&VM (A-R)	HINGNE(BK)	6(PT)	0.200
267	III	CPG(M-174)	KOTHRUD	124(PT)	0.230
268	III	CPG-47	KOTHRUD	121 PT	0.590
269	III	CPG-49	KOTHRUD	40 (PT), 41(PT)	0.338
270	III	CPG-50	KOTHRUD	27(PT), LAYOUT OS	0.400
271	III	CPG-51	HINGNE(BK)	19(PT)	0.300
272	III	CPG-52	HINGNE(BK)	36(PT)	0.350
273	III	CPG-53	TPS-I	15(PT)	0.200
274	III	CPG-54	TPS-I	59A (PT), 60A(PT)	0.300

275	III	CPG-56	BHAMBHURDA	98(PT), LAYOUT OS	0.250
276	III	CPG-57	BHAMBHURDA	99(PT), LAYOUT OS	0.280
277	III	CPG-58	BHAMBHURDA	103 (PT)	0.200
278	III	CPG-59	TPS-I	407A(PT), 408A(PT), 409A(PT), LAYOUT OS	0.300
279	III	CPG-60	TPS-I	B-5	0.500
280	III	CPG-61	BHAMBHURDA	106(PT), LAYOUT OS	0.250
281	III	CPG-62	BHAMBHURDA	133B (PT), LAYOUT OS	0.140
282	III	PG-19	KOTHRUD	129(PT)	3.188
283	III	PG-20	KOTHRUD	84 (PT)	0.960
284	III	PG-23	ERANDWANA	13(PT)	0.341
285	III	PG-24	TPS-I	76(PT), 76A, 77	1.200
286	III	PG-25	BHAMBHURDA	103 (PT)	0.510
287	III	PG-27	TPS-I	423, LAYOUT OS	0.500
288	III	PG-28	BHAMBHURDA	132 (PT)	0.500
289	III	PG-1	HINGNE(BK)	14(PT)	0.850
290	III	PG-2	HINGNE(BK)	11(PT)	0.350
291	III	PG-3	HINGNE(BK)	9(PT)	1.200
292	III	PK-11	KOTHRUD	142(PT), 143(PT), 144(PT), 133(PT), 134(PT),135(PT)	9.900

293	III	PK-12	ERANDWANA	44(PT)	10.795
294	III	G-19	KOTHRUD	130 (PT)	0.500
295	III	G-20	KOTHRUD	31(PT)	1.400
296	III	G-21	KOTHRUD	7(PT), 8(PT)	1.200
297	III	G-22	HINGNE(BK)	61(PT)	0.900
298	III	G-23	ERANDWANA	16(PT), 21(PT), 22(PT)	0.780
299	III	G-1	HINGNE(BK)	14(PT)	0.150
300	III	G-2	HINGNE(BK)	11(PT)	0.560
301	III	FB-5	KOTHRUD	160(PT)	1.000
302	III	P-28	TPS-I	9-C/1(PT), 10(PT)	0.360
303	III	P-30	TPS-I	252, 253, 253-A0	0.520
304	III	P	TPS-I	621/2-B(PT)	0.150
305	III	PMT BUS STATION	TPS-I	620(PT)	0.054
306	III	P-33	TPS-I	660	0.248
307	III	P	TPS-I	576/2, 3	0.600
308	III	PMT-6	KOTHRUD	1(PT), 2(PT)	1.035
309	III	PMT-7	KOTHRUD	145(PT), 147(PT)	2.530
310	III	PSTN-2	ERANDWANA	3(PT), 2(PT)	1.047
311	III	PSTN-3	TPS-I	822(PT)	0.320

312	III	C-2/5	KOTHRUD	7, 8, 10	2.370
313	III	C-2/6	KOTHRUD	23 (PT)	1.745
314	III	C-2/7	KOTHRUD	23 (PT), 21 (PT), 22 (PT)	1.200
315	III	C-2/8	KOTHRUD	22(PT)	1.250
316	III	C-2/10	HINGNE(BK)/ KOTHRUD	30(PT), 31(PT), 32(PT), 33(PT)HINGNE **&** 18(PT), 19(PT) KOTHRUD	1.840
317	III	C-2/11	TPS-I & BHAMBHURDA	FP 403A, 403B & 106 P	3.575
318	III	C-2/12	TPS-I	403-A(PT), 405-B(PT)	0.750
319	III	C-2/13	TPS-I	412-A (PT)	0.360
320	III	C-2/14	TPS-I	412-C	0.550
321	III	C-2/15	TPS-I	412B (PT)	0.880
322	III	C-2/16	TPS-I	412-D, 412-D/2, 413-B	2.170
323	III	CC-2	KOTHRUD	7(PT), 8(PT), 10(PT), 12(PT), 19(PT), 20(PT)	12.140
324	III	PO-4	KOTHRUD	CT 398, 389, 391, 392, 393(PT)	0.054
325	III	PO-5	ERANDWANA	36(PT)	0.075
326	III	EWS-15	KOTHRUD	110(PT), 112(PT), 115(PT)	20.000
327	III	EWS-20	KOTHRUD	50(PT), 51(PT)	3.600
328	III	EWS-21	KOTHRUD	42(PT) TO 47(PT)	10.300

329	III	PUBLIC HOUSING-23	HINGNE(BK)	16(PT), 18(PT), 19(PT), 53(PT), 54(PT)	26.500
330	III	EWS-24	HINGNE(BK)	6(PT), 7(PT), 8(PT), 56(PT)	13.500
331	III	EWS-25	HINGNE(BK)	29(PT) 30(PT), 31(PT), 34(PT)	8.070
332	III	PH-27	ERANDWANA	13(PT)	0.500
333	III	MK-5	KOTHRUD	11(PT)	0.400
334	III	PARKING (MP-1)	BHMBURDA GAOTHAN	CT 113 TO 149	1.310
335	III	HLW-1	HINGNE(BK)	18(PT), 29(PT)	0.400
336	III	BU&CR	HINGNE(BK)	2(PT), 49(PT), 63(PT)	4.620
337	III	BU&CR	BHAMBHURDA	97(PT), 101 (PT)	2.790
338	III	AIR-1	TPS-1	465 (PT)	1.420
339	IV	PS(A-R)	AUNDH	11 (PT) 12 (PT)	0.400
340	IV	PS&HS-1	PASHAN SUTARWADI	121 122 152 (PT)	1.850
341	IV	PS&HS-3	PASHAN SUTARWADI	129 (PT), 148 (PT)	1.800
342	IV	PS&HS-2	PASHAN SUTARWADI	132, 135 (PT)	1.850
343	IV	PS-1	PASHAN SUTARWADI	118 (PT)	0.350
344	IV	PS-60	SHIVAJINAGAR SUBURB TPS I	874	1.200
345	IV	PS-64	SHIVAJINAGAR SUBURB TPS I	470	0.260
346	IV	PS-67	SHIVAJINAGAR SUBURB TPS I	34	0.525
347	IV	PS-69	PASHAN SUTARWADI	1 (PT)	1.200

348	IV	PS-70	PASHAN SUTARWADI	37 (PT)	0.390
349	IV	PS-71 EXTN	AUNDH	153 (PT)	0.325
350	IV	PS-72	AUNDH	48 ,49	0.400
351	IV	PS-73&CPG-75	AUNDH	156 (PT) 157 (PT)	0.600
352	IV	PS-75	BOPODI	74(PT) 69(PT)	0.350
353	IV	PS-77 EXTN	BOPODI	43 (PT)	0.350
354	IV	HS-20	SHIVAJINAGAR SUBURB TPS I	494&495 (PT)	1.620
355	IV	HS-22	AUNDH	138 (PT)	1.200
356	IV	HS-23(M-231)	BOPODI	26,43 (PT)	3.330
357	IV	ITI	PASHAN SUTARWADI	121 (PT)	1.870
358	IV	EXTENSION TO CEOP	SANGAMWADI TPS	65 (PT)	1.800
359	IV	Hosp-MH-D-5	AUNDH	108 (PT)	0.375
360	IV	Hosp-6	AUNDH	164 (PT)	0.300
361	IV	Hosp-7	BOPODI	42(PT)	0.550
362	IV	Hospital-1	PASHAN SUTARWADI	123 (PT)	0.500
363	IV	SC-27	SANGAMWADI TPS	52 (PT)	0.050
364	IV	SC-29+PO (M-234)	AUNDH	104 (PT)	0.200
365	IV	SC-30	BOPODI	38 (PT)	0.100
366	IV	Shopping Centre-1	PASHAN SUTARWADI	130 (PT)	0.325

367	IV	C2-1	PASHAN SUTARWADI	120 (PT)	0.700
368	IV	VM	PASHAN SUTARWADI	123 (PT)	0.200
369	IV	CPG -63	SHIVAJINAGAR SUBURB TPS I	485D,486	0.340
370	IV	CPG -64	SHIVAJINAGAR SUBURB TPS I	558 (PT)	0.075
371	IV	CPG -68	PASHAN SUTARWADI	16 (PT)	0.560
372	IV	CPG - 69	PASHAN SUTARWADI	20 (PT)	0.300
373	IV	CPG - 71	AUNDH	74(PT)75(PT), 76(PT)	0.140
374	IV	CPG - 72	AUNDH	55(PT)57(PT)	0.250
375	IV	CPG - 73	AUNDH	155 (PT)	0.315
376	IV	CPG -74	AUNDH	1 (PT)	0.275
377	IV	CPG - 75	AUNDH	156 (PT)	0.120
378	IV	CPG - 76	BOPODI	43 (PT)	0.240
379	IV	PG -29 (M-225)	SHIVAJINAGAR SUBURB TPS I	501,502&510	2.088
380	IV	PG -32	SANGAMWADI TPS	29	0.630
381	IV	PG -35	AUNDH	72(PT),73(PT)	1.200
382	IV	PG -36	AUNDH	120(PT),121(PT), 122 (PT)	0.770
383	IV	PG -39	BOPODI	74 (PT)	1.232
384	IV	PG -40	BOPODI	64B64C,65A,65B	1.870
385	IV	Play Ground-1 (M-20)	PASHAN SUTARWADI	137 (PT),138 (PT)	1.360

386	IV	PG (A-R)	AUNDH	11 (PT),12 (PT)	1.000
387	IV	Park-1	PASHAN SUTARWADI	110 (PT),111(PT),150 (PT)	5.500
388	IV	Park-2	PASHAN SUTARWADI	111 (PT),112 (PT),113(PT),118(PT),136(PT)	2.250
389	IV	Park-3	PASHAN SUTARWADI	11 (PT),12 (PT)	1.120
390	IV	G-27	AUNDH	125A	3.145
391	IV	FB-6	AUNDH	51	0.480
392	IV	P-35	SANGAMWADI TPS	67	0.375
393	IV	P-36	BOPODI	11D (PT)	0.375
394	IV	P-39	SANGAMWADI TPS	62	0.315
395	IV	PMT Parking - 9	SHIVAJINAGAR TPS	93 (PT)	0.595
396	IV	PMT Parking - 10	SHIVAJINAGAR SUBURB TPS I	29 (PT)	1.175
397	IV	PMT-9A	SANGAMWADI TPS	14 (PT)	2.570
398	IV	PMT	PASHAN SUTARWADI	124 (PT),	0.700
399	IV	Post Office	PASHAN SUTARWADI	120 (PT),	1.040
400	IV	PO-7	AUNDH	152 (PT)	1.900
401	IV	ON-2	AUNDH	1 (PT),	27.580
402	IV	Octroi Naka-1	PASHAN SUTARWADI	126 (PT),	3.570
403	IV	EWS-33	AUNDH	158 to 170 (PT),23 (PT),180,178 (PT)	4.000

404	IV	EWS-34	BOPODI	36(PT),69 & 73A (PT)	3.885
405	IV	PHADB	PASHAN SUTARWADI	130 (PT)	1.000
406	IV	CC-3	AUNDH	24(PT) 152(PT) ,153 (PT)	2.185
407	IV	CR & BU	PASHAN SUTARWADI	136 (PT)	0.020
408	IV	TWS-2A	BOPODI	2A,2B,2C2E,6	1.420
409	IV	PSTN	SANGAMWADI TPS	65 (PT)	0.420
410	IV	Pumping Station	SANGAMWADI TPS	56 (PT)	16.000
411	IV	PC-3	SANGAMWADI TPS	16	0.020
412	IV	Municipal Ward Office, Cultural Hall & Library	PASHAN SUTARWADI	140	0.420
413	V	PS-81	YERAWADA	104(PT),105(PT), 106(PT)	1.050
414	V	PS&CPG-82	YERAWADA	137(PT)	1.150
415	V	PS&PG-83(M-270)	YERAWADA	14 -A(PT) 249	1.160
416	V	PS-84	YERAWADA(SANGAMWADI)	60(PT), 61(PT)	0.350
417	V	PS-85	YERAWADA	191 -A(PT)	1.200
418	V	PS-87	YERAWADA	75	1.350
419	V	PS-88	LOHEGAON	231(PT)	1.420
420	V	PS-89	LOHEGAON	205 (PT) & 204 (PT)	1.170
421	V	HS-25	YERAWADA	155(PT) , 156 (PT)	1.350

422	V	HS-26	YERAWADA	239(PT)	0.890
423	V	HS-28	YERAWADA	FPNo78(PT),79(PT),80(PT)	2.660
424	V	MH-7	YERAWADA	199(PT)	0.300
425	V	MHD-8	NEW KHADAKI	Gaonthan	0.160
426	V	MHD-9	LOHEGAON	199(PT)	0.810
427	V	HMHD-8	YERAWADA	94 (PT)	0.550
428	V	H-9	NEW KHADAKI	Gaothan	0.380
429	V	HS(M-274)	NEW KHADAKI	gaonthan	0.380
430	V	SC-33	DHANORI	89(PT)	0.130
431	V	SC-34	YERAWADA	96(PT)	0.120
432	V	SC-35	YERAWADA	121(PT)	0.280
433	V	SC-36	YERAWADA	14-A-1	0.150
434	V	SC-38	YERAWADA	191-A	0.230
435	V	SC-40	TPS YERAWADA 1	76(PT)	0.160
436	V	SC-41	LOHEGAON	204(PT),206(PT)	0.110
437	V	CPG-77	DHANORI	41 (PT)	0.070
438	V	CPG-78	YERAWADA	112(PT),	0.180
439	V	CPG-79	YERAWADA	191-A(PT),	0.110
440	V	CPG-80	YERAWADA	191-A(PT),	0.300

441	V	CPG-81	YERAWADA	191-A(PT),	0.180
442	V	CPG-82	LOHEGAON	199 -(PT)	0.040
443	V	CPG-83	LOHEGAON	199 -(PT)	0.170
444	V	PG-43	DHANORI	40 (PT)	0.420
445	V	PG-44	DHANORI	46-B (PT)	0.600
446	V	PG-45	DHANORI	45(PT)	0.590
447	V	COMMHALL&SC(M-277)	DHANORI	42(PT),	0.590
448	V	PG-46	YERAWADA	150(PT)-153A (PT),	0.680
449	V	PS&PG(M-278)	YERAWADA	115(PT)	2.400
450	V	PG-48	YERAWADA	111(PT) ,	0.250
451	V	PS&PG(M-279)	YERAWADA	4 -A	0.950
452	V	PG-51	YERAWADA	191-A,	2.870
453	V	PG-53	LOHEGAON	231	2.050
454	V	PG-54	LOHEGAON	205	1.060
455	V	PG-55	WADGAONSHERI	29-B	0.510
456	V	PK-13	YERAWADA	94,104	4.140
457	V	PK-14	SANGAMWADI TPS	1	3.660
458	V	G-30	YERAWADA	92 (pt), 93 (pt)	2.590
459	V	G-31	YERAWADA	10-B,14-A,16-A,17-B,18-	2.390

				B,25-B	
460	V	G-32	TPS YERAWADA 1	17	1.760
461	V	G-33	TPS YERAWADA 1	71	0.780
462	V	G-34	LOHEGAON	138 (PT),146(PT)	1.380
463	V	FB-8	TPS YERAWADA 1	70/6	0.280
464	V	PMT(M-286)	TPS YERAWADA 1	70/1 to 70/4	1.100
465	V	PS(M-287)	DHANORI	46-A, 46-C (both parts)	1.140
466	V	PMT-12	DHANORI	115(PT) & 113(PT)	0.360
467	V	PSTN-5	YERAWADA	110(PT),	0.200
468	V	PSTN-6	LOHEGAON	136(PT),	0.270
469	V	TW-7	TPS YERAWADA 1	70/17	1.700
470	V	APMC(M-290)	WADGAONSHERI	30(PT),31(PT)	6.980
471	V	PS(M-290)	WADGAONSHERI	30(PT),31(PT)	0.680
472	V	EWS-39	YERAWADA	109(PT),	3.300
473	V	EWS-40	YERAWADA	10-B,14-A,16-A,17-B,18-B,25-B,	8.700
474	V	EWS-42	LOHEGAON	212,203	12.430
475	V	PC-5	YERAWADA	3(PT) Yerawada	0.600
476	V	TE-2	TPS YERAWADA 1	11	0.230
477	V	BIRD SANCTUARY-	TPS YERAWADA 1	70/10 to 70/16	9.360

		1			
478	V	D-8	TPS YERAWADA 1	10	0.080
479	VI	PS-90	SANGAMWADI TPS	188	1.540
480	VI	PS-92	GHORPADI	65 (PT)	0.650
481	VI	PS-95	HADAPSAR	29 (PT)	0.700
482	VI	PS-96	HADAPSAR	106-A (PT) & 86(PT)	0.840
483	VI	PS-91	MUNDHAWA	84(PT)	0.540
484	VI	PS 93	WANWADI	29 (PT)	0.275
485	VI	PS 97	KONDHWA KH	28,15	1.015
486	VI	PS-94A(M-310)	HADAPSAR	227 (PT) 235(PT)	0.223
487	VI	PS-1(A-R)	GHORPADI	46	0.400
488	VI	PS-2(A-R)	GHORPADI	70A	0.400
489	VI	PS-1(A-R)	HADAPSAR	159 (PT)	0.400
490	VI	PS-2(A-R)	HADAPSAR	161 (PT) 163A (PT)	0.400
491	VI	PS-1(A-R)	HADAPSAR	134 (PT), 136 (PT),	0.440
492	VI	PS-1(A-R)	HADAPSAR	209 (PT)	0.324
493	VI	PS-1(A-R)	KONDHWA KH	10,11	0.400
494	VI	HS-33	KONDHWA KH	5A + 5B (PT)	1.820
495	VI	HS-1(A-R)	GHORPADI	54	0.507

496	VI	HS-2(A-R)	GHORPADI	61 (PT)	1.200
497	VI	HS&PG(A-R)	GHORPADI	38	0.800
498	VI	HS-1(A-R)	HADAPSAR	156 (PT), 157 (PT), 158 (PT), 161 (PT)	1.120
499	VI	HS-1(A-R)	HADAPSAR	133 (PT), 134 (PT), 136 (PT), 137 (PT)	1.200
500	VI	HS-1(A-R)	HADAPSAR	210 (PT)	0.670
501	VI	ITI With Senior College)-1	HADAPSAR	165(PT)	3.110
502	VI	DMH10	WANWADI	65(PT)	0.180
503	VI	DMH11	WANWADI	15(PT) & 16(PT)	1.250
504	VI	DMH-1(A-R)	GHORPADI	66	0.160
505	VI	DMH-1(A-R)	HADAPSAR	158 (PT)	0.100
506	VI	SC 42	KASABE PUNE	478B(PT)	0.330
507	VI	SC-43	MUNDHAWA	80	0.100
508	VI	SC-45	HADAPSAR	89-A (PT)	0.100
509	VI	SC-47	WANWADI	5(PT)	0.100
510	VI	SC 48	KONDHWA KH	5A	1.000
511	VI	SC-49	BIBWEWADI	595	0.138
512	VI	SC-51	HADAPSAR	1 (PT)	0.900
513	VI	SC-39	SHIVAJINAGAR TPS	898	1.688

514	VI	SC-1(A-R)	HADAPSAR	207 (PT)	0.200
515	VI	SC-1(A-R)	HADAPSAR	134 (PT)	0.200
516	VI	SC&VM-1	GHORPADI	47	0.250
517	VI	SC&VM-2	GHORPADI	50	0.150
518	VI	CPG-84	MUNDHAWA	77	0.338
519	VI	CPG-87	HADAPSAR	122-B(PT),297-B (PT)	0.638
520	VI	CPG-89	HADAPSAR	165-(PT)	0.240
521	VI	CPG-92	KONDHWA KH	17	0.440
522	VI	PG-56	SANGAMWADI TPS	343	0.200
523	VI	PG-57	MUNDHAWA	55	0.800
524	VI	PG-62	HADAPSAR	84(PT), Quary	0.600
525	VI	PG-63	WANWADI	29	0.450
526	VI	PG-65	WANWADI	64,65	0.900
527	VI	PG-66	WANWADI	65,66A	0.600
528	VI	PG-67	KONDHWA KH	1	0.610
529	VI	PG-1(A-R)	GHORPADI	72	1.125
530	VI	PG-2(A-R)	GHORPADI	70A	0.700
531	VI	PG-3(A-R)	GHORPADI	50	0.950
532	VI	PG-4(A-R)	GHORPADI	61	0.900

533	VI	PG-1(A-R)	HADAPSAR	159 (PT)	0.810
534	VI	PG-2(A-R)	HADAPSAR	159 (PT), 160 (PT), 164 (PT)	1.090
535	VI	PG-1(A-R)	HADAPSAR	136 (PT), 137 (PT)	1.090
536	VI	PG-1(A-R)	HADAPSAR	209 (PT)	0.710
537	VI	PG-2(A-R)	HADAPSAR	211 (PT), 266 (PT)	1.000
538	VI	PG-3(A-R)	HADAPSAR	211 (PT) Quarry	0.890
539	VI	PG-1(A-R)	HADAPSAR	81	0.750
540	VI	PG-1(A-R)	HADAPSAR	256 (PT)	0.880
541	VI	PG-1(A-R)	KONDHWA KH	11	0.700
542	VI	PG-2(A-R)	KONDHWA KH	11	0.440
543	VI	PG-3(A-R)	KONDHWA KH	9	0.520
544	VI	PK-15	SANGAMWADI TPS	92	4.178
545	VI	PK-20	WANWADI	26,27A,28	5.190
546	VI	PK-21	WANWADI	1A,2,8,9,10,11	1.625
547	VI	PK-23	KONDHWA KH	4A1A1	2.850
548	VI	G-36	KASABE PUNE	324 (PT)	1.670
549	VI	G-42	WANWADI	75, 76	1.000
550	VI	G-43	BIBWEWADI	592 B,594 C	1.670
551	VI	G-35	KASABE PUNE	395(PT)	1.210

552	VI	G-1(A-R)	GHORPADI	74A	0.600
553	VI	G-2(A-R)	GHORPADI	49 (PT)	0.840
554	VI	G-3(A-R)	GHORPADI	70B	0.300
555	VI	G-4(A-R)	GHORPADI	65	0.850
556	VI	G-5(A-R)	GHORPADI	62 (PT),63 (PT)	0.560
557	VI	G-1(A-R)	GHORPADI	35A,35B,36B,36A	1.000
558	VI	G-2(A-R)	HADAPSAR	164 (PT)	1.320
559	VI	G-1(A-R)	HADAPSAR	135 (PT), 137 (PT)	11.400
560	VI	G-1(A-R)	HADAPSAR	266 (PT) 211 (PT)	0.465
561	VI	G-2(A-R)	HADAPSAR	210 (PT) Quarry	0.700
562	VI	G-1(A-R)	HADAPSAR	80 (PT)	0.680
563	VI	G-1(A-R)	HADAPSAR	86 (PT)	0.420
564	VI	G-1(A-R)	KONDHWA KH	9	0.800
565	VI	FB-9	KONDHWA KH	4A1A/2, 4A1A1	1.000
566	VI	P-42	SANGAMWADI TPS	94B (PT)	0.450
567	VI	P-40	MANGALWAR PETH TPS	4	0.187
568	VI	P-41	MANGALWAR PETH TPS	403,405	0.234
569	VI	P-45	BIBWEWADI	595 (PT)	0.113
570	VI	P-44	BIBWEWADI	595 (PT)	0.100

571	VI	P-1(A-R)	GHORPADI	37	0.210
572	VI	PMT-15M-331)	MUNDHAWA	55(PT)	0.950
573	VI	PMT-16M-331)	HADAPSAR	265 (PT), 226-A (PT) ,263	3.048
574	VI	PMT-17	KONDHWA KH	64(PT)	0.334
575	VI	TWS-8	MUNDHAWA	2,3A,4	3.400
576	VI	PSTN-9	HADAPSAR	117(PT)	0.220
577	VI	CC-4	HADAPSAR	153(PT)	5.741
578	VI	CC-1A	HADAPSAR	165-A	0.800
579	VI	PO	KONDHWA KH	5A	0.900
580	VI	Cart Stand	SHIVAJINAGAR TPS	898B, 899, 900, 902	0.800
581	VI	EWS-46	SANGAMWADI TPS	405, 411, 414 to 418	1.080
582	VI	EWS-48	MUNDHAWA	80,82,83,84	4.500
583	VI	EWS-52	HADAPSAR	124	7.300
584	VI	EWS-55M-308)	HADAPSAR	106-A,312,86,87,88,89-A,97-A,80,81,82(PT)	8.270
585	VI	EWS-57M-340)	HADAPSAR	25,30,31,32(PT), 231(PT)	8.100
586	VI	BU&CR-4	WANWADI	69(PT)	1.950
587	VI	LIB-1(A-R)	GHORPADI	73	0.060

STATEMENT NO.4- 3

LIST OF RESERVATIONS FULLY DEVELOPED AS PER APPENDIX R-7 WITH RESPECTIVE TO DEVELOPMENT PLAN 1987

Sr No.	Sector	Reservation	Peth/ Village	Address S/FP/CTS No	Area in Ha.	Fully Developed area in Ha.	Present Status	Remarks
1	II	P-21	TPS-III	38B (PT)	0.180	0.180	DEVELOPED	-
2	II	P-26	TPS-III	416	0.090	0.090	DEVELOPED	-
3	II	P (M-132)	TPS-III	588	0.400	0.400	DEVELOPED	-
4	II	P-27	BIBWEWADI	692, 693 (PT)	0.200	0.200	DEVELOPED	DEVELOPED AS CITY PRIDE
5	II	SC-7	PARVATI	49,50 (PT)	0.270	0.270	DEVELOPED	-
6	II	SC-11	BIBWEWADI	588 (PT)	0.200	0.200	DEVELOPED	-
7	II	SC-12	BIBWEWADI	687 (PT)	0.200	0.200	DEVELOPED	-
8	II	SC-13	BIBWEWADI	634 (PT)	0.200	0.200	DEVELOPED	-
9	II	SC-5	TPS-III	987-1	0.660	0.660	DEVELOPED	DEVELOPED AS ENVIRON LAB
10	II	SC-9	BIBWEWADI	693 (PT)	0.200	0.200	DEVELOPED	DEVELOPED AS UTTSAV BUILDING
11	III	SC-16	KOTHRUD	40, 41 (PT)	0.200	0.200	DEVELOPED	M-165
12	III	SC-20	HINGNE(BK)	33 (PT)	0.200	0.200	DEVELOPED	-

13	III	SC-21	HINGNE(BK)	1 (PT)	0.200	0.200	DEVELOPED	-
14	III	SC-23	ERANDWANA	39 PT	0.200	0.200	DEVELOPED	-
15	III	SC-24	TPS-I	721	0.070	0.070	DEVELOPED	-
16	III	P-33	TPS-I	660	0.248	0.248	DEVELOPED	-
17	III	C-2/6	KOTHRUD	23 (PT)	1.745	1.745	DEVELOPED	-
18	III	C-2/7	KOTHRUD	23 (PT), 21 (PT), 22 (PT)	1.200	1.200	DEVELOPED	-
19	III	C-2/11	TPS-I & BHAMBHURDA	403A, 403B,106(PT)	3.575	3.575	DEVELOPED	HCMTR AREA MERGED
20	III	C-2/12	TPS-I	403-A(PT), 405-B(PT)	0.750	0.750	DEVELOPED	HCMTR AREA MERGED
21	III	C-2/14	TPS-I	412-C	0.550	0.550	DEVELOPED	-
22	III	PH-27	ERANDWANA	13(PT)	0.500	0.500	DEVELOPED	MODI 37- TPS 1896/2592/96, DT- 23/11/2001
23	IV	SC-30	BOPODI	38(PT)	0.100	0.016	DEVELOPED	-
24	IV	Hosp.-7	BOPODI	42(PT)	0.550	0.550	DEVELOPED	DEVELOPED STRUCTURE HANDED ONER TO HEALTH DEPT (PMC)
25	IV	SC-29+PO (M-234)	AUNDH	104(PT)	0.200	0.200	DEVELOPED	MANTHAN HALL IN POSSESSION OF PMC
26	V	MH-7	YERAWADA	199(PT)	0.300	0.300	DEVELOPED	-
27	V	SC-41	LOHEGOAN	204(PT),206(PT)	0.110	0.110	DEVELOPED	DEVELOPED AS HOTEL

28	VI	SC-47	KASBE PUNE	478B(PT)	0.100	0.100	DEVELOPED	DEVELOPED AS ORIAN BUILDING
29	VI	SC-43	MUNDHAWA	80	0.100	0.100	DEVELOPED	-
30	VI	SC 48	KONDHWA KH	5A	1.000	1.000	DEVELOPED	-
31	VI	P-45	BIBWEWADI	595 (PT)	0.113	0.113	DEVELOPED	-
32	VI	DMH-1(A-R)	HADAPSAR	158 (PT)	0.100	0.015	DEVELOPED	-
33	VI	DMH11	WANWADI	15(PT) & 16(PT)	1.200	0.288	DEVELOPED	-
34	VI	DMH-1(A-R)	GHORPADI	66	0.160	0.040	DEVELOPED	-
35	VI	DMH10	WANWADI	65(PT)	0.180	0.051	DEVELOPED	-

STATEMENT NO. 4-4

LIST OF RESERVATIONS PARTLY DEVELOPED AS PER APPENDIX R-7 WITH RESPECTIVE TO DEVELOPMENT PLAN 1987

Sr No.	Sector	Reservation	Peth/ Village	Address S/FP/CTS No	Area (Ha.)	Partly Developed Area (Ha.)	Present Status	Remarks
1	III	MHD-4	TPS-I	226/1, 2, 3(PT)	0.21	0.068	-	-
2	III	SC-15	KOTHRUD	88(PT)	0.20	0.087	-	-
3	III	P	TPS-I	576/2, 3	0.60	0.430	38 MODI- TPS 1894/716/CR-48/99/	-

							UD 13, DT- 03/06/1999	
4	III	C-2/5	KOTHRUD	7, 8, 10	2.37	1.720	M-181	-
5	III	C-2/10	HINGNE(BK)/ KOTHRUD	30(PT), 31(PT), 32(PT), 33(PT)HINGNE & 18(PT), 19(PT) KOTHRUD	1.84	2.600	M-176	-
6	III	C-2/15	TPS-I	412B (PT)	0.88	0.220	-	-
7	III	C-2/16	TPS-I	412-D, 412-D/2, 413-B	2.17	0.910	-	-
8	III	CC-2	KOTHRUD	7(PT), 8(PT), 10(PT), 12(PT), 19(PT), 20(PT)	12.14	3.860	37 MODI- PART LAND GREEN ZONE & PART LAND DELETED, TPS 1893/ 898/ CR-45/ 93/ UD-13, DT. 24/12/1993	-
9	III	EWS-15	KOTHRUD	110(PT), 112(PT), 115(PT)	20.00	0.470	50 MODI- TPS 1895/1196/CR-169/UD-13, DT- 28/02/2005 & TPS 1868/1448/CR 216/88/ UD-13, DT- 15/02/1989	-
10	III	EWS-20	KOTHRUD	50(PT), 51(PT)	3.60	0.536	37 MODI- TPS 1892/ 1140/UD 13, DT- 18/05/1994 & TPS 1889/2965UD-13, DT- 21/01/1990	-

11	III	EWS-21	KOTHRUD	42(PT) TO 47(PT)	10.30	2.850	M-116 & MODI 50- TPS 1803/ 2192/ CR-28/ 2004/ UD-13, DT-26/05/2004	-
12	III	EWS-24	HINGNE(BK)	6(PT), 7(PT), 8(PT), 56(PT)	13.50	1.114	MODI 37- TPS 1894/1549 DT-13/03/1995	-
13	III	EWS-25	HINGNE(BK)	29(PT) 30(PT), 31(PT), 34(PT)	8.07	4.800	MODI 50- TPS 1891/1075/ CR-132, DT-10/09/1991	-
14	IV	EWS-33	AUNDH	158 to 170 (PT),23 (PT),180,178 (PT)	27.58	25.791	PARTLY DEVELOPED	ORIGINALLY AREA WAS 28HA;0.42 HA AREA CONVERTED TO RESIDENTIAL BY 37 MODIFICATION; REMAINING AREA OF RESERVATION AREA PARTLY DEVELOPED UNDER R7 REMAINING AREA 17890 SQM IN S NO 23,170A,170B IS VACANT
15	IV	PHADB	PASHAN SUTARWADI	130 (PT)	4.00	0.872	PARTLY DEVELOPED	0.87 HA AEA IS DEVELOPED UNDER R7
16	V	SC-40	YERAWADA TPS 1	76(PT)	0.16	0.080	PARTLY DEVELOPED UNDER R-7 & PARTLY REDESIGNATED AS VM	-
17	VI	EWS-57(M-340)	HADAPSAR	25,30,31,32(PT), 231(PT)	8.1	0.303	-	RESERVATION CONTINUED
18	VI	EWS-48	MUNDHAWA	80,83	4.5	2.618	-	RESERVATION CONTINUED
19	VI	FB-9	KONDHWA KH	4A1A/2, 4A1A1	1.03	0.400	-	RESERVATION CONTINUED

CHAPTER No 5.

INTRODUCTION TO REVISION OF 1987 DEVELOPMENT PLAN

5.1 PLANNING AREA

Pune City is the second largest metropolitan city in the State, It is fast changing its character from an educational-administrative centre to an important Industrial City. The area under the old city which is under jurisdiction of the Pune Municipal Corporation is about 146 sq.km. The planning area is the same area as shown in the 1987 Development plan area. The entire area within the municipal limits was considered under six sectors

Sector I – Congested area (Core city)

Sector II – Southern suburbs, which includes Parvati, Dhankawadi, Katraj, Munjeri etc

Sector III – Southwestern suburbs, which includes Erandawane, Kothrud, Hingne Budruk, Bhamburda, etc

Sector IV – Northwestern suburbs, which includes Shivajinagar, Aundh, Pashan, Bopodi, etc.

Sector V – Northeastern suburbs, which includes Lohgaon, Yerawada, Wadgaon Sheri, Kalas, Dhanori, Sangamwadi etc

Sector VI – Eastern suburbs, which includes Hadapsar, Ghorpadi, Mundhwa, Wanawadi, Kondhava, etc.

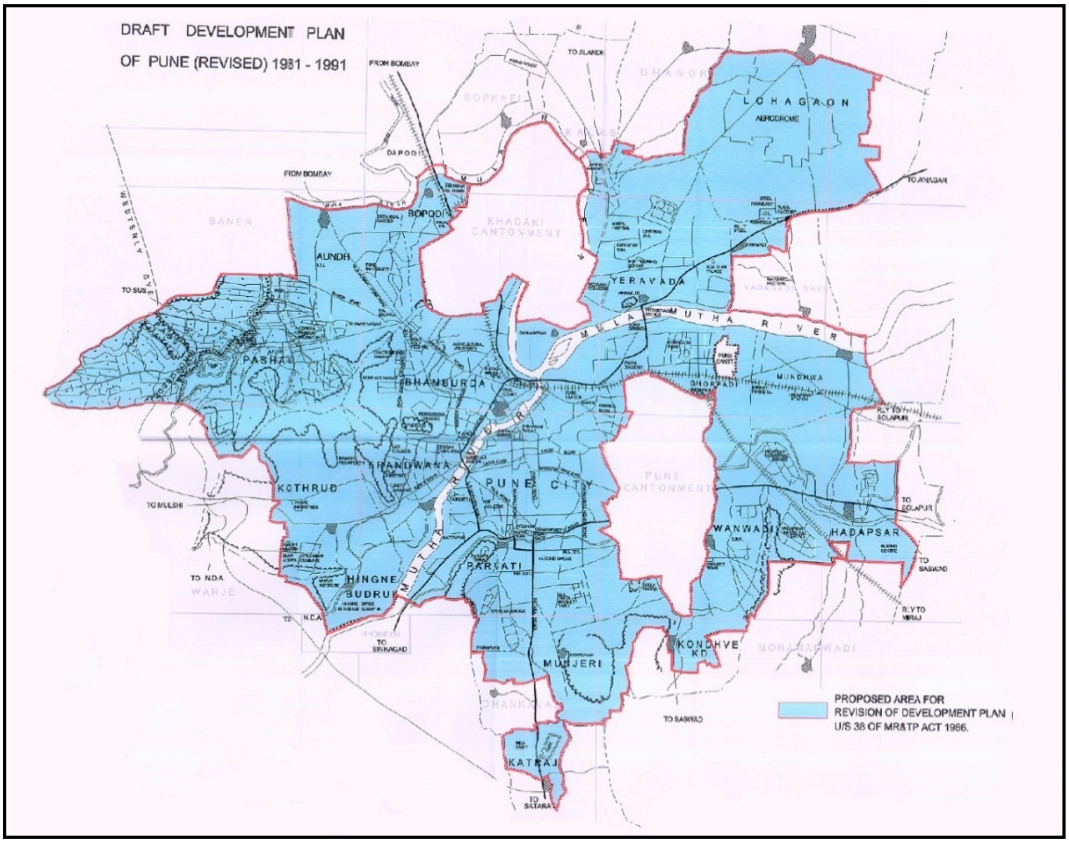


Figure No. 5-1 Map showing boundaries of Draft Development plan of Pune

5.2 DECLARATION OF INTENTION

Under the provisions of section 38 of MR&TP Act 1966, at least once in twenty years from the date on which a development Plan has come into operation the Planning Authority shall revise the Development Plan.

The Planning Authority has intented to revise the 1987 Development plan as per section 38 of MR&TP Act 1966, vide resolution no 512 dated 13th Dec 2007.Annexed here by in this report in ANNEXURE A.

5.3 APPOINTMENT OF TOWN PLANNING OFFICER.

Under the provisions of section 24 of MR&TP Act 1966, after the declaration of the intention to revise the development plan, the general body of the Pune Municipal Corporation with prior sanction of the State Government has appointed the City Engineer, Mr Prashant. M. Waghmare as the Town Planning Officer, vide resolution 512 dated 23.2.2007. The deputy director of town planning department, vide letter dated 8th dec 2007 has given approval to the appointment of the City Engineer, Mr Prashant. M. Waghmare, as the Town Planning Officer for the revision of the development plan hereby annexed in this report in ANNEXURE A.

5.4 PREPARATION OF EXISTING LAND USE.

Under the provisions of section 25 of MR&TP Act 1966 after the declaration of the intention to revise the development plan, the work of existing land use has been carried out.

5.5 EXTENSION TO THE PUBLICATION OF DRAFT DEVELOPMENT PLAN U/S 21(1) OF THE SAID ACT, GRANTED BY STATE GOVERNMENT

i) From 13th Dec 2009 to 12th Dec 2010.

ii) Extension sought from the State Government from 12th Dec2010 to 11th Dec 2011.

CHAPTER NO 6

BASE MAP FOR REVISED DEVELOPMENT PLAN

6.1 INTRODUCTION

An accurate base map to a scale as prescribed under the Act, is required for the preparation of a development plan. The most basic pre-requisite for preparation of any statutory plan is the up to-date base map for the entire area to be included in the Plan. The revision process of old city limits comprises of the area for which the earlier DP has been sanctioned in 1987 excluding Dapodi area and including the area of Pashan- Sutarwadi for which Development Plan is sanctioned in 1992. The area for the city in the 1987 DP plan was divided into six sectors. Combined maps and detailed sheets to the scale of 1: 10,000 for the entire municipal area and to the scale of 1 : 2000 respectively for the congested area in the city were prepared.

6.2 BASE MAP

For preparation of the base map, following procedure was adopted. By taking advantage of modern survey techniques such as Total station machines, Differential Global Positioning System (DGPS), etc, ground features were collected and a geo-referenced base map was prepared for the city. In this survey, all the street furniture, buildings/ structures along roads but falling under specified buffer and reservation areas were picked up with their ground co-ordinates. This entire survey was based on a traverse referred with DGPS points already established all over the city, which was projected to UTM co ordinates for working purpose. For Geo referencing, WGS1984 (World Geodetic Survey), latest datum level and UTM43North (Universal Transverse Mercator) is the projection system, adopted for Pune City survey sheets the entire city, village maps, 1987 DP maps of different scales, TP Scheme maps were scanned and digitized, the output of all layers was exported in GIS format with necessary attribute data. Base map with geographic co-ordinates was introduced in development planning process and approximate revenue boundaries (survey boundaries) was also shown based on data available from Land Records Department. The above procedure was adopted and the base map prepared was used for preparing the proposed land use plan.

CHAPTER NO 7

EXISTING LAND USE FOR REVISED DP 1987 FOR OLD LIMITS OF PUNE MUNICIPAL CORPORATION

7.1 INTRODUCTION

Study of the existing land use pattern of the city and the growth trends is very important in the context of visualizing the perspective of the future land use pattern. As per section 25 of the MR&TP Act 1966, it is obligatory to prepare an existing land use Plan for the proposed development plan area of the city. The existing land use survey is an important and basic study which enables the planners to understand the character of existing development, activity pattern of the city, aids in making a proper analytical study of socio-economic and physical conditions of the city and in foreseeing the future growth trends.

The master plan for the Pune city was prepared in the year 1952. The first development plan was prepared in 1966, which was revised and sanctioned by Govt. on 5th January 1987. The D.P. for Sutarwadi area was sanctioned in 1992. An intention was declared to revise the development plan, as per the provisions of section 38 of MR&TP act 1966, vide general body resolution no. 512 dated 23 rd, February 2007. According to the provisions of section 25 of the MR&TP Act 1966, the work of preparation of the existing land use for the old PMC area was assigned to the College of Engineering Pune.

The Planning Team in the old city area carried out an exhaustive land use survey and data was collected in forms specially designed for the purpose. The format in which information was collected by the survey parties is appended at ANNEXURE B

7.2 BASE MAP FOR ELU

The base map used for the existing land use survey is described in chapter no 6 of this report. These maps have been used for the existing land use survey. The total city comprises of about 60 - 65 thousand properties, which have been surveyed. Major Land uses that have been observed are residential, commercial, mixed land use, public and semipublic, industrial, recreational etc. The data so collected has been taken on GIS format on various layers and various themes were worked out, analyzed and mapped in upto date manner.

7.3 COLOUR CODE OF THE LAND USE

As per the UDPFI guidelines and various land uses prescribed, there is a colour code for each land use prescribed by the state Govt. The same has been followed by the College of Engineering Pune by marking the land use on map and recording in this format. By making use of the advanced GIS technique, information was input in different layers. This is a major improvement in the procedure of preparation of DP. In the earlier DP, this latest technology was no available. As a result, the entire process of carrying out the ELU, representing and analyzing was extremely cumbersome. List of users shown on ELU map is as below and the colour code used attached in ANNEXURE B.

List of land uses

Residential,
Mixed use,
Fully commercial,
Public semi public,
Public utilities (water supply, sewerage, burial ground, crimination ground, garbage disposal etc.)
Defense,
Industrial,
Transport,
Recreation,
Agricultural,
Water bodies,
Hill top- hill slope,
Forest,
Vacant,
Slum,
Area Under construction,
Roads

7.4 SCENARIO AS REGARDS EXISTING LAND USE OF 1987 DP

In 1987 DP, the entire data of the existing land use was collected during the process of the survey and mapping was done for the same. Findings and conclusions were arrived at, after the detailed analysis of the existing land use.

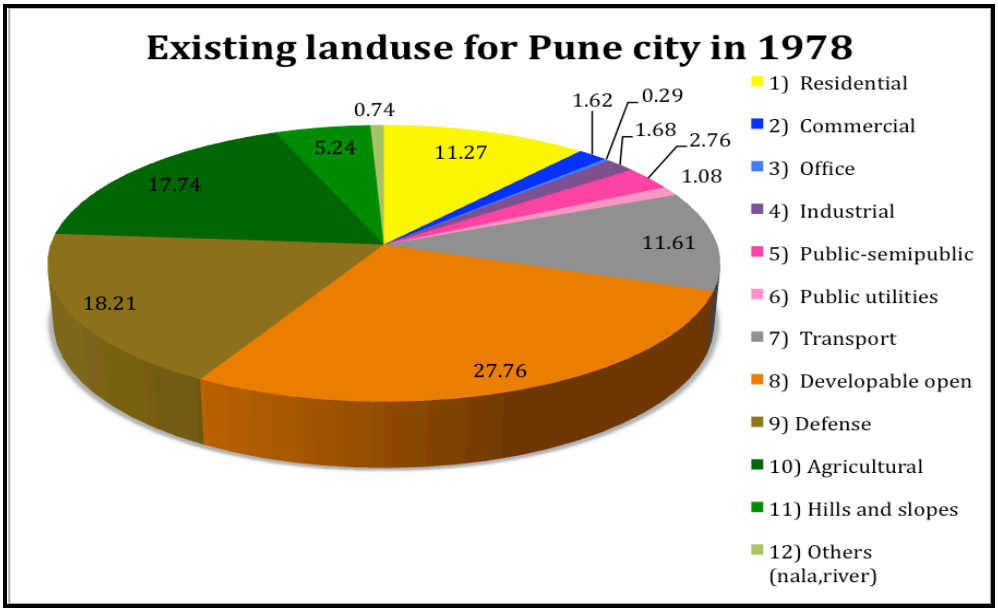


Figure No 7-1 ELU for Pune city 1978

Table No. 7-1 Land use analysis of the ELU of 1987 DP (Base year being 1978-79)

Major land use	% of total area	Major land use	% of total area
1) Residential	11.27	7) Transport	11.61
2) Commercial	1.62	8) Developable open	27.76
3) Office	0.29	9) Defense	18.21
4) Industrial	1.68	10) Agricultural	17.74
5) Public-semipublic	2.76	11) Hills and slopes	5.24
6) Public utilities	1.08	12) Others (nalas and rivers)	0.74

Above broad categories of the land use, as in 1978-79 survey, were considered in the future planning and in formulating proposed land use proposals.

7.5 Proposed land use of 1987 DP

Table No. 7-2 Proposed land use 1987 DP			
Major land use	**% of total area**	**Major land use**	**% of total area**
1) Residential	36.55	7) Transport	15
2) Commercial	1.7	8) Developable open	8.7
3) Office	0	9) Defense	9
4) Industrial	5.25	10) Recreational	9.8
5) Public-semipublic	11	11) Water bodies	1.7
6) Public utilities	1		

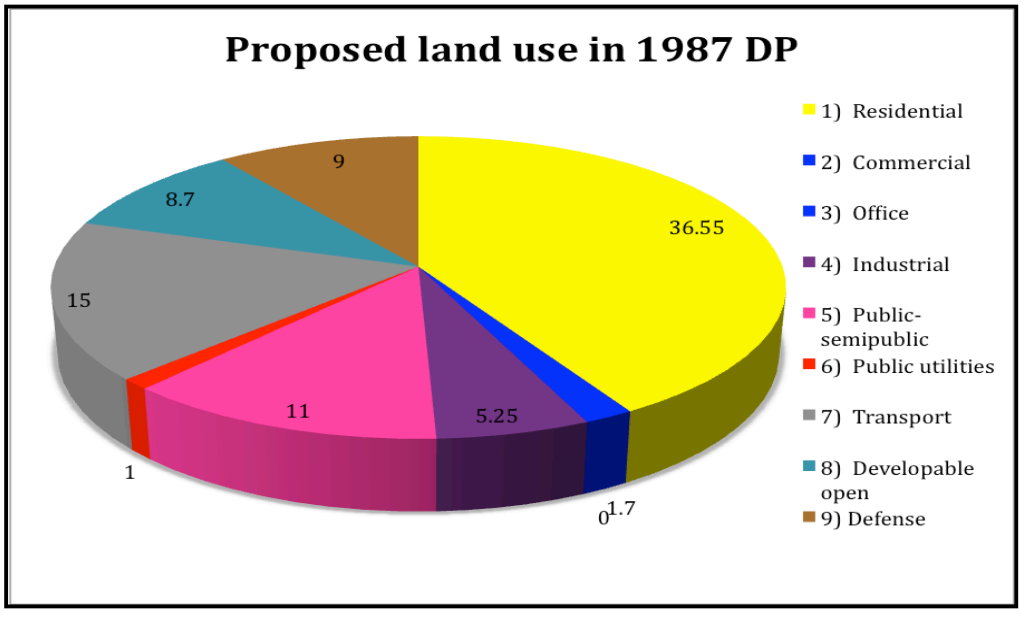


Figure No. 7-2 Proposed land use in 1987 DP

7.6 Character of the existing land uses in the city

Pune City is a metro city and has also attained a global character during the last three decades. As a result, the character of the existing use of the land is of complex nature. The city has not developed in conventional manner, but it consists of such users which are of multiple nature. In 1987 DP, this multiple character of the city as metro city has been studied since 1965, when the city had started experiencing the influence of the industrial development that was taking place around the city i.e in the neighbouring Pimpri-Chinchwad area, due to development of large Industrial Townships set up by M.I.D.C.

Major Land uses that have been identified are Residential, Mixed use, commercial, Public semi public, Public utilities (water supply, sewerage, burial ground, cremation ground, garbage disposal etc.) Defense, Industrial, Transport, Recreation, Agricultural, Water bodies, Hill top- hill slope, Forest, Vacant, Slum, Roads. Etc.

Table No 7-3 EXISTING LANDUSE SURVEY DETAILS . SECTOR I

ZONE	%	ZONE	%
Agriculture(A)	0.00	Residential(R)	21.41%
Commercial(C)	4.11%	Recreational Spaces(RS)	0.84%
Defence(D)	0.00%	Slum(SL)	0.27%
Hill slope(HL)	0.00%	Transport & Comm(TC)	0.10%
Industrial(I)	0.08%	Under Construction(UC)	0.08%
Mix Land use(ML)	34.34%	Vacant (VL)	0.65%
Public-Semi Public**(PSP)**	13.15%	Water bodies (WB)	0.00%
Public Utilities(PU)	1.31%	ROADS (RD)	23.66%

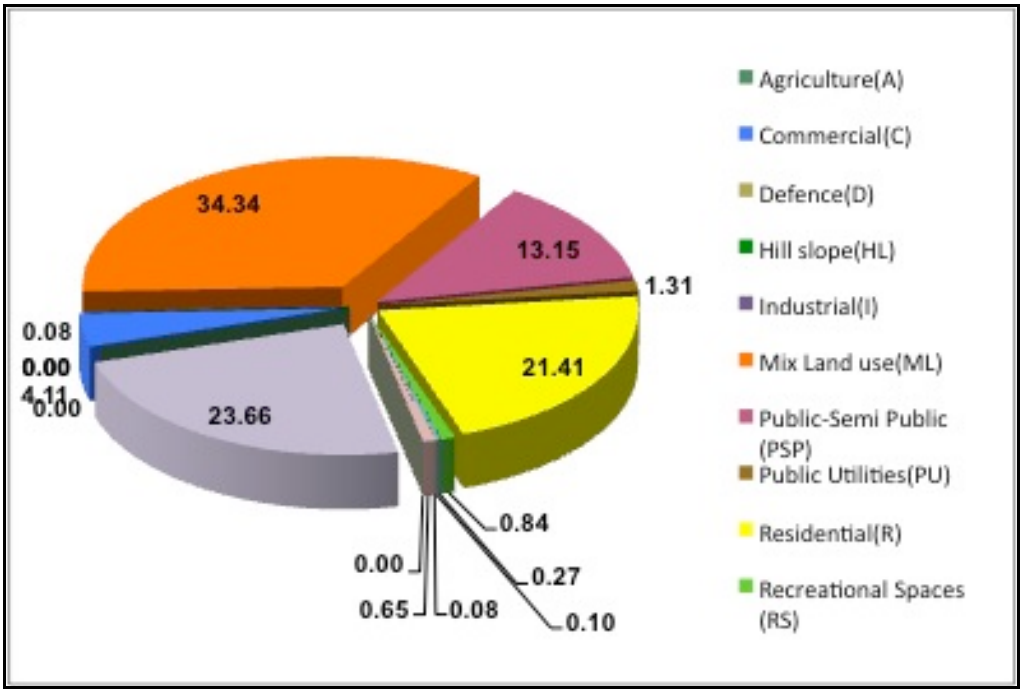


Figure No 7-3 Pie diagram for Existing Landuse Sector-I.

Table No 7-4 EXISTING LANDUSE SURVEY DETAILS . SECTOR II			
ZONE	**%**	**ZONE**	**%**
Agriculture(A)	0.16%	Residential(R)	25.25%
Commercial(C)	4.54%	Recreational Spaces(RS)	6.03%
Defence(D)	0.00%	Slum(SL)	4.87%
Hill slope(HL)	12.84%	Transport & Comm(TC)	1.15%
Industrial(I)	0.84%	Under Construction(UC)	0.41%
Mix Land use(ML)	6.12%	Vacant (VL)	6.37%
Public-Semi Public**(PSP)**	8.22%	Water bodies (WB)	4.55%
Public Utilities(PU)	1.83%	ROADS (RD)	16.83%

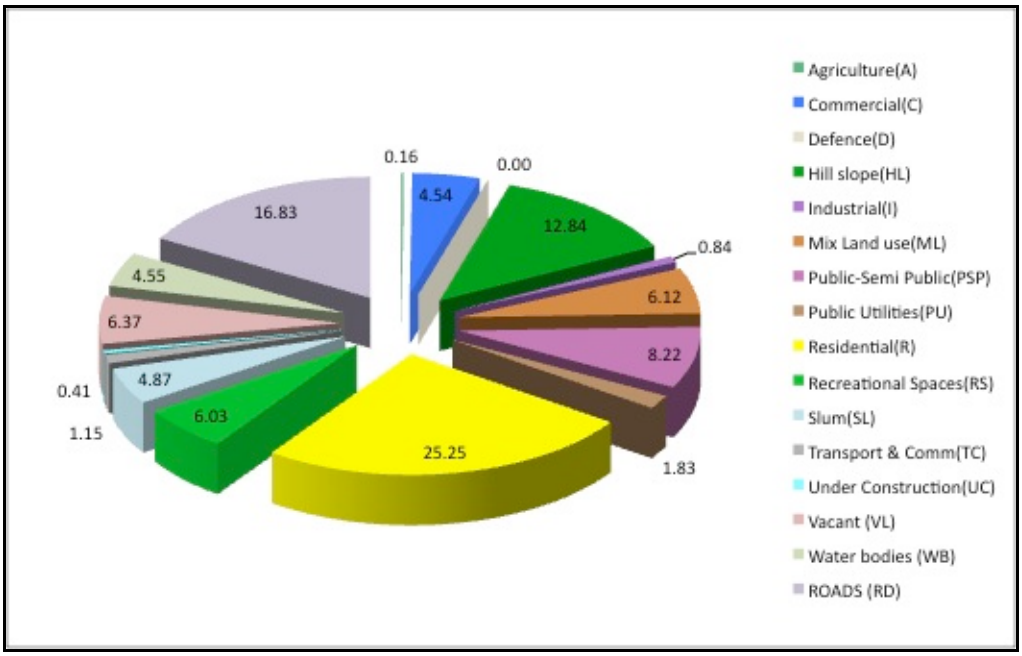


Figure No 7-4 Pie diagram for Existing Landuse Sector-II

Table No 7-5 EXISTING LANDUSE SURVEY DETAILS SECTOR III

ZONE	%	ZONE	%
Agriculture(A)	0.29%	Residential(R)	28.85%
Commercial(C)	2.45%	Recreational Spaces(RS)	2.99%
Defence(D)	2.63%	Slum(SL)	4.14%
Hill slope(HL)	18.26%	Transport & Comm(TC)	0.02%
Industrial(I)	1.36%	Under Construction(UC)	0.15%
Mix Land use(ML)	6.47%	Vacant (VL)	4.62%
Public-Semi Public**(PSP)**	9.04%	Water bodies (WB)	8.49%
Public Utilities(PU)	0.50%	ROADS (RD)	9.74%

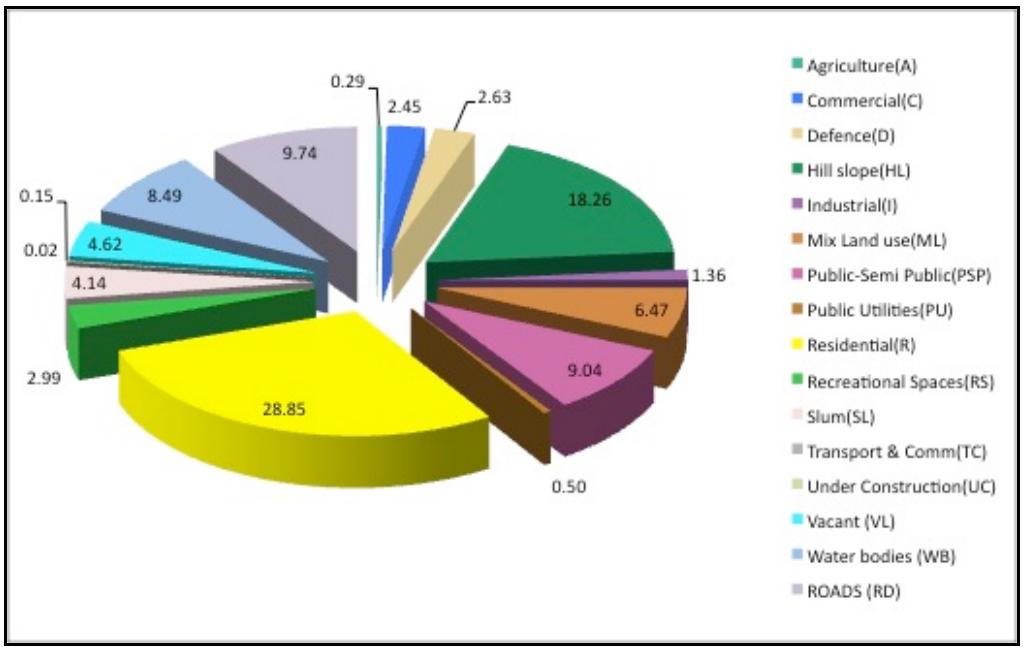


Figure No 7-5 Pie diagram for Existing Landuse Sector-III

Table No 7-6 EXISTING LANDUSE SURVEY DETAILS . SECTOR IV			
ZONE	**%**	**ZONE**	**%**
Agriculture(A)	0.20%	Residential(R)	21.42%
Commercial(C)	1.82%	Recreational Spaces(RS)	2.22%
Defence(D)	1.96%	Slum(SL)	3.08%
Hill slope(HL)	13.56%	Transport & Comm(TC)	0.02%
Industrial(I)	1.01%	Under Construction(UC)	0.11%
Mix Land use(ML)	4.80%	Vacant (VL)	3.43%
Public-Semi Public**(PSP)**	6.71%	Water bodies (WB)	6.31%
Public Utilities(PU)	0.37%	ROADS (RD)	32.97%

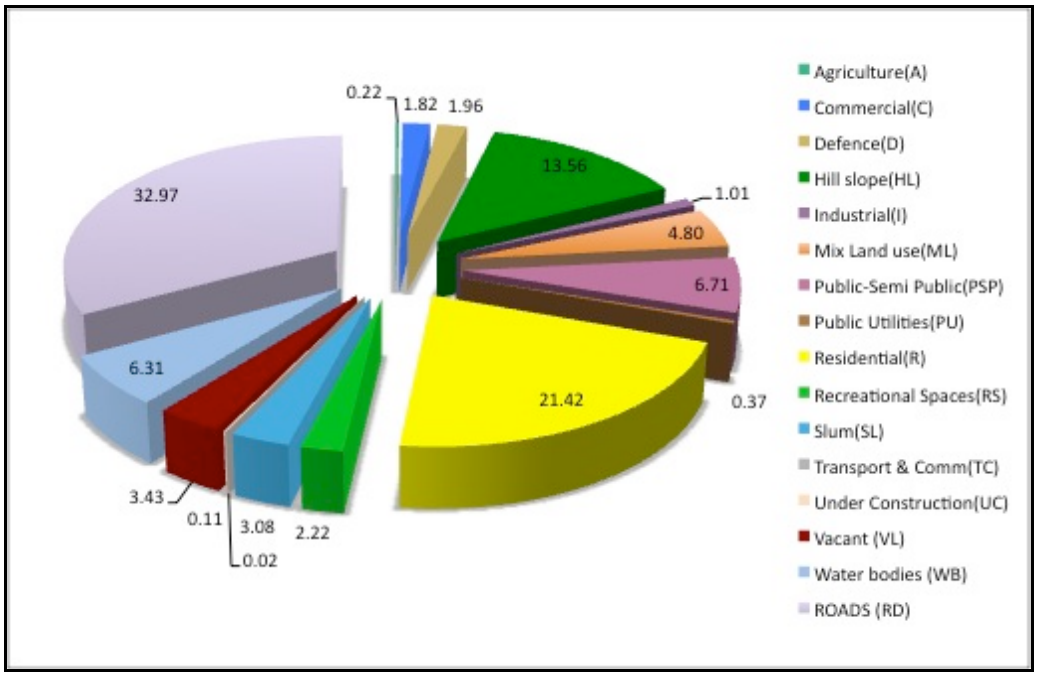


Figure No 7-6 Pie diagram for Existing Landuse Sector-IV

Table No 7-7 EXISTING LANDUSE SURVEY DETAILS . SECTOR V			
ZONE	**%**	**ZONE**	**%**
Agriculture(A)	19.10%	Residential(R)	9.94%
Commercial(C)	1.56%	Recreational Spaces(RS)	3.45%
Defence(D)	30.55%	Slum(SL)	2.49%
Hill slope(HL)	0.32%	Transport & Comm(TC)	0.07%
Industrial(I)	0.69%	Under Construction(UC)	1.59%
Mix Land use(ML)	1.55%	Vacant (VL)	7.77%
Public-Semi Public**(PSP)**	12.65%	Water bodies (WB)	2.36%
Public Utilities(PU)	0.29%	ROADS (RD)	5.62%

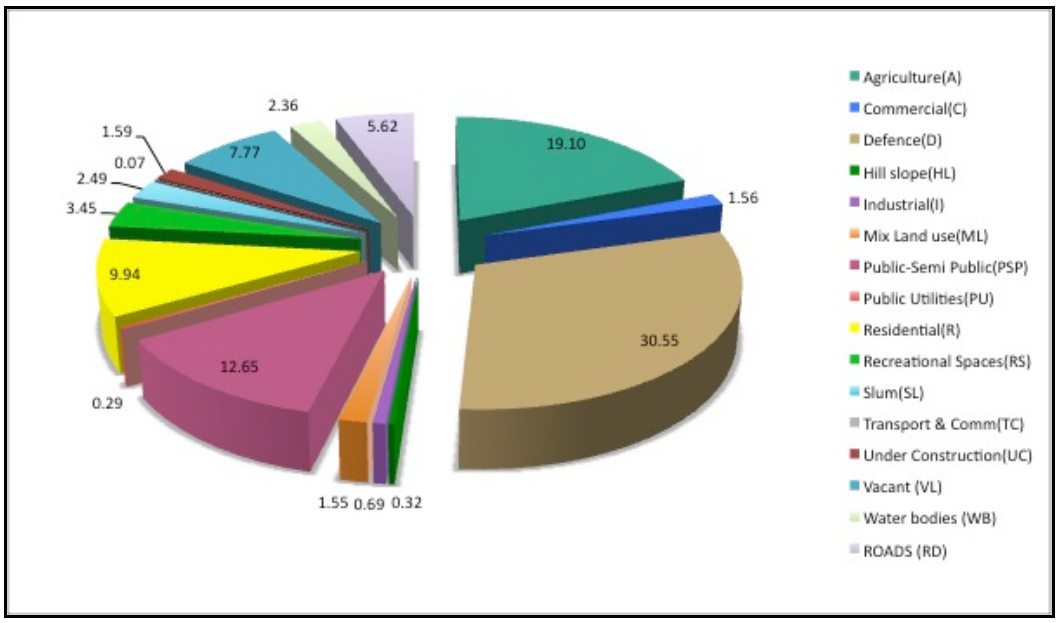


Figure No 7-7 Pie diagram for Existing Landuse Sector-V

Table No 7-8 EXISTING LANDUSE SURVEY DETAILS . SECTOR VI

ZONE	%	ZONE	%
Agriculture(A)	5.44%	Residential(R)	20.78%
Commercial(C)	2.76%	Recreational Spaces(RS)	5.80%
Defence(D)	3.83%	Slum(SL)	1.93%
Hill slope(HL)	2.71%	Transport & Comm(TC)	3.32%
Industrial(I)	5.00%	Under Construction(UC)	0.14%
Mix Land use(ML)	2.99%	Vacant (VL)	11.63%
Public-Semi Public**(PSP)**	8.28%	Water bodies (WB)	11.16%
Public Utilities(PU)	2.30%	ROADS (RD)	11.92%

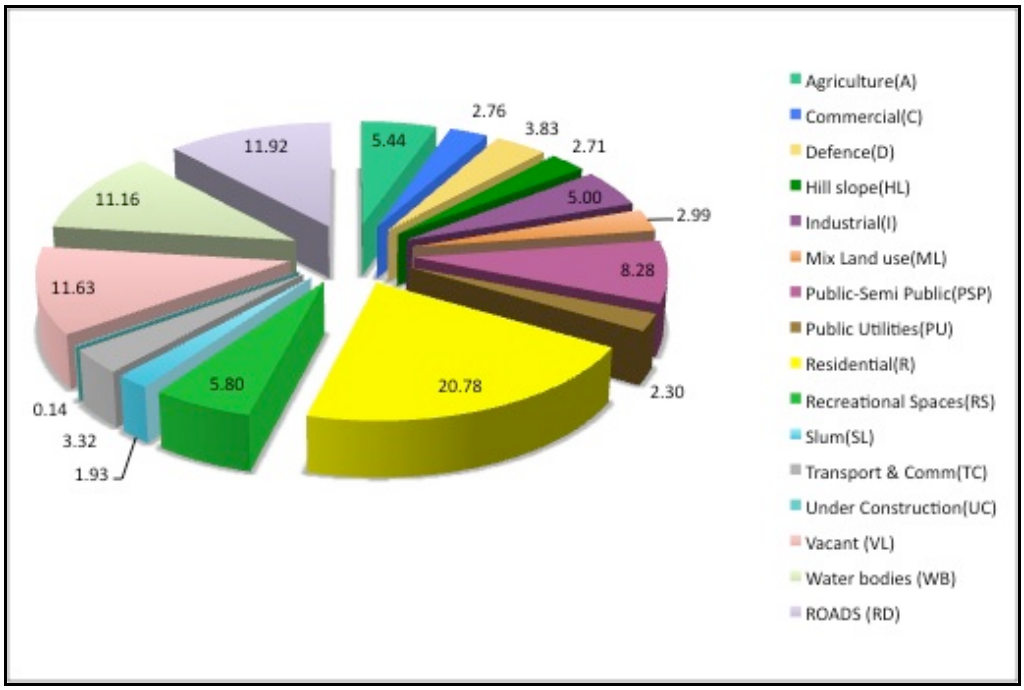


Figure No 7-8 Pie diagram for Existing Landuse Sector-VI

Table No 7-9 EXISTING LANDUSE SURVEY DETAILS . SECTORS I TO VI			
ZONE	%	ZONE	%
Agriculture(A)	5.52%	Residential(R)	20.48%
Commercial(C)	2.54%	Recreational Spaces(RS)	3.89%
Defence(D)	8.41%	Slum(SL)	3.01%
Hill slope(HL)	8.38%	Transport & Comm(TC)	0.92%
Industrial(I)	1.82%	Under Construction(UC)	0.49%
Mix Land use(ML)	5.26%	Vacant (VL)	6.70%
Public-Semi Public(PSP)	9.19%	Water bodies (WB)	6.37%
Public Utilities(PU)	1.04%	ROADS (RD)	15.99%

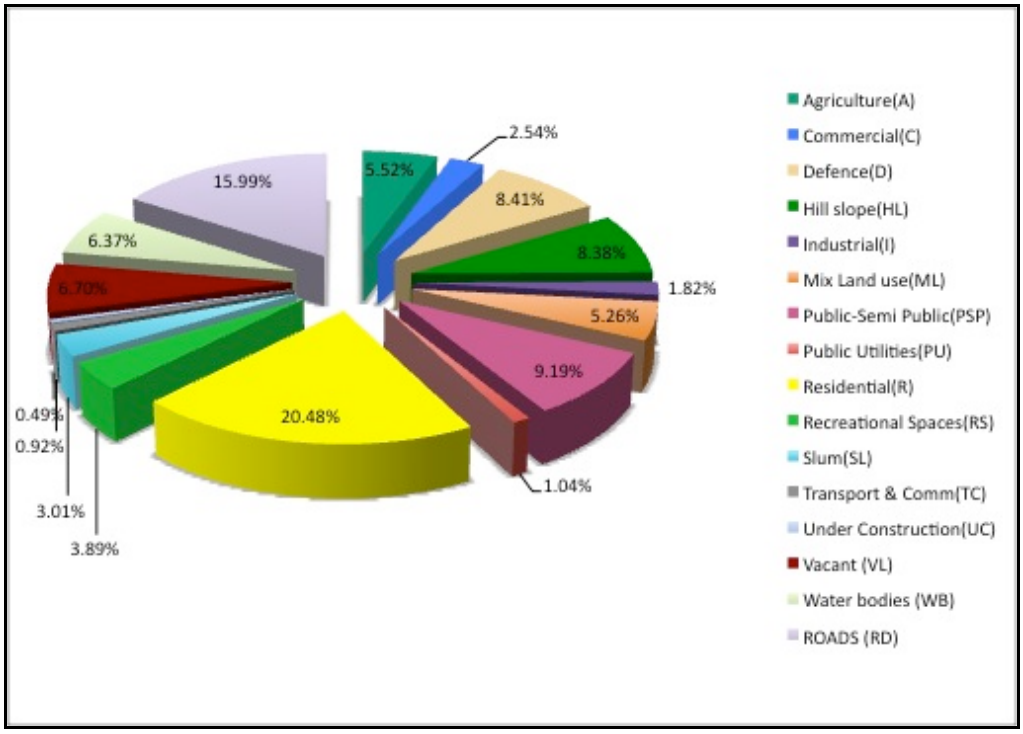


Figure No 7-9 Pie diagram for Existing Landuse Sector-I – VI

The total area of the city has been worked out by the actual total station survey carried out on site, which is exactly as per city survey boundaries. A difference can be found between the area statement calculations in 1987 DP report and the actual calculations carried out now.

CHAPTER 8

DEMOGRAPHIC PROJECTIONS

8.1 INTRODUCTION

Urbanization is always interpreted as an indicator of development. The anticipated population growth patterns drive most of the important planning policies. The Development Plan is prepared for a city and as per the provisions of the Maharashtra Regional and Town Planning Act 1966; it is revised once in twenty years. Projection of population for the end of the first and second decade is an essential exercise which is to be carried out. The projected population is an important input into the forecasts of housing demand and thus land requirements for housing land available for the use and provision of social amenities for the projected population.

8.1.1. Major objectives of this study were

1) To carry out the population projection for the year 2017 and 2027.

2) To work out details like break up by age & sex.

3) To estimate the working population in the city.

4) To estimate the migration in the city.

5) To estimate the school going population.

8.1.2. Population Projection

The work of projecting the population and determining its occupational structure was entrusted to Gokhale Institute of Politics and Economics Pune. A copy of the report is kept in office of the DP Cell.

8.1.3. GROWTH OF POPULATION IN PUNE CITY

Like many other cities, Pune is experiencing considerable growth due to migration as well as natural increase. The decade trend of population growth of Pune Municipal Corporation from 1991 to 2011 is as follows,

Table No. 8-1 Trend of population growth of PMC for the decade from 1991 – 2001

Year	Population (Lac)	Growth rate (%)
1901	1.53	N.A.
1911	1.59	3.60 (+)
1921	1.99	25.00 (+)
1931	1.98	--
1941	2.58	30.00 (+)
1951	4.88	90.00 (+)
1961	6.07	24.00 (+)
1971	8.56	41.00 (+)
1981	12.03	41.00 (+)
1991	15.67	30.00 (+)
2001	25.38	62.00 (+)
2011	31.15	22.73

The population of the city in 1991 was 15.66 lakhs, 38 villages were added to the old PMC area in 1997. The population in 2001 was 25.38 lakhs. Natural growth and moderate amount of migration and territorial expansion were the main contributors for population growth. The population growth in 1991 was 30.2% and in 2001 was 62.0%.

The population of the old city in 2001 was 18,55,476. In the future, it is expected that the urban core population will actually decrease, while the growth rate of the suburban and urban fringe population will accelerate.

8.3 Methods of Population Projection

8.2.1 Component method of Population projection

In this method, assumptions about the future trends in all the three components of population growth **(fertility, mortality & migration)** are made & then the different predicted components are combined to give the projected population for the city.

8.2.1.1 Fertility

In case of fertility and mortality, the estimates from the sample registration system (SRS) are used. The level of TFR (total fertility rate) for urban Maharashtra is 2.1. Pune city does not have different TFR from urban Maharashtra.

The Sample Registration System data on TFR for urban Maharashtra revealed that for 1996 TFR was 2.4, for 2003 it was 2.1, while in 2004 it was 1.9.

Table No. 8-2 TFR for Pune

TFR	2001-06	2006-11	2011-16	2016-21	2021-26
Value	2.1	1.9	1.8	1.8	1.7

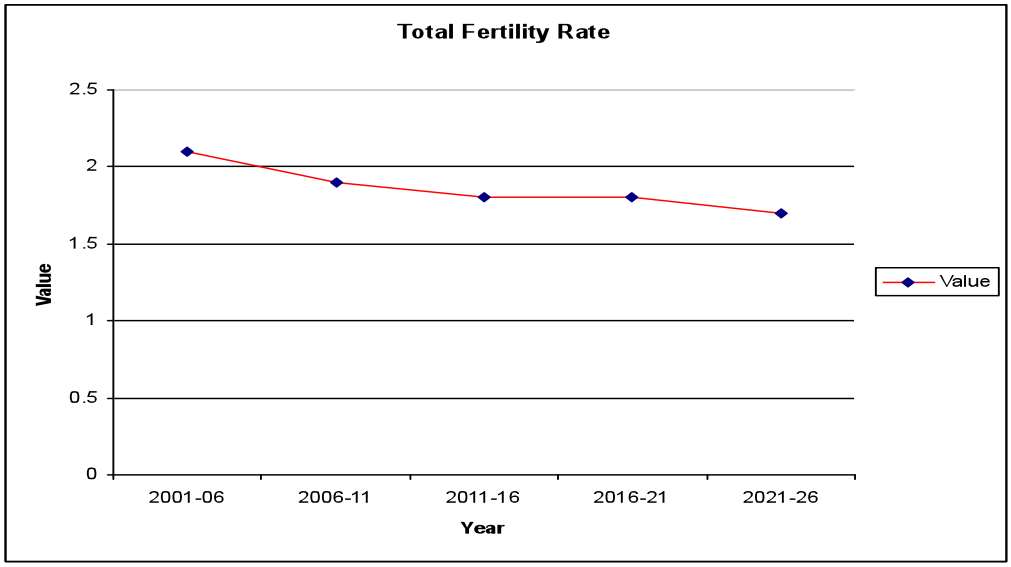


Figure No. 8-1. Total Fertility rate

8.2.1.2. Mortality

Projections are required for male & females separately starting with birth.

It was necessary to know the value of sex-ratio at birth for current and future years. Mortality pattern is always represented through e^0 (expectation of life at birth).

Table No. 8-3 Mortality pattern Consideration for Pune city					
Years e^0	2001-06	2006-11	2011-16	2016-21	2021-26
Male	70	71.5	72.5	73.5	74.5
Female	73.5	75.0	75.5	76.0	76.5

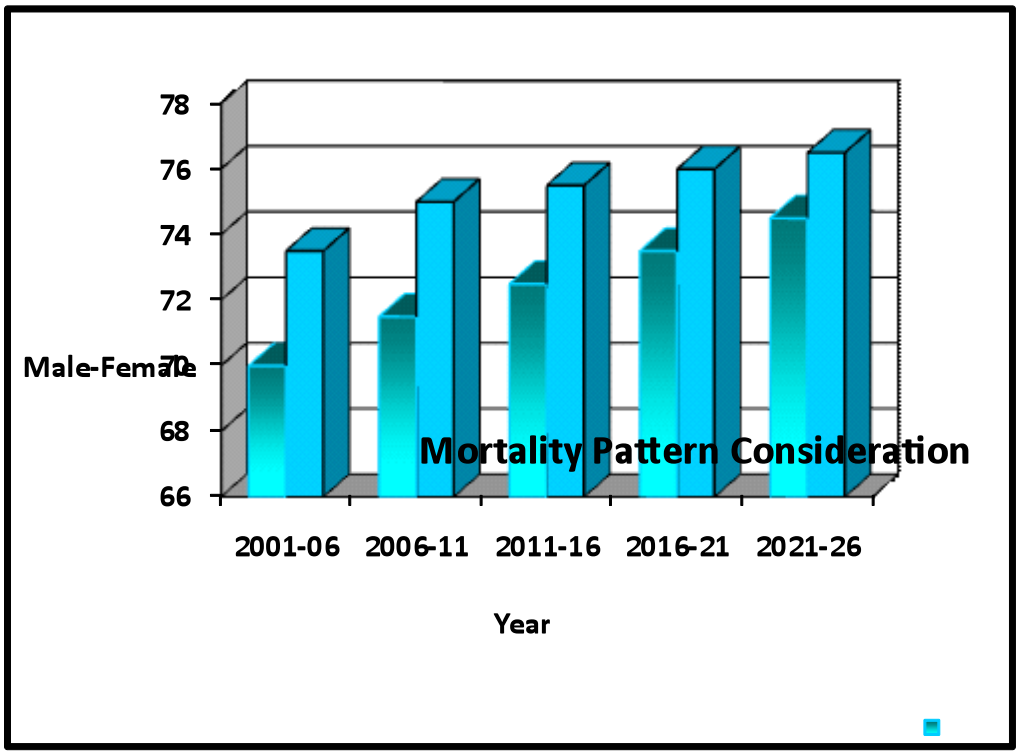


Figure No. 8-2 Mortality pattern

8.2.1.3. Migration

Migration is the most crucial component for growth of any city. The nineties witnessed huge changes on the economic front on account of New economic Policies, which were reflected in the speedy expansion of the Information Technology sector. Initially, Hyderabad and Bangalore took the lead, but Pune has been moving rapidly in the last decade. Large-scale IT parks are mainly functioning at Hinjewadi, Talawade, Kharadi and Hadapsar.

Pune is growing with an expanding IT sector. It was observed that during 1981-91, there were 3.1 lakh in-migrants in the urban agglomeration, while during 1991-2001, the figure went up to 7.4 lakhs, amounting to about 13 to 20 percent of the total population. It was also observed that the proportion of intra-state migrants coming for employment was 32% for 1991-2001, while the same was 22% for 1981-91. Proportion of migrants coming for employment has risen significantly. Among others reasons, movement of family for work is prominent, accounting for 41% of the intra-state migrants. It is stated that during 1991-2001, 3.6 lakhs of migrants came to Pune City i.e @ 23% for the recent decade, taking into account the expansion of IT activities in Pune during last 7 years & the probable impact on migration.

Table No 8-4 Migration Projections

Year	2001-06	2006-11	2011-16	2016-21	2021-26
Migration %	12%	12%	10%	10%	8%

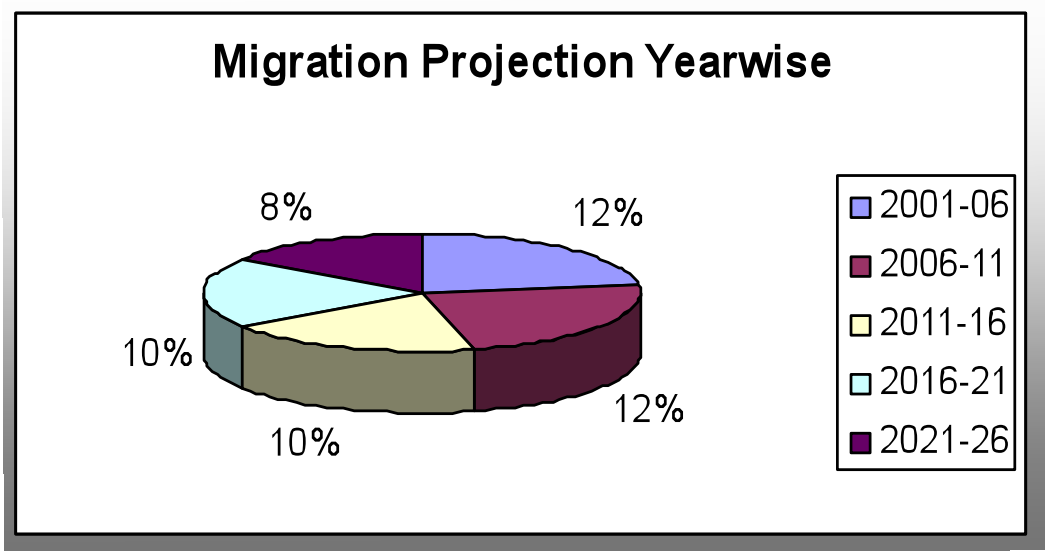


Figure No. 8-3 Projected Migration .

8.2.1.4 . Territorial expansion

Jurisdictional changes do contribute to the population growth. This factor had a noticeable contribution in growth during 1991-2001. In future also, jurisdictional changes in PMC limit are expected. In 1997, 38 villages were included in PMC. However, in the year 2001, 15 complete villages and 5 part villages were de-linked. It is possible that these villages may be merged in PMC, in next few years during 2012-17. The new townships developing along the periphery may also sooner or later be included in PMC limits.

Considering the major aspects of fertility, mortality and migration, the projection of population by Gokhale Institute with the help of software DEMPROJ is as follows:

Table No. 8-5 Projection of population by Gokhale Institute

Year	Population	Male	Female
2001	25,38,473	13,20,438	12,16,410
2007	31,48,041	16,42,049	15,05,992
2012	37,29,694	19,51,413	17,78,281
2017	44,55,574	23,40,923	21,14,651

2022	51,37,671	27,08,460	24,29,211
2027	57,14,890	30,20,329	26,94,561

8.2.1.5 Growth rate

Cities do not grow at the same higher rates for longer periods. Cities, such as Bangalore & Hyderabad which are comparable to Pune have also slowed down.

The annual growth rate % for Pune for the coming years is as follows:

Table No. 8-6 Growth rate Alternative I (high)

Year	Growth rate
1991-2001	4.82
2001-2007	3.6
2007-2012	3.39
2012-2017	3.99
2017-2022	3.23
2022-2027	2.95

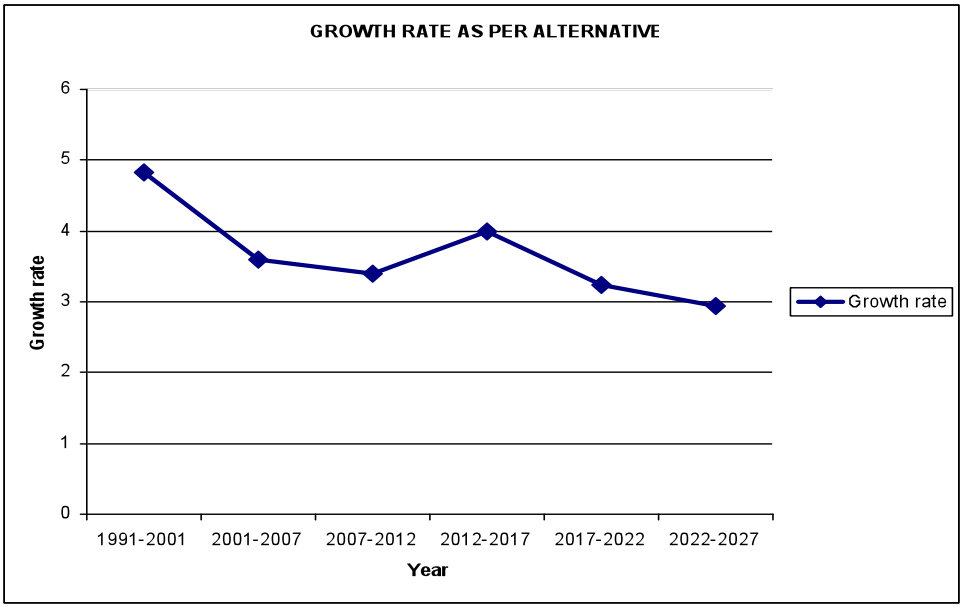


Figure No. 8-4 Growth rate as per alternative I

Table No. 8-7 Growth rate Alternative II (realistic)	
Year	Growth rate
1991-2001	4.82
2001-2007	3.6
2007-2012	3.39
2012-2017	3.56
2017-2022	2.85
2022-2027	2.13

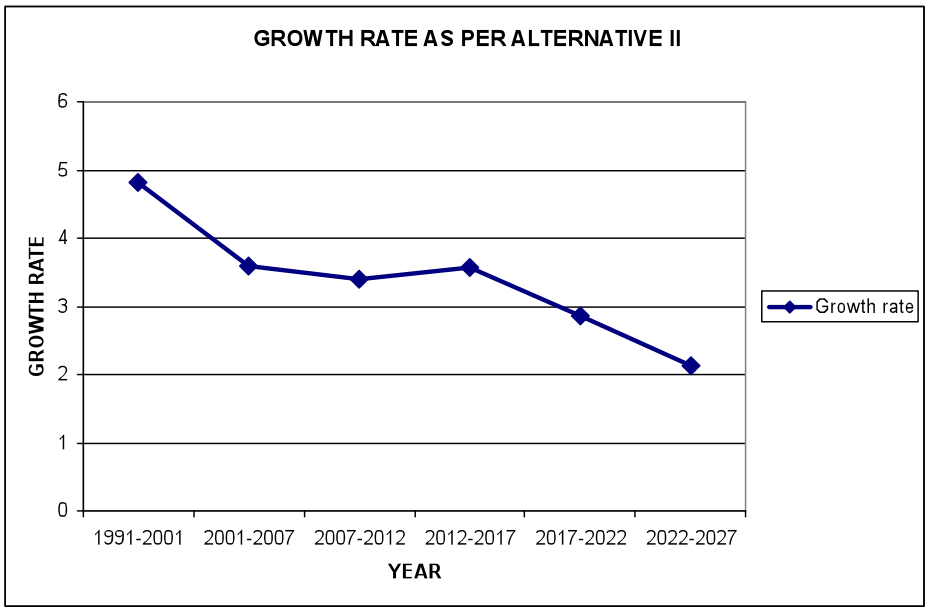


Figure No. 8-5 Growth rate as per alternative II

8.2.1.6. AGE DISTRIBUTION AND SEX RATIO OF PROJECTED POPULATION

Table No 8-8 Age distribution and sex-ratio of projected population for the Old City, 2002-27

2002	Total	Male	Female
0 - 9	327,953	170,525	157,428
10-19	371,383	194,477	176,906
20-29	393,659	206,834	186,825
30-39	308,174	158,293	149,881
40-49	219,245	114,940	104,305
50-59	138,451	73,023	65,428
60-69	87,374	41,871	45,503
70-79	42,515	20,460	22,055
80+	13,080	6,123	6,957
Total	**1,901,834**	**986,546**	**915,288**

2007	Total	Male	Female
0 - 9	370,675	194,341	176,334
10-19	366,999	189,681	177,318
20-29	416,262	223,962	192,300
30-39	368,156	190,248	177,908
40-49	265,038	137,584	127,454
50-59	176,575	91,571	85,004
60-69	100,166	49,105	51,061
70-79	60,312	26,835	33,477
80+	14,060	6,335	7,725
Total	**2,138,243**	**1,109,662**	**1,028,581**

2012	Total	Male	Female
0 - 9	393,855	207,377	186,479
10-19	368,126	192,654	175,473
20-29	426,996	226,796	200,202
30-39	437,398	229,606	207,791
40-49	311,517	161,054	150,463
50-59	211,847	109,945	101,902
60-69	127,617	64,307	63,309
70-79	74,337	32,510	41,827
80+	19,970	8,393	11,577
Total	**2,371,663**	**1,232,642**	**1,139,023**

2017	Total	Male	Female
0 - 9	392,131	207,808	184,321
10-19	426,172	224,946	201,225
20-29	445,572	235,320	210,252
30-39	473,720	254,016	219,703
40-49	374,170	194,784	179,384
50-59	257,821	132,445	125,376
60-69	164,537	81,369	83,168
70-79	89,519	39,925	49,593
80+	26,840	10,620	16,220
Total	**2,650,482**	**1,381,233**	**1,269,242**

2022	Total	Male	Female
0 - 9	412,077	218,887	193,190
10-19	470,597	249,782	220,815
20-29	476,465	255,815	220,651
30-39	511,402	271,143	240,258
40-49	447,947	237,269	210,677
50-59	304,802	156,205	148,597
60-69	199,819	98,983	100,835
70-79	118,029	53,962	64,066
80+	34,582	13,749	20,833
Total	**2,975,720**	**1,555,795**	**1,419,922**

2027	Total	Male	Female
0 - 9	448,493	238,693	209,799
10-19	490,623	262,284	228,338
20-29	563,991	305,308	258,683
30-39	554,197	292,573	261,623
40-49	488,987	264,838	224,150
50-59	367,890	190,042	177,848
60-69	245,535	120,548	124,987
70-79	152,408	68,654	83,754
80+	43,997	17,933	26,064
Total	**3,356,121**	**1,760,873**	**1,595,246**

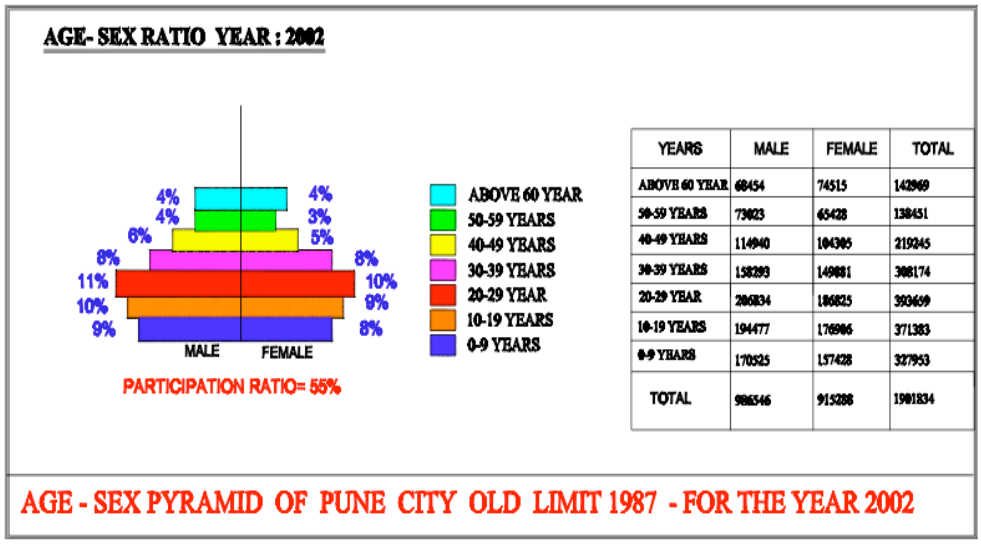


Figure No 8-6. Age –Sex Ratio Year 2002

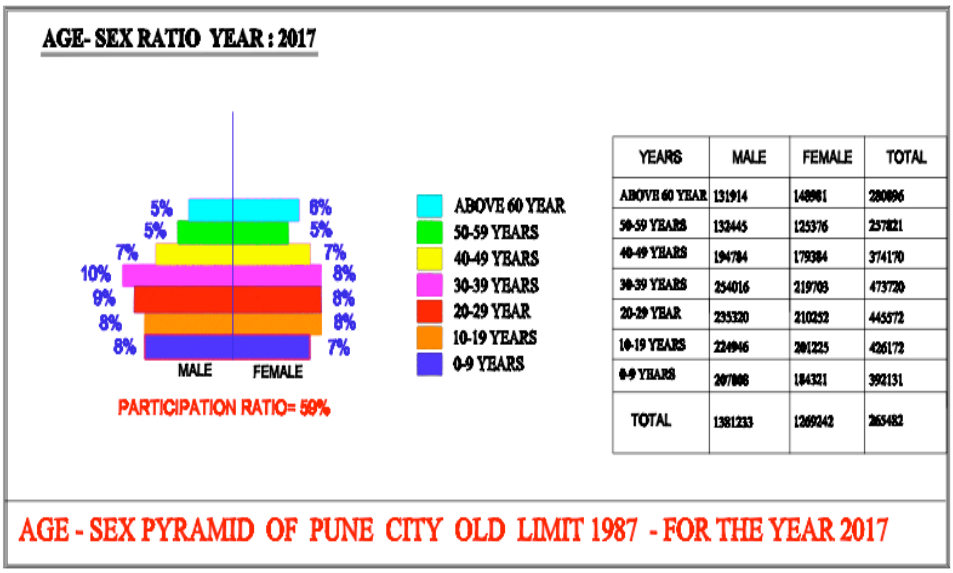


Figure No 8-7. Age –Sex Ratio Year 2017

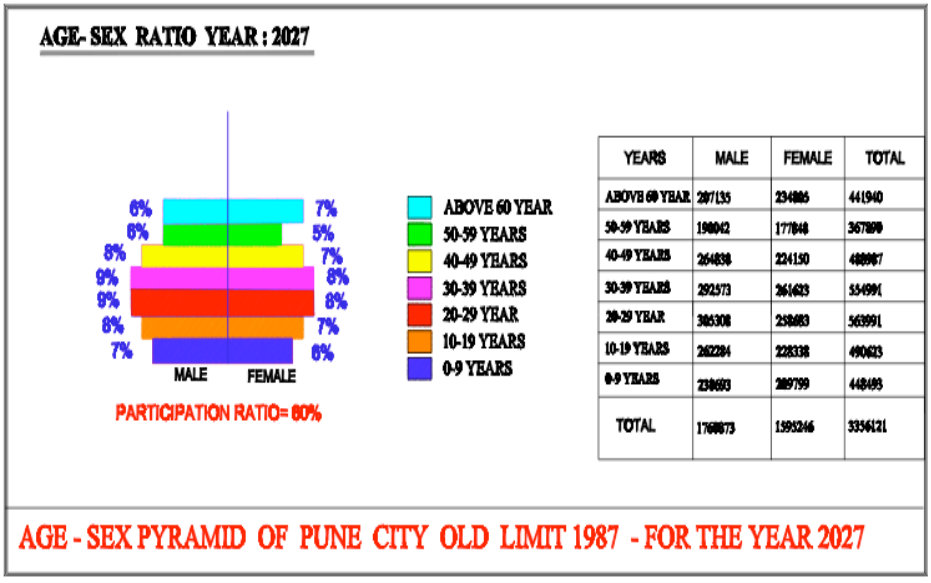


Figure No 8-8 Age –Sex Ratio Year 2027

The broad indicators of the age pattern are as below

Table No 8-9 Age pattern Alternative I						
	2001	**2007**	**2012**	**2017**	**2022**	**2027**
Percentage 0-14 Age group	27.45	25.56	24.96	23.87	22.34	21.18
percentage 65+ Age group	4.85	5.89	6.42	7.13	7.70	8.27
median age in years	26	28	29	30	31	32
dependency ratio	0.48	0.46	0.46	0.45	0.43	0.42

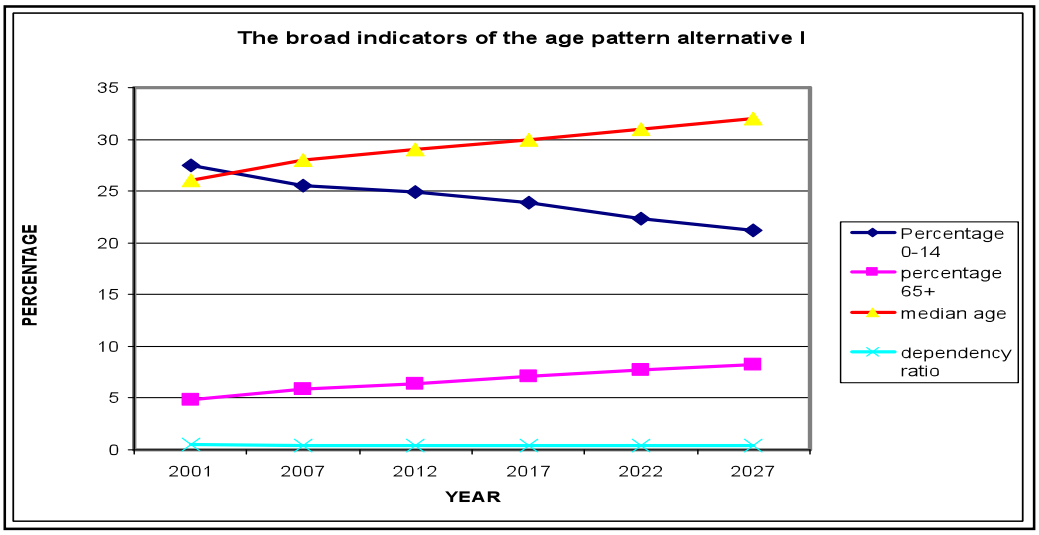


Figure No 8-9 Age pattern alternative I

Table No. 8-10 Age pattern Alternative II						
	2001	**2007**	**2012**	**2017**	**2022**	**2027**
Percentage 0-14 age group	27.45	25.56	24.93	23.74	22	20.83
percentage 65+ age group	4.85	5.89	6.41	7.08	7.65	8.16

median age in years	26	28	29	30	31	33
Dependency ratio	0.46	0.46	0.46	0.45	0.43	0.41

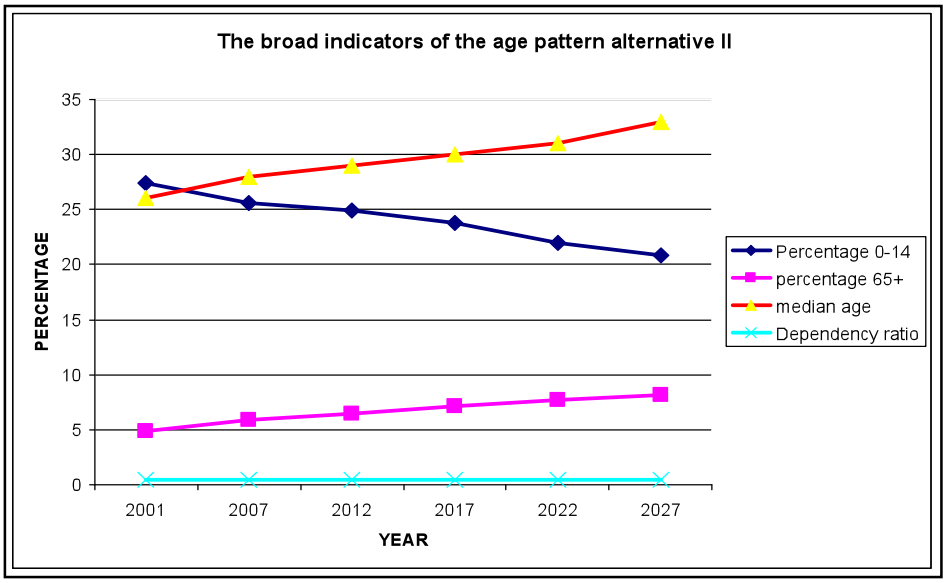


Figure No. 8-10. Age pattern alternative II

Table No. 8-11 Net in-migration	
Year	**Net In-migration**
1991-2001	3,66,983
2001-2007	3,64,263
2007-2012	3,61,488
2012-2017	3,74,930
2017-2022	4,26,304
2022-2027	4,09,413

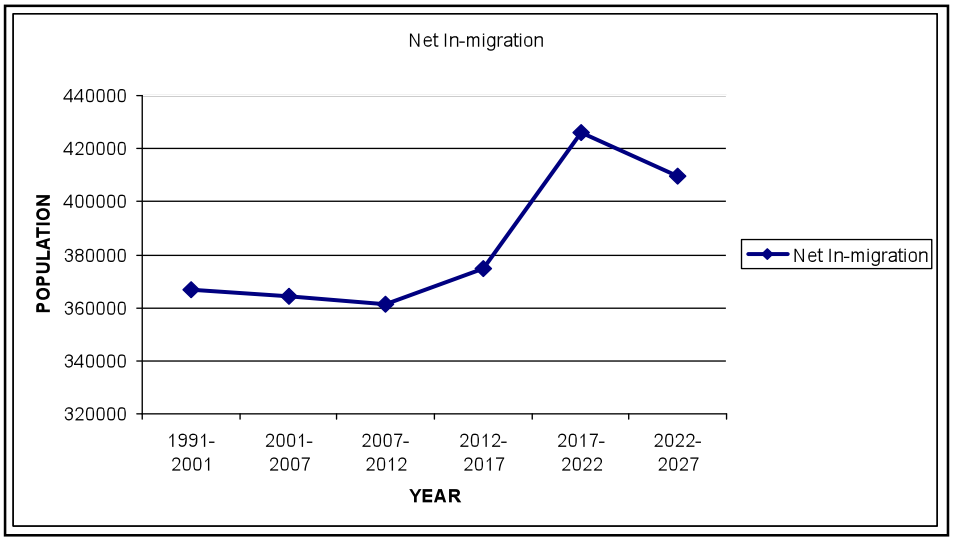


Figure No. 8-11. Net-in-migration

8.2.1.7 Labour Force

The trend in the worker-rate (%) among males & females for 1961-2001 is as follows.

Table No 8-12 Trend in the worker-rate (%) among males & females					
Year	1961	1971	1981	1991	2001
Male	47.06	47.44	47.42	48.03	48.81
Female	10.37	8.11	10.30	12.30	13.67

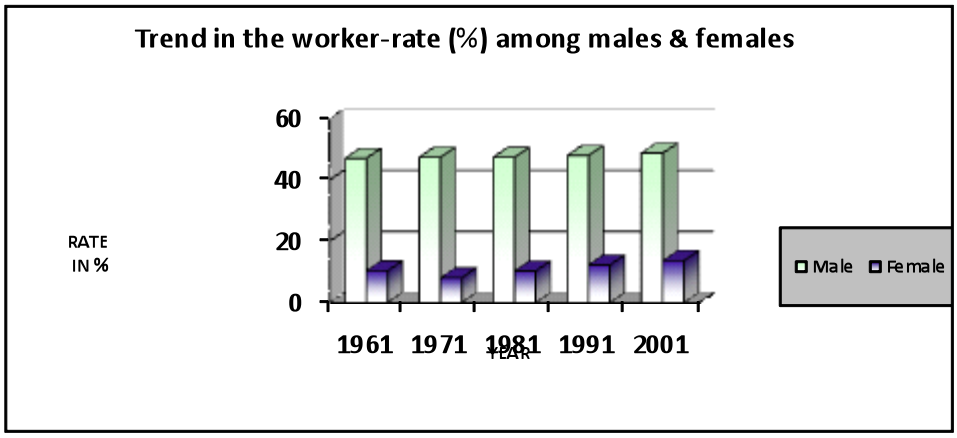


Figure No 8-12 Trends in worker-rate

Taking into consideration the past trend and the availability of the labour-force, the future trend is assumed.

Table No. 8-13 Future trend of labour force		
Year	**Male**	**Female**
2007	49.20	14.60
2012	49.40	15.20
2017	49.60	16.00
2022	49.80	16.80
2027	50.00	17.80

Applying the above rates to the predicted population, we can get the expected number of male and female workers.

8.3 Population Projections for Pune 2027

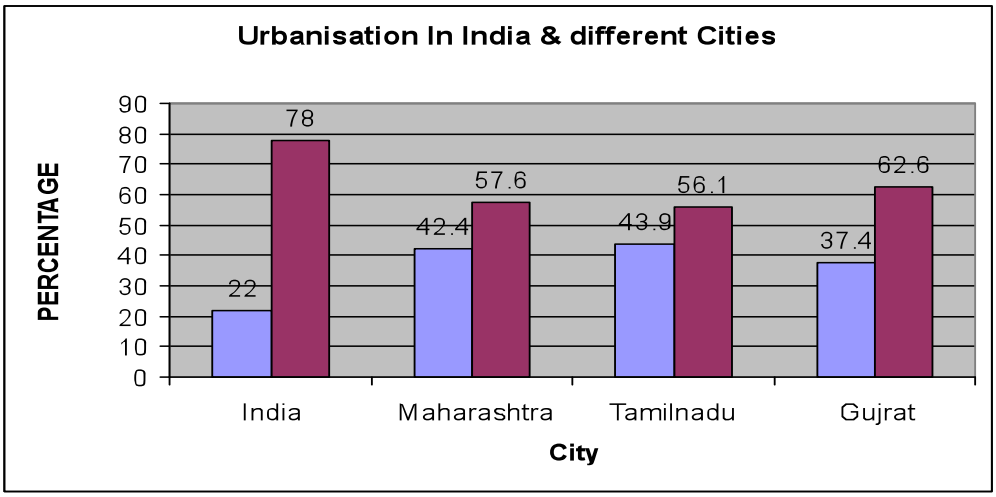


Figure No. 8-13. Urbanisation in India.

Pune is well known as the 'cultural capital' of Maharashtra and also as an educational centre. Growing emphasis to the IT sector, impact of the IT sector on the infrastructural facilities, Real Estate, Housing, etc, move towards decentralization of the IT activities, the adverse impact of rising vehicle ownership on accidental deaths, disparity within the city, impact of American recession on the IT sector in India, need for strengthening the

production sector, rising economic level of Pune city, etc are the major causes of migration in Pune.

The Demographic Projections for Pune had the objectives to carry out the five half-decadal population projections from 2006-2026 (or 2027), to give details like break-up by age and sex, to estimate the number of workers and to estimate the migration. The method used for the projection is the component method, including the components fertility, mortality, migration and territorial expansion.

The projections result in two alternatives, I (high) and II (realistic). The higher scenario expects the population to increase by alternative I (high) from 26 lakhs inhabitants 2002 to 62 lakh in 2027. The corresponding figure for 2027 for the realistic scenario is 57 lakh inhabitants. Updated to 2027, the figures are 62 lakh and 57 lakh respectively. Even if these population figures are very high, they are not in any respect surprisingly high, since the population growth has been very high during a long period of time.

8.4 Territorial Expansion in PMC limit

1) Considering the expansion of PMC limits due to the merger of 23 fringe villages.

2) Assuming the merger of further 15 full and 5 part fringe villages in PMC limit in the near future.

3) Considering the township development in village Nanded, which is likely to be included in the city

4) The earlier identified future urbanisable area admeasuring about 1140 Ha is now converted from agriculture zone to residential zone.

Considering the above factors, software DEMPROJ was applied for the projections and the results thus obtained were found out after carrying out the necessary analysis.

Taking into considerations the various above factors, the realistic option has been taken into account.

Table No. 8-14	Projection for territorial expansion in PMC limit.					
Year	**2001**	**2007**	**2012**	**2017**	**2022**	**2027**
Population	25,38,473	31,48,041	37,29,694	44,55,574	51,37,671	57,14,890
Male	13,20,438	16,42,049	19,51,413	23,40,923	27,08,460	30,20,329
Female	12,16,410	15,05,992	17,78,281	21,14,651	24,29,211	26,94,561

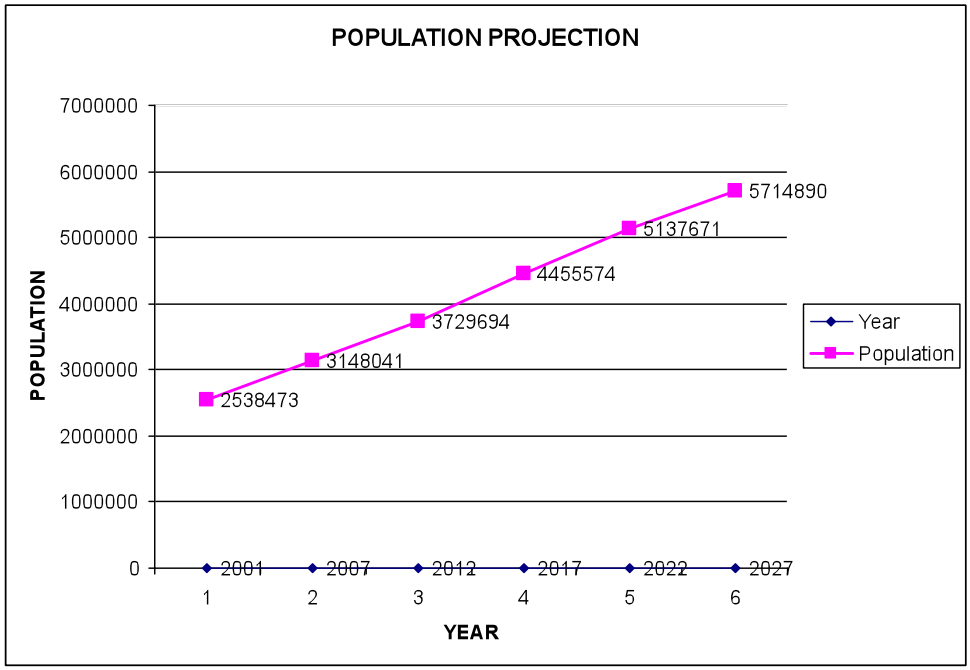


Figure No. 8-14 Projected Population

8.5. Growth rate

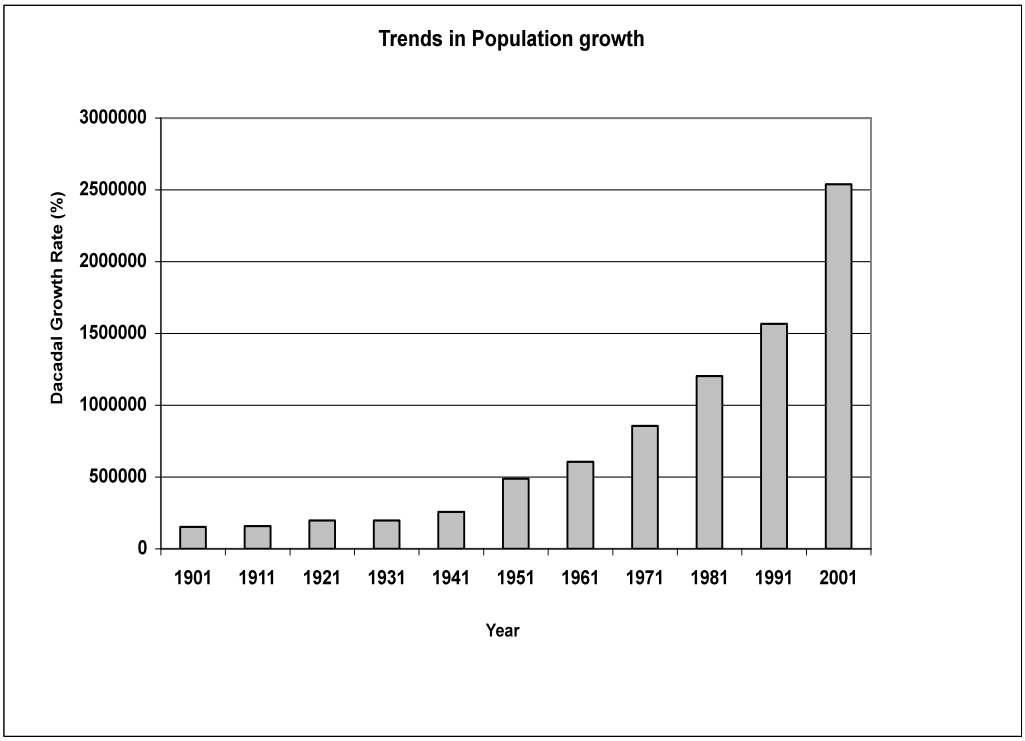


Figure No. 8-15 Trends Of Population Growth.

As per the study carried out by Gokhale Institute, considering various factors and comparison with the previous surveys, the growth rate is considered as per Alternative II (realistic)

Table No. 8-15 Projected Growth Rate.

Year	Growth rate
1991-2001	4.82
2001-2007	3.6
2007-2012	3.39
2012-2017	3.56
2017-2022	2.85
2022-2027	2.13

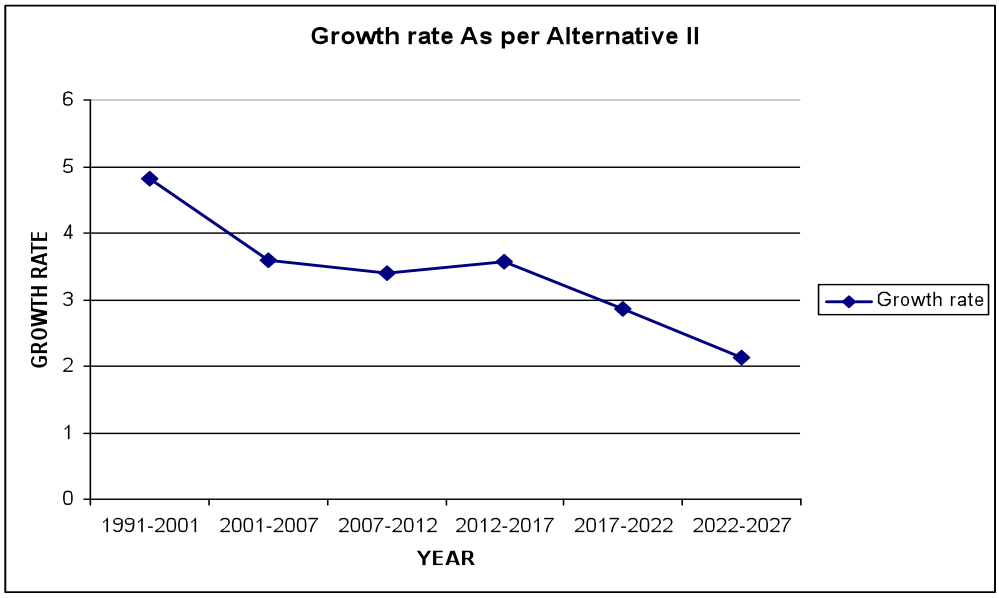


Figure No 8-16. Projected Growth Rate.

8.6. Migration

Large-scale IT parks are mainly functioning at Hinjewadi, Talawade, Kharadi and Hadapsar. Pune is growing with expanding IT sector. It is observed that during 1981-91, there were 3.1 lakhs in-migrants in the urban agglomeration, while during 1991-2001, the figure went up to 7.4 lakhs, amounting to about 13 and 20 percent of the total population.

Table No. 8-16 Projected Migration.

Year	2001-06	2006-11	2011-16	2016-21	2021-26
Migration %	12%	12%	10%	10%	8%

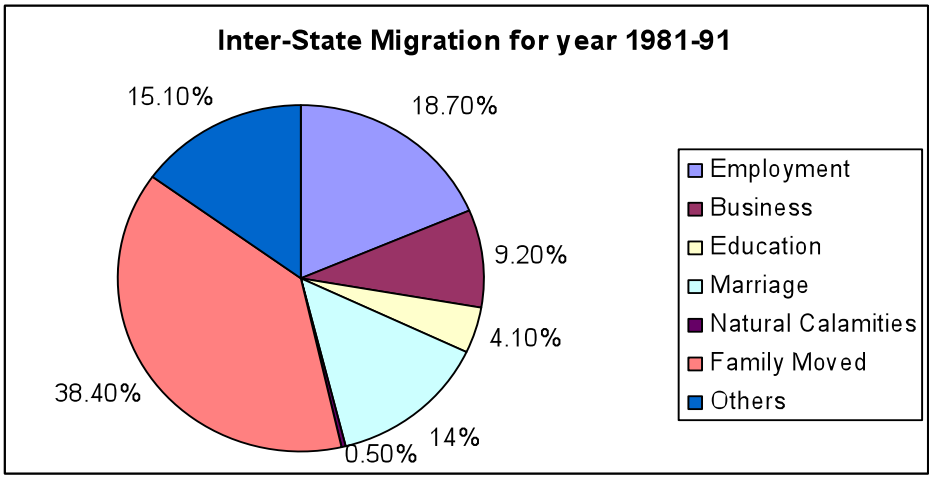


Figure No. 8-17. Inter-State Migration

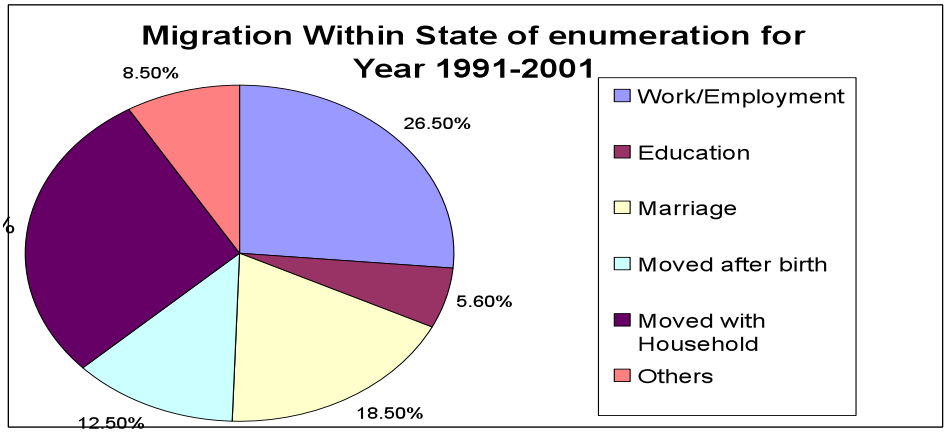


Figure No. 8-18. Migration within State

8.7 Projected Age And Sex Distribution for 2027

Table No. 8-17 Projected Age And Sex Distribution			
2027	**Total**	**Male**	**Female**
0 - 9	448,493	238,693	209,799
10-19	490,623	262,284	228,338
20-29	563,991	305,308	258,683
30-39	554,197	292,573	261,623

40-49	488,987	264,838	224,150
50-59	367,890	190,042	177,848
60-69	245,535	120,548	124,987
70-79	152,408	68,654	83,754
80+	43,997	17,933	26,064
Total	**3,356,121**	**1,760,873**	**1,595,246**

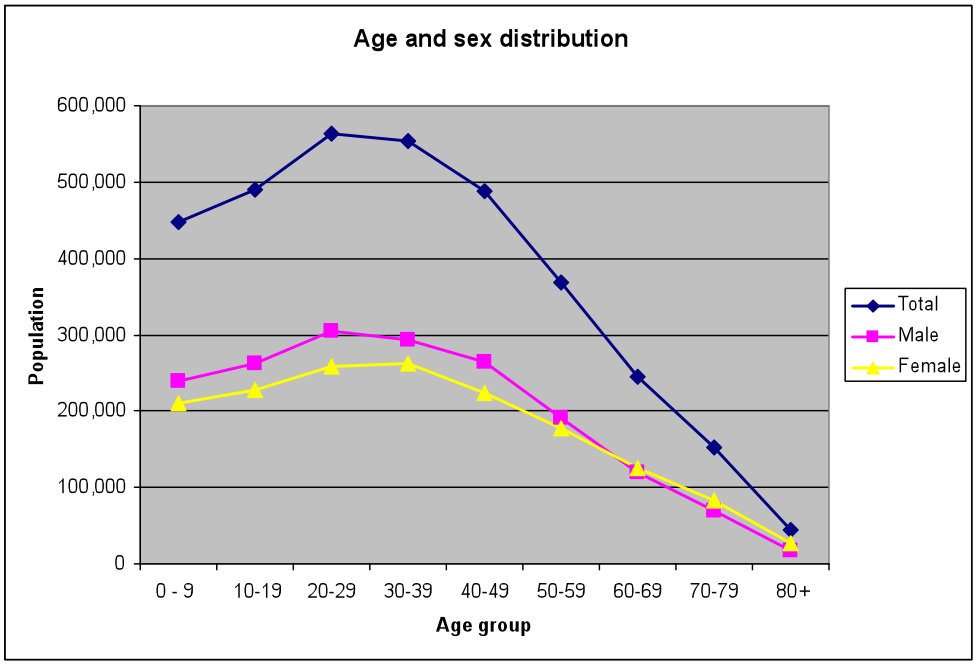


Figure No. 8-19. Age and Sex distribution projection for 2027.

Population Projection for Sectors I to VI

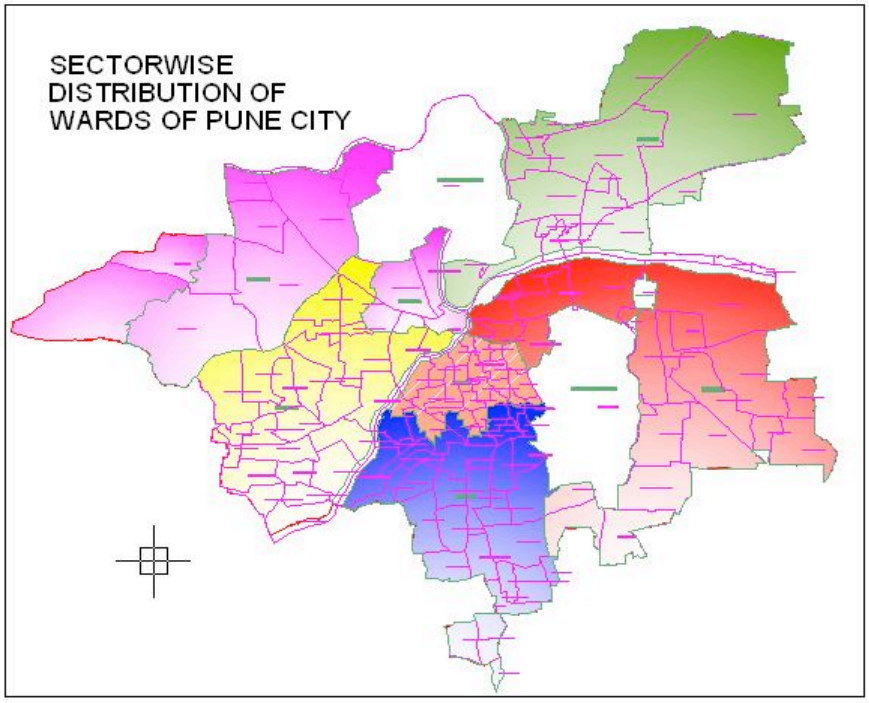


Figure No. 8-20. Sectorwise distribution of wards

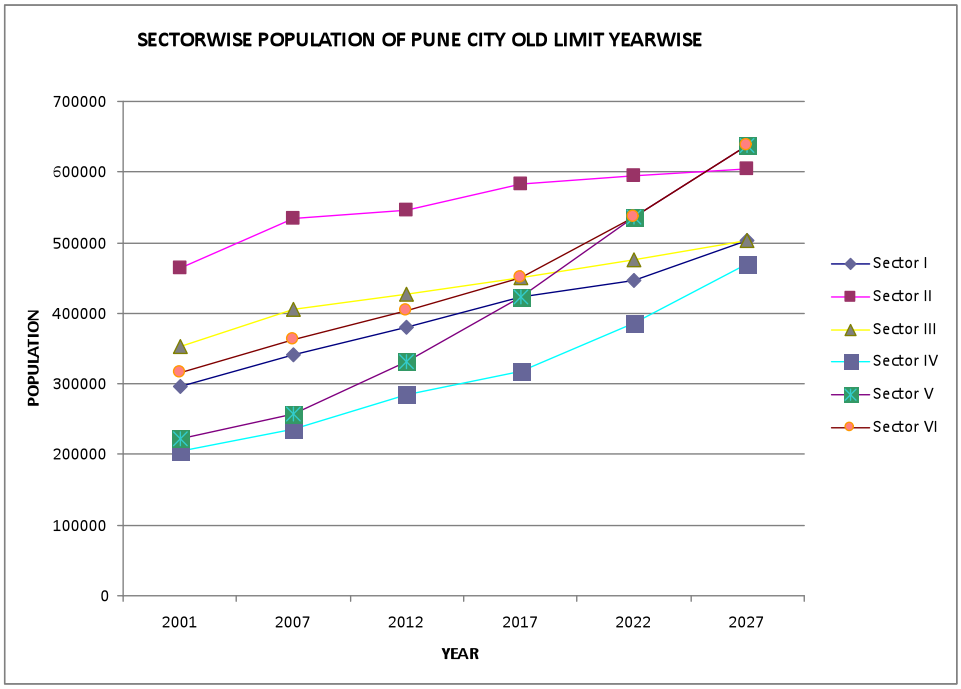


Figure No. 8-21. Sectorwise projected population.

8.8. Population Density

One of the distinguishing characteristics of Pune city is the compact urban area and high population density. It is seen that the core area of city is about 4.5 sq. km. Sector I has a population density of 551 person/ha as compared to the sectors II to VI. The urban area along the core is also expected to densify from 266 person/ha in 2007 to 301person/ha in 2027. The expected population increase in the old city is about 3356121 persons in the year 2027.

The urban area in sector IV and sector VI having population from 296876 persons to 315431 persons are observed to have moderate population densities ranging from 64 person/ha to 73 person/ha in 2001. The minimum projected population there, is 336121 persons. The population density in the respective sector is observed to increase to 148 person/ha -181person/ha.

Sector I

Table No. 8-18 Projected population for sector I

Sr. No.	Year	Population	Sector I			
			%	population	area in ha	gross density
	2001	as per 87 DP report		596644	495	1205.34
	2001	1855476	16	296876	621.18	477.92
	2007	2138243	16	342119	621.18	550.76
	2012	2371663	16	379466	621.18	610.88
	2017	2650481	16	424077	621.18	682.70
	2022	2975718	15	446358	621.18	718.56
	2027	3356121	15	503418	621.18	810.42

Sector II

Table No. 18-19 Projected population for sector II						
Sr. no.	**Year**	**Population**	**Sector II**			
			%	**population**	**area in ha**	**Gross density**
	2001	as per 87 DP report		317211.00	1948	162.84
	2001	1855476	25	463869.00	2007.22	231.10
	2007	2138243	25	534560.75	2007.22	266.32
	2012	2371663	23	545482.49	2007.22	271.76
	2017	2650481	22	583105.82	2007.22	290.50
	2022	2975718	20	595143.60	2007.22	296.50
	2027	3356121	18	604101.78	2007.22	300.96

Sector III

Table No. 8-20. Projected population for sector III						
Sr. no.	**Year**	**Population**	**Sector III**			
			%	**population**	**area in ha**	**Gross density**
	2001	as per 87 DP report		250032	2278	109.76
	2001	1855476	19	352540.4	2156	163.51
	2007	2138243	19	406266.2	2156	188.43
	2012	2371663	18	426899.3	2156	198.00
	2017	2650481	17	450581.8	2156	208.98
	2022	2975718	16	476114.9	2156	220.82
	2027	3356121	15	503418.2	2156	233.48

Sector IV

Table No 8-21. Projected population for sector IV						
Sr. no.	**Year**	**Population**	**Sector IV**			
			%	**population**	**area in ha**	**Gross density**
	2001	as per 87 DP report		214923	2589	83.01
	2001	1855476	11	204102.4	3154.18	64.71
	2007	2138243	11	235206.7	3154.18	74.57
	2012	2371663	12	284599.6	3154.18	90.23
	2017	2650481	12	318057.7	3154.18	100.84
	2022	2975718	13	386843.3	3154.18	122.64
	2027	3356121	14	469856.9	3154.18	148.96

Sector V

Table No. 8-22. Projected population for sector V						
Sr. no.	**Year**	**Population**	**Sector V**			
			%	**population**	**area in ha**	**Gross density**
	2001	as per 87 DP report		202451	3060	66.16
	2001	1855476	12	222657.1	3036.87	73.32
	2007	2138243	12	256589.2	3036.87	84.49
	2012	2371663	14	332032.8	3036.87	109.33
	2017	2650481	16	424077	3036.87	139.64
	2022	2975718	18	535629.2	3036.87	176.38
	2027	3356121	19	637663	3036.87	209.97

Sector VI

Table No 8-23 Projected population for sector VI						
Sr. no.	**Year**	**Population**	**Sector VI**			
			%	**population**	**area in ha**	**Gross density**
	2001	as per 87 DP report		233028	3516	66.28
	2001	1855476	17	315430.9	3516	95.17
	2007	2138243	17	363501.3	3516	10338.49
	2012	2371663	17	403182.7	3516	11467.09
	2017	2650481	17	450581.8	3516	12815.18
	2022	2975718	18	535629.2	3516	15234.05
	2027	3356121	19	637663	3516	18136.03

8.9 Occupation structure in Pune City

The population of Pune City in the year 1991 is 15.66 lakh in 2001 is 25.38 lakhs and in 2011 is 31.15 lakhs with a growth rate of about 30.0 % and 40 and 45 % respectively.

According to 1991 data, the city had 39.01% workers in the secondary sector with 25.7% in manufacturing. The tertiary sector accounts for 58.96% of workers with 22.36 in trade and commerce and 28.15 % under 'services'.

The total population of town as per census 2001 is 25.38 lakhs. According to Census 2001, the work participation rate of Pune city was 34.19 percent and total non-working population was 65.80 percent. This shows that the work participation rate i.e. the number of people engaged in work shows marginal increase since 2001.Out of the total working population, 2.5 percent is engaged in primary sector, 45.3 percent in secondary sector and 55.2 is engaged in tertiary sector.

Table No. 8-24. Occupation structure in Pune City	
Primary sector	2.03%
Secondary sector	39.01%
Tertiary sector	58.96%

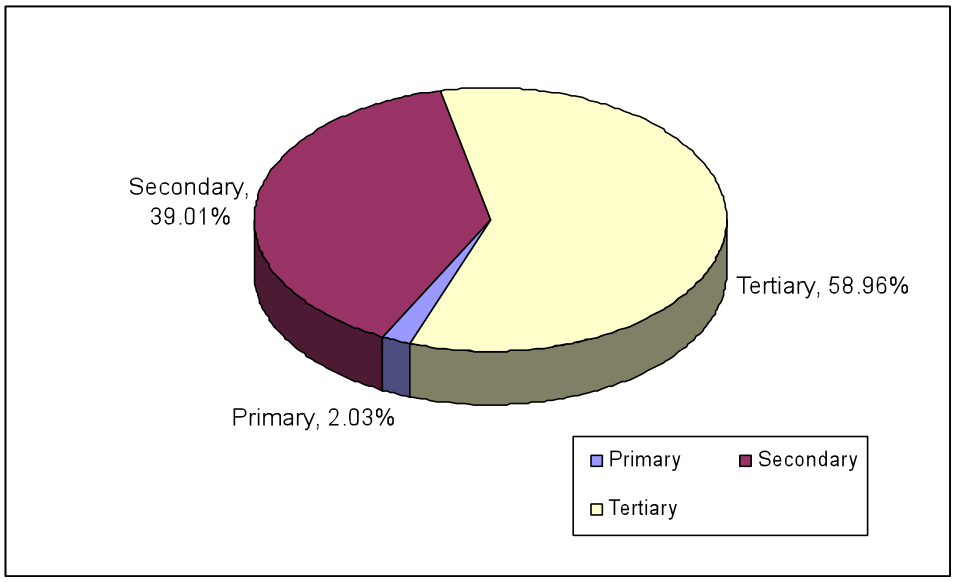


Figure No. 8-22. Occupational Structure

Classification of workers	Percent	Classification of workers	Percent
Primary	2.5	Total working	34.19
Secondary	45.3	Non-working	65.80
Tertiary	52.2		
Total working	36.96		
Population (Primary Secondary + Tertiary)			
Non working	63.04		
Population			

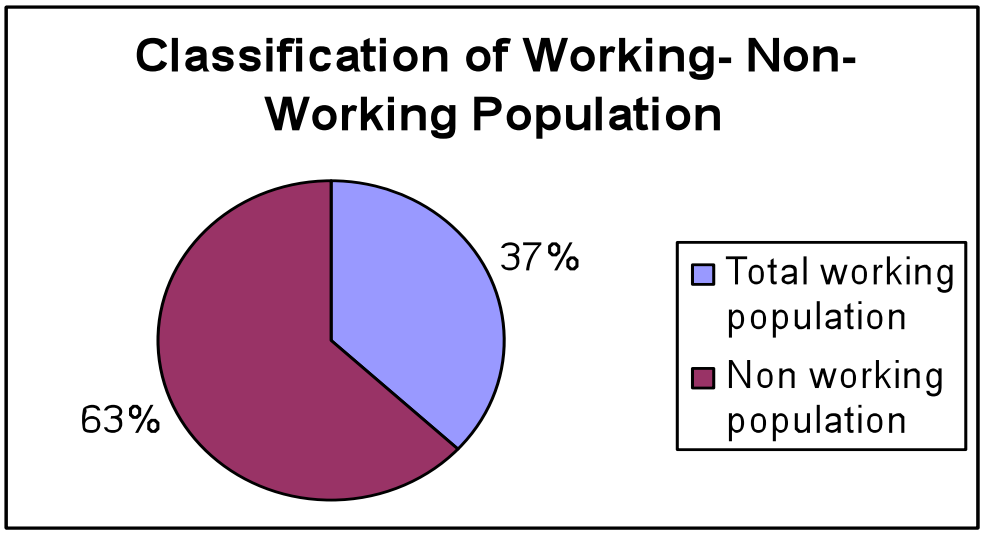


Figure No. 8-23. Working & Non-working Population

The occupation of the primary sector is declining day by day within the Pune region. Noticeable increases is observed in the workers' proportions in secondary and tertiary sectors. These are the areas where the Information Technology has entered directly or indirectly. Hospitality, Health, Banking & Insurance, Education are the areas with significant impact of IT. Significant employment growth in the large cities is likely to take place through a process of sub-contracting, using casual and self-employed workers.

According to the Environment Status Report 2008-2009, PMC, 3 percent of the city's population is dependant directly or indirectly on agriculture, while 97 percent is dependant on other sources of income. About 23 percent of the working population is involved in the IT sector.

NOTE:

1. **Primary sector**: This sector is involved with gathering the raw materials from which everything else is made and includes in farming, mining, fishery, forestry, etc.
2. **Secondary sector**: The secondary sector includes industries related to processing the raw materials from the primary sector. In short, it deals with manufacturing.

3. **Tertiary sector**: The tertiary sector comprises of all the service industries like banking, insurance, medical, education, hospitality, trade and commerce, etc
4. **Work** is defined as participation in any economically productive activity with or without compensation, wages or profit. Such participation may be physical and/or mental in nature. Work involves not only actual work but also includes effective supervision and direction of work. It even includes part time help or unpaid work on farm, family enterprise or in any other economic activity.
5. **Non-Worker** is a person who did not work at all during the reference period.

8.9.1. The non-workers broadly constitute

Students who did not participate in any economic activity paid or unpaid, persons engaged in daily household chores like cooking, cleaning utensils, looking after children, fetching water etc., Persons not even helping in the unpaid work in the family cultivation or in family enterprise or mulching etc., dependent such as infants or very elderly people not included in the category of worker, Pensioners drawing pension after retirement and not engaged in any economic activity, beggars, vagrants, prostitutes and persons having unidentified source of income and with unspecified sources of subsistence not engaged in any economically productive work during the reference period, and other non-workers who may not come under the above categories such as renters, persons living on remittances, agricultural or non-agricultural royalty, interest or dividend; convicts in jail or inmates of penal, mental or charitable institutions doing no paid work and persons who were seeking/available for work.

STATEMENT NO 8-1

DEMOGRAPHIC PROJECTION GIVEN BY GIPE FOR REVISION OF DEVELOPMENT PLAN FOR OLD PMC LIMIT

Year	2001		2007		2012		2017		2022		2027	
Population	1855476		2138243		2371663		2650482		2975720		3356121	
Sector	%	Population	%	Population	%	Population	%	Population	%	Population	%	Population
I	16	296876	16	342119	16	379466	16	424077	15	446358	15	503418
II	25	463869	25	534561	23	545482	22	583106	20	595144	18	604102
III	19	352540	19	406266	18	426899	17	450582	16	476115	15	503418
IV	11	204102	11	235207	12	284600	12	318058	13	386844	14	469857
V	12	222657	12	256589	14	332033	16	424077	18	535630	19	637663
VI	17	315431	17	363501	17	403183	17	450582	18	535630	19	637663
Total	100	1855476	100	2138243	100	2371663	100	2650482		2975720	100	3356121

CHAPTER NO 9

SOCIO-ECONOMIC STUDY

9.1 INTRODUCTION

Pune city, the second largest metropolitan city in the state, is fast changing its character from Pensioner's city to Educational – Administrative Center and now to an important Industrial hub with reference to the IT Center. The land use and their consequential results such as density of population, congestion on roads, fast deteriorating level of services etc. are becoming more and more complex day by day. The city also reflects the change in its ethos from taking pride in having the highest number of bicycle users to one having a large number of automobiles. from Wada culture to large multiplexes and high risers on one side and large numbers of slums on the other. As a result, the revised development plan of 1987 has not been able to meet the demands of the rapid urbanization in the City.

The population of Pune city has grown from 7.37 lakhs in 1961 to 25 lakhs in 2001. It signifies a descriptive understanding of the changing need pattern of the utility services such as water supply, sewage system, transportation, housing, parking space, shopping and other entertainment areas. The present study focuses on the perception of the population about the changes that have occurred because of urbanization and highlights their opinions about the infrastructure development and quality of life. It studies the priorities of citizens for future development of the city.

In accordance with the same, the responsibility of conducting the Socio- Economic Survey of Pune city was entrusted upon B. D. Karve Research and Consultancy Cell of Karve Institute of Social Service.

9.2 POPULATION SIZE

The growth and development of any city is reflected in the change in its population pattern, for example its birth and death rate, migration, etc.



According to the District Census handbook of Pune. 1971, the population of Pune city, in the year 1891was 1.18 lakhs. It remained more or less the same, at 1.20 lakhs in the year 1901. The slow population growth in this decade can be attributed to high death rate due to severe droughts that the region faced during this time. Even during the period between 1901 to 1921, the population size did not show a significant increase, because the region had to face several epidemics including influenza during this period.

It was only after 1920s that the population in the city increased considerably In the year 1941, the population size reached 2.57 lakhs. When the Pune Municipal Corporation was set up in 1950, it catered to a total population of 4.85 lakhs. The main reasons for a significant change in the population size from 1920 to 1950 were increase in employment and business opportunities after the World War II, large-scale migration from Pakistan after the Partition and from other neighboring countries. There was an 85% increase in the population size of the city during this period.

After the 50s, the decadal growth up to 1991 was in the range of 30-40 percent. The population in 1961 was 5.95 lakhs, which went up to 12.03 lakhs in 1981. According to the Census 2001, the population of Pune city was 25, 38,473 with a total of 555,771 households. The total population of the city within PMC limits in the year 2011 is around 31.5 lakhs.

9.2.1 Trends in Population Growth in Pune city

Table No. 9-1. Population Growth in Pune city			
Year	Population	Year	Population
1780	150000	1941	257554
1851	73000	1951	488419
1891	118790	1961	606777
1901	153320	1971	856105
1911	158856	1981	1203351
1921	198523	1991	1566651
1931	198078	2001	2538473

The population of Pune during the last four decades grew at an average annual rate of over 3.4 % against the national average of 2.1 % and state average of about 3.3 %.

9.2.2 Density of population and average family size

The density of population in Pune city in the year 1951 was 18.29 persons per acre. The most densely populated areas were the central areas like Raviwar Peth, Rasta Peth and Nihal Peth where the density was almost 300 persons per acre. In the newly added areas such as Guruwar Peth, Budhwar Peth, Sukhrawar Peth, Ghorpadi, Gultekdi, Bopodi, etc, the per acre density was less than 11 persons per acre. The density of population according to the Census 2001 was 10412 per sq.km. Currently, the most densely populated wards in the city are Bhavani Peth followed by Kasba Peth and Vishrambaug Wada wards.

The city appears to be growing in the southeast and southwest directions. As per the 2005 population estimates, the Tilak Road ward on the southwest side of the city is experiencing a rapid growth of 50%. The Karve Road is also growing at a rate of 32%. In the southeast direction, the Bibwewadi ward with its proximity to the Solapur bypass is growing at a rate of 38 % followed by Hadapsar at 26 %.

In the year 1951, in about 82 percent families, the average family size was 5 members. Around 13 percent families had an average family size of 7-9 members and only 5 percent families had 10 members and above. This number has gone down to 4.5 members according to 2001 Census.

9.3 Economic Profile of Pune City

Pune is the eighth largest city in India; it has the sixth largest metropolitan economy and the second highest per capita income in India, with the least income disparity between the rich and poor. The economy of Pune city is one of the fastest growing in India. Pune ranks 7th in top 10 towns in India, with highest family income. It ranks 6th in top 10 wealthiest cities in India.

9.4 Standard of Living of the population of Pune City:

Standard of Living is determined by the level of material comfort as measured by the goods, services, and luxuries available to an individual, households, group or nation. The present survey has taken note of several commodities present in the households to determine the standard of living index for the population. These goods or commodities are either bought by the household members or gifted to them. But in either case, the household members are utilizing the commodities and hence are able to enjoy the benefits of the same. Presence or absence of certain commodities in the house determines the standard of living of that particular household.

The present study has calculated the household measure called Standard of Living Index as follows :

Standard of Living Index (SLI) of the surveyed population

Standard of Living Index scores	Frequency	Percent
Low (score 7-31)	2195	39.5
Medium (score 32-56)	2604	46.9
High (score 57-82)	758	13.6
Total	5557	100.0

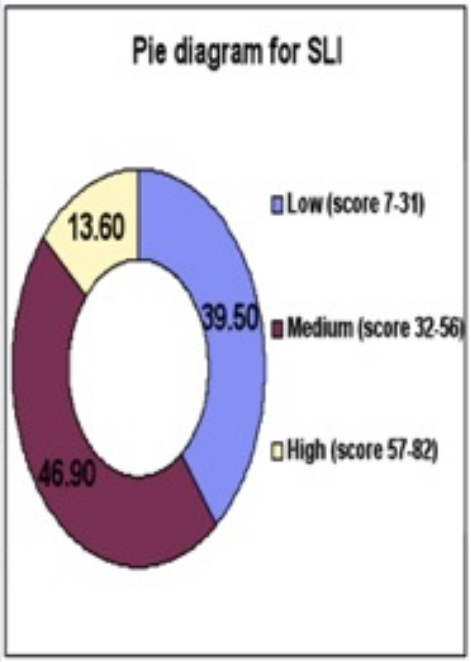


Figure No. 9-1. Standard of Living Index

Index score range from 7 to 31 for low SLI, from 32 to 56 for medium SLI and 57 to 82 for a high SLI. By this measure, more than 1/3 (39.5%) of households from Pune have a low standard of living, 46.9% have medium standard of living and 13.6% have a high standard of living.

9.5 Economic and Employment Profile

a) Future Economic Trends for Pune City

Since 1985, Pune's ability to generate workforce and skilled manpower for new and knowledge intensive industries has been more sharply felt. It has increasingly enhanced its historical reputation as an educational and R &D centre. Three areas noted for their professional training setups, have merged in the last two decades: management education, IT and computer education, and engineering. Moreover, a number of established educational institutions have introduced new courses and research areas (for example NCL, NIV and

NARI in cell research in the department of bio-informatics in Pune University). This course of events has helped Pune emerge as a top IT-BT centre.

b) Pune, the emerging IT & BT:

Pune was the first city in the country to have a software technology park; TCS, Wipro, Infosys, Mahindra British Telecom, Mastek and PCS have significant presence in Pune. Global majors like HSBC Global Technology, IBM, Sasken, Avaya, T-systems and Syntel also have a major presence in the city. During the last eight years, this sector has grown from Rs. 250 crores to Rs.6500 crores.

After the development of MIDC, Industrial growth is seen in a radius of 60-65 kms from the main city of Pune. Distinct hubs of industrial activities can be seen, with most of the manufacturing industries concentrated in and around the Pimpri, Chinchwad and Bhosari MIDC. Several smaller industrial hubs have formed around this area prominent among them being Tathavade, Chikhali, Moshi, Khadki, Dighi,Nigdi etc.

The other belts of industrial growth can be seen in the Pune-Chakan belt (Moshi, Chimbli, Kuruli, Khed, Mahalunge), the Pune-Mumbai belt (from PCMC, Khadki, Dehu, Pirangut and Urawade, Urse, Ambi, Talegaon, Kanhe, Takwe upto Lonavala), the Pune-Nagar belt (Kharadi, Wagholi, Koregaon Bhima, Sanaswadi up to the MIDC at Ranjangaon).

c) Pune as the Oxford of the East:

The other big sector that Pune has hosted is education. Termed as the Oxford of the East, the first landmark in Pune's evolution as an educational centre was the establishment of the Deccan Education Society in the city. Today the city has six universities, which include 600 functional colleges and PG departments in their fold. It is estimated that the student population exceeds five lakhs.

d) Pune as an auto-hub:

One of the first notable milestones in the industrial history of Pune was the entry of Kirloskar Oil Engine Ltd. In 1960, MIDC set up a huge industrial estate on 4000 acres of land at Bhosari. This development led to a large number of engineering-ancillary industries being set up in Pimpri-Chinchwad and the city started developing. Later, the city also witnessed the entry of auto-majors such as Tata Motors, Bajaj Auto and the world's second largest forging company Bharat Forge Ltd. It is also home to Kinetic Engineering and Force Motors (previously known as Bajaj Tempo). Also, Daimler Chrysler has an assembly line for its Mercedes Benz brand in Pune. Cummins Engines Co Ltd has a Research & Technology India centre in Pune. The establishment of the commercial motor vehicle unit of Telco in Pimpri-Chinchwad transformed the pace and rhythm of Pune. Availability of skilled manpower and later, supply of ancillary development based entrepreneurs in and around Pune became the major drivers of Pune's industrialization.

e) Pune as an Agro Business Centre:

Pune has also emerged as a business centre. The hinterland of Pune witnesses intense farming of sugar and grapes, horticulture, and floriculture. Given the distinctive characteristics of this industry, many value-added industries like food processing have flourished in and around Pune. Pune has a locational advantage, being close to several demand driven markets such as Mumbai, Nasik, Nagpur, and Aurangabad. Consequently, Pune is fast evolving as a sunrise city; already some big names in this sector have established their presence, namely Gits Food Products, Weikield Products, and Chitale Bandhu.

f) Pune as a tourism center

Pune City is not an exception to the phenomena of growth of a traditional city in to a prosperous Metropolis city which was ruled by many dynasties in past centuries.

Pune is the cultural capital of Maharashtra. The city is known for various cultural activities like classical music, spirituality, theater, sports, and literature. These activities and job opportunities attract migrants and students from all over India and abroad, which makes for a city of many communities and cultures. There are historical attractions in and around Pune include the rock-cut Pataleshwar cave temple, Aga Khan Palace, Shaniwarwada, Lal Mahal, Shinde Chhatri and Sinhagad fort. Prominent museums in Pune include the Raja Dinkar Kelkar Museum, Mahatma Phule Museum, Babasaheb Ambedkar Museum and the Pune Tribal Museum. Pune has a number of public gardens, such as the Kamala Nehru Park, Sambhaji Park, Shahu Udyan, Peshwe Park, Saras Baug, Empress Garden, Taljai Hills and Bund Garden. The Pune-Okayama Friendship Garden, now renamed *Pu La Deshpande Udyan*, is a replica of the Korakuen Garden in Okayama, Japan. The Rajiv Gandhi Zoological Park is located at Katraj,

CHAPTER NO. 10

HOUSING STUDY

10.1 INTRODUCTION

10.1.1 The economy of the Pune city has been transformed over the past few decades. The technologies have changed. PMC's budget has multiplied many folds. Per capita income of the citizen, their expenditure pattern and life style have seen huge changes in the last few decades. Mindsets of people including those of the policy makers have changed. Development of the City is now considered a joint exercise where expertise, technological edge and financial involvement of the private sector are encouraged in the interest of development of the city. For sound planning of the congested parts of the city, it is necessary to know the magnitude of congestion in addition to locating the pockets of congestion.

10.1.2 In order to ensure that our city continues to look beautiful, it is necessary to widen its roads, to redesign its residential areas by removing insanitary conditions and decongesting some of the wards. In other words, it is necessary to know the ages of all structures in different wards in the city and to know the extent of mixed uses of housing in a ward. It is also necessary to know the per capita availability of living space and the extent to which facilities like bathroom, latrine, direct municipal tap etc. are available to the residential areas in different wards in order to plan for their improvement. This information, which is essential for social planning of the city, can be known only through a well-designed and comprehensive sample survey of the housing conditions.

10.2 HOUSING SURVEY IN OLD LIMIT OF PUNE

10.2.1 The work of housing survey was allotted to Mashal by Pune Municipal Corporation (PMC). The number of households in year 2007 was assessed based on the demographic projections carried out by Gokhale Institute of Politics & Economics. Of the total population, about 40.56% live in slums. The estimated household in the old PMC limit are 474,165. The overall sample size for the household survey was 4752 i.e 1% of the total households. The sample size also includes slum sample which is 1902 households.

The housing situation in the city as per MASHAL & Census is as follows;

Table No. 10-1. Housing Occupancy

Sr. No	Category	Census 2001		MASHAL Sample Survey	
1	No. of houses as per Census of 2001	763, 133			
2	Occupied Houses	625, 336	82%	90%	
3	Vacant Houses	137, 797	18%	10%	
4	Household Size	4.57	4.74 (Non-Slum)		5.4 (Slum)

10.2.2 HOUSE DISTRIBUTION BY USE

The distribution of houses by use in Pune as per Census indicates that about 509,819 houses contributing about 82% of that of occupied houses is under residential use and total 65,951 are shops and offices with about 11% share from total 625,336 occupied houses.

Table No 10-2. Distribution of house	
Census Houses	763133
Occupied Houses	625,336
Residential houses	509,819
Residential cum commercial	8,810
Shops / Offices	65951
School	1,615
Hotel, Lodge, Guest House	3,318
Hospital	3,603
Factory, Workshop	10,265
Place of Worship	2,935
Other non Residential	19,650

(Source : Household assets and amenities, H – Series tables, Census of India 2001)

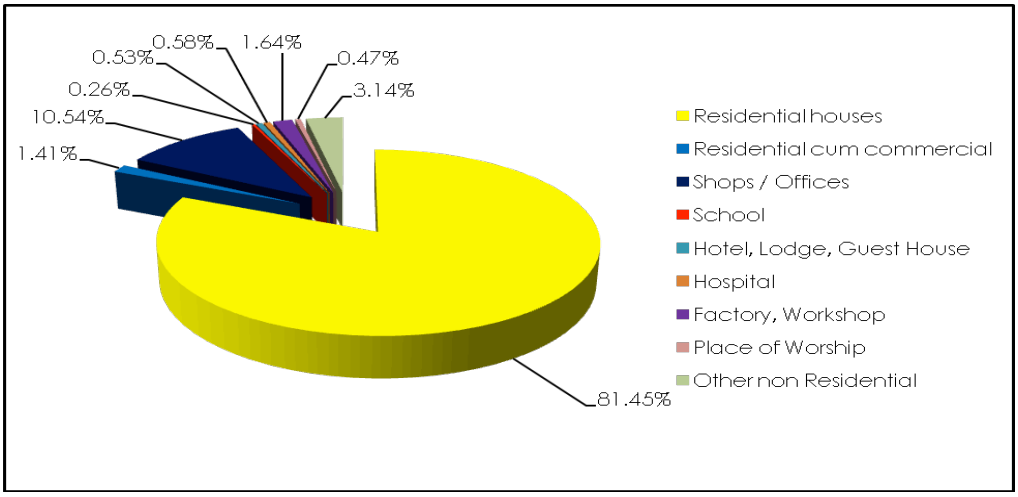


Figure No. 10-1. Percentage Distribution Of Occupied Houses

10.2.3 HOUSING TYPOLOGY

Pune consists of maximum number of slums as housing typology followed by Bungalows and Wada. Presently, the percentage of Bungalows and Wada is decreasing as these units are getting redeveloped into apartment units.

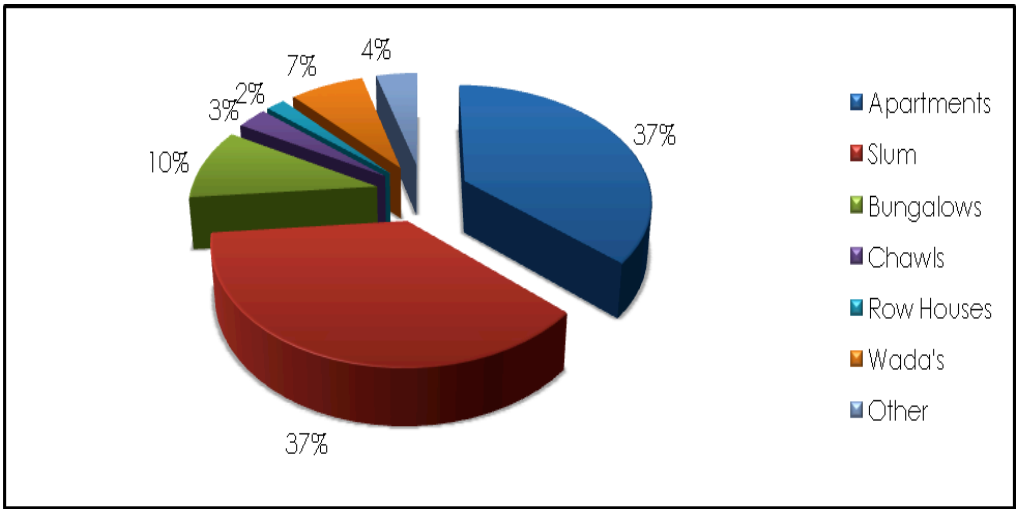


Figure No. 10-2. Housing typology

Housing distribution by tenancy

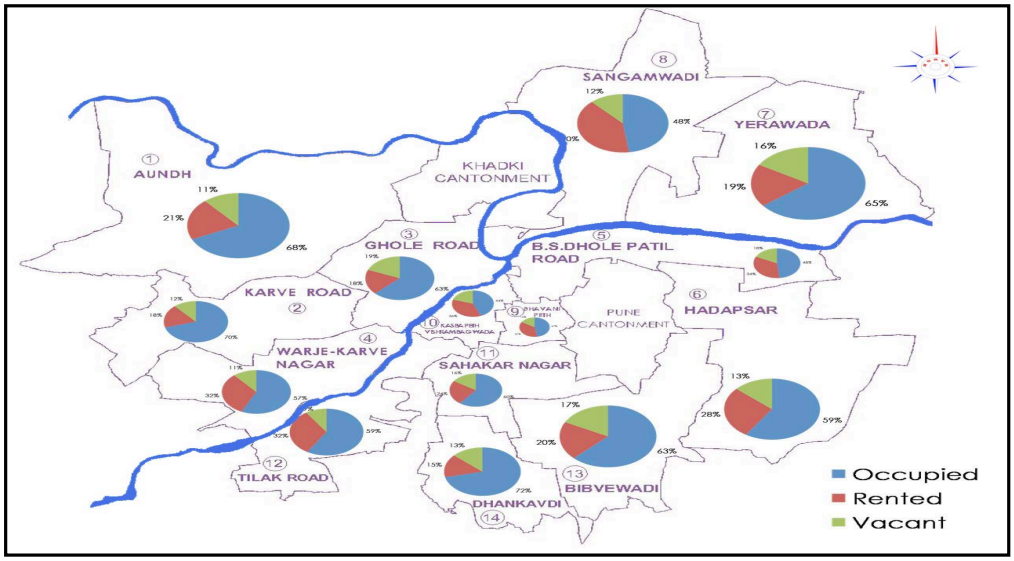


Figure No. 10-3. Ward wise distribution by tenancy

(Source: MASHAL, Pune)

Table No. 10-3. House hold conditions					
Sr No	Category	Census 2001		MASHAL	
				Non Slum	Slum
1	Good	358, 900	68.45%	60% (Pakka)	33% (Pakka)
2	Liveable	152, 923	29.17%	14%(Semi Kaccha)	18%(Semi Kaccha)
3	Dilapidated	12, 496	2.38%	26% (Kaccha)	49% (Kaccha)
4	Total	524, 319	100%		

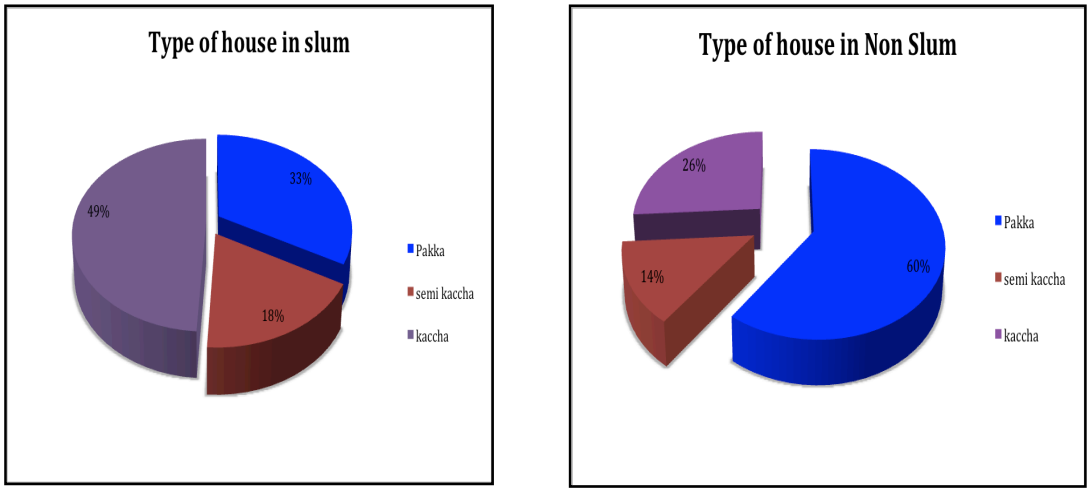


Figure No. 10-4. Type of Household conditions

Table No.10-4. Household Tenure				
Sr No	Category	Census 2001		MASHAL
1	Household by ownership	524, 319	100%	
2	Own	351, 569	67.05%	67%
3	Rented	151, 414	28.88%	27%
4	Others	21, 336	4.07%	6%

Housing Distribution by Tenure: -

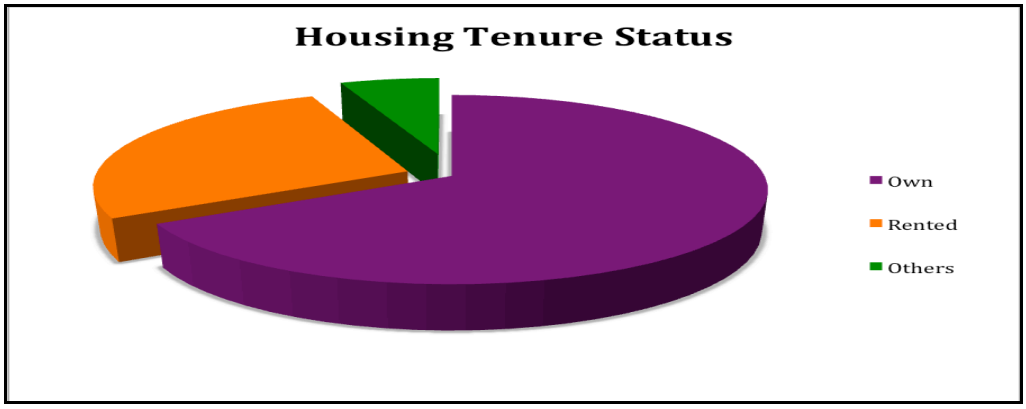


Figure No. 10-5. Housing Tenure.

10.3 HOUSING TYPES IN PUNE

Like any other developing city, Pune has also got the diversified development in housing. Since Pune is a historical city, the traditional look is maintained in some parts of the city. About 40% population is the slum population in the city.

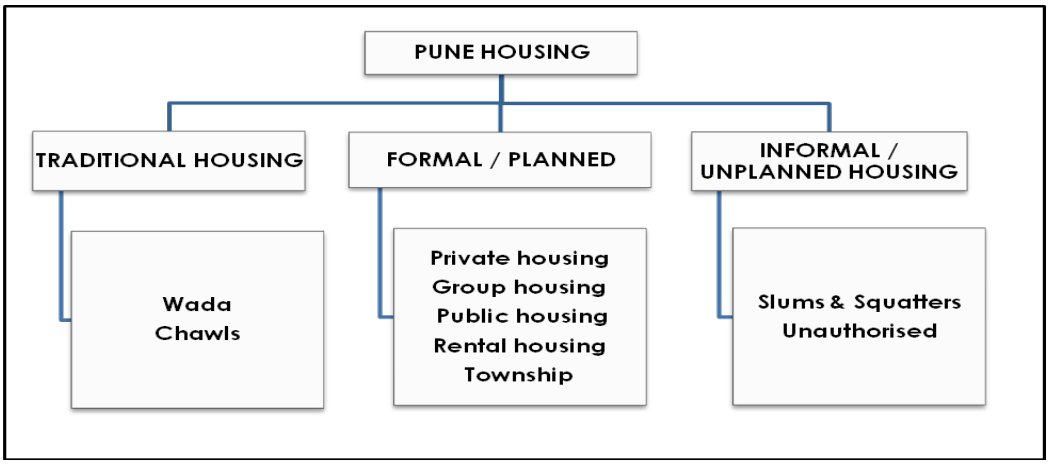


Figure No. 10.6 Housing systems Pune

(Source: MASHAL)

10.3.1 Traditional Housing

a) Wada/ Chawl

Wada/ Chawls symbolizes the tales of Pune's rich culture and heritage. They are historical symbols of Pune. They are famous for their typical architectural character and the traditional character. Wadas were used mainly for residential purpose. They were elaborately planned in which minute attention was paid to all functions and requirements of the women folk without compromising their privacy and security. Wadas are huge massive structures in which material used in construction is mainly stone, limestone and bricks. These are normally load bearing structures.





The age of structure, tenancy, lack of maintenance, legal litigations are some of the hurdles for development /redevelopment of wadas/chawls. There is a need of a new incentivised development policy for redevelopment of wadas/chawls.

9.3.2 Formal /Planned Housing

a) Private housing

There are many privately developed bungalows, societies in different parts of the city, like Matruchhaya society on Nagar road,Sindh Society at Aundh etc. Each Bungalow has an individual water tap connection as well as individual parking and other facilities.





b) Group housing

Some parts of the city have developed as group housing. Plots are developed by private developers for tenements more than 100 with recreational, parking and amenity facilities provided in the scheme itself.



c) Institutional Housing

There are many places owned by government / semi government organisations in the city,like the Research and development organization Kalas on Alandi road, Pashan, Aundh, National Chemical Laboratory Pashan, CID ,Police dept etc. which have their offices as well as there residences in the same premises.

d) Public housing

The Pune Housing and Area Development Board, Pune is a regional unit of MHADA. It was established on 5th December 1977 as per the provisions of section 18 of the Maharashtra Housing and Area Development Act, 1976.

MHADA has completed 27 schemes, accommodating 16,909 MHADA households, agglomerating total area of 167.49 ha at Pune. Total 167.49 ha area of land is distributed over PMC, PCMC limit at Pune.

e) Townships

Pune is now coming up with many township projects under Maharashtra township policy 2005. This is resulting in an increase in housing stock of Pune by foreign direct investment through a subsidised way. But as this policy has certain constraints of having a consolidated land parcel of 100 acres, these townships are coming in the periphery of PMC or outside the PMC limit. Till date, around 25 townships are expected to come up in Pune, out of which six townships have already started taking shape in Pune.

f) Municipal Housing

Pune Municipal Corporation like other institutions has developed residential accomodations for their workmen mainly, the fourth class workmen. They have rented accommodation for other class of workmen termed as Municipal housing, in Hanuman nagar, Pandavnagar, ghorpade peth, wakdewadi, etc. PMC has also developed housing for EWS at Upper Indiranagar Bibvewadi and Dhankawadi.

10.3.3 Informal / unplanned housing

10.3.3.1 Slums

As per the census of 2001, a slum is defined as, 'a compact area of at least 300 people in poorly built congested tenements surrounded by unhygienic environment, usually with inadequate infrastructure and lacking proper drinking water and sanitary facilities'.

Under the Maharashtra slum improvement and clearance act 1971, a slum is loosely defined as a congested, unhygienic area or buildings that are public hazard. The act declares the Pune municipal corporation (PMC) as the administrative authority to implement projects under the Act, mainly the provision of basic services in slums. In order to provide these improvements, the PMC 'declares' an area as slum, which it thinks adheres most to the definition of the slum.

When a settlement is recognized by the local municipality as one where living conditions are below a specified standard, it is 'declared' under the Maharashtra Slum Improvement Act (1971) as 'slum dwelling'.

a) Problems and issues of Slums in Pune

The growth rate of slum population is higher than the growth rate of Pune city for the last decade.

Approximately 40% of Pune population resides in slums spread over 10% of the city area as per the data of 2009, thereby creating very high density development i.e. approx 1100 persons/ha. As per the projections of 2027,

more than 50% population will be residing in slums, if no adequate housing provisions are made.

There is adequate Housing supply by Government Agencies. Hence, improvement in scheme formulation and implementation is lacking. Increasing land values and construction cost has made housing unaffordable leading to increasing slums in the city.

Most of the slums have poor environmental conditions causing various health hazards, resulting in inefficiency in work due to poor health & lack of affordable health facilities. Haphazard layouts of the slums with narrow lanes makes it difficult to access these areas specially during calamity

b) Slums in Pune City

Slums are solutions found by urban poor for satisfying their housing needs. Urbanization and slums in Pune is going hand in hand. In Pune bigger the growth, higher is the proportion of people living in slums. This situation is mainly due to the fact that urbanization in Pune leads to mass migration of rural poor who have low skills and are not in position to meet their demand for formal housing from the given market.



Slum at Parvati

Table No. 10-5. Growth of total population and slum population in PMC area				
SR. NO.	**YEAR**	**TOTAL POPULATION**	**SLUM POPULATION**	**% OF SLUM POPULATION TO TOTAL POPULATION**
1	1921	1,33,000	NA	NA
2	1931	1,62,000	NA	NA
3	1941	2,38,000	NA	NA
4	1951	4,81,000	38,500	8
5	1961	6,06,777	92,101	15.18
6	1971	8,56,105	2,39,701	28
7	1981	12,03,363	3,77,000	31.33
8	1991	15,66,651	5,69,000	36.32
9	2001	25,38,473	1,025,000	40.38

(Source: Census of India and ESR 2004-05)

It is observed that 40.38 percent of the total population is residing in slum settlements. Over the years, there has been considerable growth in slum population as is evident from the above table. The very high growth during the 1968-76 period is probably due to the rural conditions when Maharashtra State faced severe droughts in 1966-67 and in 1972-73. It is likely that the drought in rural areas forced migrants to Pune in search of livelihood. From the growth trends, it is evident that almost half of Pune's population will be in slums over the next 10 years, unless the Govt. agencies act fast as a facilitator, by ensuring adequate supply of developed land, zoning and reservations.

c) Distribution of Slums on government & private land

Slums have encroached on public as well as private lands. By and large, they are located on land judged unsuitable or unattractive for real estate development.

Out of declared 564 slums, 66 slum are on state owned lands contributing 11.70 % of slum land ownership to total slums, followed by lands having various departments ownership like Pune Municipal Corporation, railways land etc.

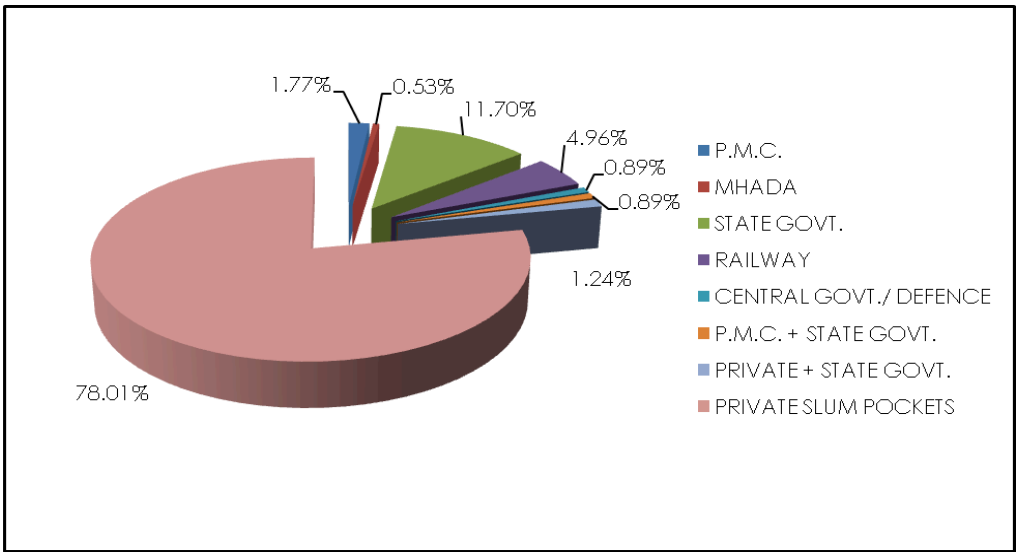


Figure No 10-7 Land ownership of total 564 slums

(Source: Housing report by MASHAL 2010)

d) Slum improvement schemes



We are envisaging envisage on the vision of "Slum Free City " by encouraging policies to tackle the problem of slums in a definitive manner. This can be achieved by a multipronged approach focussing on :-

1) Bringing the existing slums within the formal system and enabling them to avail of the same level of basic amenities as the rest of the town.

2) Redressing the failures of the formal system that lie behind the creation of slums. Tackling the shortages of urban land and housing that keep shelter out of reach of the urban poor and force them to resort to extra-legal solutions to retain sources of livelihood and employment.

To achieve the above vision many policies have been framed for development of slums

a. Slum redevelopment / rehabilitation schemes.
b. Lok Awas Yojna
c. Valmiki Ambedkar Awas Yojna
d. Basic services for the urban poor (BSUP) under JNNURM
e. Rajiv Awas Yojna.

e) Slum redevelopment/ rehabilitation schemes

There is a key instrument available for slum upgrading and resettlement in Maharashtra, the Slum Rehabilitation Act (SRA). All efforts are, however, underpinned by the law guarantee security of tenure to all those who can establish they were on a piece of land as of 1st January 1995. The key instrument is the Floor- Space Index ratio (FSI), which is used to cross-subsidize housing for the urban poor in the form of TDR.

Table No. 10-6. Slum Rehabilitation/ redevelopment Schemes Developed

Sr. No.	Schemes	Numbers
1	Total proposals for rehabilitated schemes submitted	**140**
2	Proposals cancelled	**11**
3	Sanctioned schemes	**49**
4	Construction in progress	**39**
5	Schemes completed	**10**
6	Proposals under legal formalities	**80**

(Source: PMC, SRA Dept)

f) Lok Awas Yojna

A scheme of 2000 tenements has been proposed for slum dwellers with very low income by MHADA. Under this scheme, the backward class is given a subsidy of INR 11,000 as the National program and an additional INR 9,000 as social work donation. Lok awas Yojna was included in Valmiki Ambedkar Awas Yojna in 2002 under which 149 beneficiaries were selected.

g) Valmiki Ambedkar Awas Yojna

Under this scheme, the central and the state government will be contributing equal amounts for the rehabilitation of backward class slum dwellers. Those slum dwellers, whose name appear in the voters list of 1.1.1995, are still staying in slums and are below the poverty line have been offered an INR 50, 000/- subsidy for maximum 25 sq.mt. house in metro cities. Under this scheme, total 7,875 houses have been constructed. In phase I total 2,328 tenements in-situ and in phase II, 4,447 tenements in-situ and 1,100 under cluster have been developed.

h) The Basic Services for the Urban Poor (BSUP)

The basic aim of BSUP is to provide a garland of 7 entitlements/services – security of tenure, affordable housing, water, sanitation, health, education and social security – in low income settlements in the 63 Mission Cities. The Integrated Housing and Slum Development Programme (IHSDP) seeks to provide the aforementioned garland of 7 entitlements/services in towns/cities other than Mission cities. PMC is constructing 20,528 t/s. for Urban poor out of each 4,000 t/s. are being constructed in-situ. The schemes under BSUP are being undertaken by PMC in at Hadapsar and Warje.



BSUP Project undertaken in Hadapsar.

i) Rajiv Awas Yojana

Rajiv Awas Yojana (RAY) for the slum dwellers and the urban poor envisages a 'Slum-free India' by encouraging States/Union Territories to tackle the problem of slums in a definitive manner. It calls for a multi-pronged approach focusing on:

(1)Bringing existing slums within the formal system and enabling them to avail the same level of basic amenities as the rest of the town. (2) Redressing the failures of the formal system that lie behind the creation of slums: and tackling the shortages of urban land and housing that keep shelter out of reach of the urban poor and force them to resort to extra-legal solutions in a bid to retain their sources of livelihood and employment.

Rajiv Awas Yojana envisages that each State would prepare a State Slum-free Plan of Action (POA). The preparation of legislation for assignment of property rights to slum- dwellers would be the first step for State POA.
The POA would need to be in two parts, Part-1 regarding the up gradation of existing slums and Part -2, regarding the action to prevent new slums. In Part – 1, the State would need to survey and map all exiting slums in selected cities proposed by the State for coverage under RAY. In Part- 2 the Plan would need to assess the rate of growth of the city with a 20 year perspective, and based on the numbers, specify the actions proposed to be taken to obtain commensurate lands or virtual lands and promote the construction of affordable EWS houses so as to stay abreast of the demand.

10.3.3.2. Gunthewari

Gunthewari is the type of unauthorized development that has taken place in some parts of the city which has been regularized by the PMC as per the Maharashtra Gunthewari Regularization Act 2001.

10.4 HOUSING DEMAND IN PUNE CITY.

Housing demand is a product of "Household formation" as a consequence of net population growth. Demand has two aspects "Absolute" and "Effective" Absolute demand is a physical phenomena of number of homeless households, while the "Effective demand" is a consequence of the Household affordability. While the Developers are primarily interested in latter, Policy makers cannot ignore former as they have to cater to the group that has no affordability.

It is the lack of attention to the former that leads to the growth of slums and housing shortage.

Table No. 10-7. Total housing demand by 2027 in Old PMC limit

Total no. of households in 2007	475165	Projected
No. of residential units in 2007	384884	Estimated
Total Numeric Shortage (HH) till 2007	90281	Calculated
Total number of Dilapidated houses	11309	Primary Survey, MASHAL
Total number of Kutchha houses	123543	Primary Survey, MASHAL
Up gradation need for slum (HH)	76026	40% slum removal till 2027
Total shortage up to 2007	**301160**	

Projected population	**3,356,121**	**(2027)[1]**
Total housing need in 2027	734381	Estimated
Total housing stock up to 2007	384884	Estimated
Total housing required in 2007-2027	349497	Calculated
Total number of Dilapidated houses that are to be added during 2007-2027	8318	Estimated
Total housing need from 2007-2027	**357815**	Calculated
Total housing need in 2027 (Nos.)	**658975**	

(Source: MASHAL, Pune)

10.5 LAND REQUIREMENT FOR PROJECTED HOUSING.

Based upon primary survey, future housing requirement for different housing group is studied by Mashal in housing study considering the projected population as given in Table above.

Table No.10-8. Housing requirement by income group		
Income Group	**% Distribution**	**HH units in Nos.**
EWS	44.14	290873
LIG	20.03	132022
MIG	26.24	172977
HIG	9.58	63103

(Source: Primary Survey, MASHAL, Pune)

Table No.10-9. Housing requirement in different typology				
Income Group	**Plotted development in %**	**Group development in %**	**Total no. of Plotted Development**	**Total no. of Group development**
EWS	10%	90%	29087	261786
LIG	15%	85%	19803	112218
MIG	25%	75%	43244	129733
HIG	40%	60%	25241	37862

(Source: MASHAL, Pune)

Table No.10-10. Land area required						
Income Group	Total no. of		Area of Plot size per DU for Plotted (sq.mt.)	Net density considered for group housing (DU/ha)	Area Required for	
	Plotted Development	Group development			Plotted Development (ha)	Group Development (ha)
EWS	29087	261786	30	550	87.262	475.974
LIG	19803	112218	100	450	198.033	249.374
MIG	43244	129733	225	350	972.995	370.665
HIG	25241	37862	400	250	1009.65	151.447
TOTAL LAND AREA REQUIRED (ha)					**2267.94**	**1247.46**

(Source: MASHAL, Pune)

Therefore, net area required for housing is 3515.4 ha. Adding the total area required for amenities, gross residential area required to be reserved to cater to the future housing demand is 4745.79 ha.

This area will reduce down substantially with the implementation of new development policies introduced in the development control regulations like giving additional FSI for development of affordable housing of household size 30sqm, higher additional FSI particularly for EWS and LIG. Policies like, MHADA, policy for redevelopment of MHADA colonies and on vacant land will also contribute to affordable housing. Also, major land is made available by converting agriculture land to residential land. eg Sangamwadi, Pashan, Lohegoan, Mundhawa. The agricultural area & vacant pockets in the Pune old limit area will cater the need of this housing stock. Policies of densification along MRTS corridor i.e metro corridor is also proposed in development control regulations. There are also places where there will be redevelopment in existing properties due to old structures aged from 30 and above years and dilipalated structures. Additional housing stock shall be available with new policies of redevelopment. In addition to this TDR generated against proposed reservations/roads and premium FSI shall also contribute to fulfill the need of housing for the projected population

10.6 Recommendations for housing

I. The stock of affordable housing can be enhanced by introduction of new policies such as increase in FSI particularly for the EWS group, like additional FSI for EWS, Slum redevelopment, MHADA policies etc.

II. Vision of slum free city can be achieved through implementation of Rajiv awas yojana, BSUP schemes, policies for Slum rehabilitation/redevelopment schemes through SRA rules and D.C. regulations.

III. Policies for providing rental housing need to be introduced taking into consideration the demand for the same.

IV. Cluster development for dilapilated wadas/chawls in the old parts of the city needs to be introduced.

V. Policies for promotion of Integrated development of townships, densification along MRTS corridors needs to be introduced.

VI. With an intention to make affordable housing available for the EWS/LIG group provision have been made regarding handing over 20% area in the form of 30 to 40 sqm and 10% area in form of 41 to 60 sqm for MIG tenements compulsory in layouts.

CHAPTER NO. 11

SOCIAL AMENITIES AND UTILITY SERVICES

11.1 INTRODUCTION

Increased level of urbanization has accompanied India's rapid economic growth in the last two decades. Our cities, which are engines of economic growth, are under great strain to meet the growing demands and aspirations of their citizens. Recognizing the growing importance of improving efficiency in delivery of basic services in our city, this plan contains series of initiatives aimed at enabling PMC to meet the unprecedented challenges that the PMC is facing today.

In addition to ensure orderly development of the city by prescribing the proposed land uses and development control, a Development Plan also aims at creating an environment to enable the residents to enjoy the desirable standards of living conditions. The social amenities and the basic infrastructure facilities play an important role in this regard.

As per the departmental manual of Town planning department, a Development Plan should be implementable rather than idealistic. The Government has accordingly laid down certain norms or standards for various social amenities comprising of educational, health, recreational facilities, etc. in terms of area and the number of sites to be provided for the projected population of the next ten years, to be distributed among the different sectors in the planning area. In addition to this, provision of additional social amenities such as youth guidance center, spastic and handicapped centers also need to be made in the City.

11.2 PLANNING FOR SECTORS

The total planning area is divided into six sectors, as has already been described in the earlier chapter. Some of the pockets, which had been shown as agricultural zone in 1987 DP, have been considered for the micro planning. While preparing the micro-plan for these pockets, various sites have been reserved for the basic amenities meant for the citizens.

Some additional proposals have also been suggested in these sectors keeping in mind the projected population for the year 2017 based on approved planning standards. Due to scarcity of vacant land, fulfillment of the planning standards is difficult to achieve to its fullest.Taking into consideration the sector-wise population distribution, site conditions, proper spatial distribution of the amenities, their spread in the city, an honest attempt has been made to achieve the standards as far as possible

11.3 AMENITIES

The 1987 sanctioned Development Plan had made provisions of certain sites for different amenities. Some of these sites have been acquired and the facilities already made available. These sites have been considered along with the other existing facilities. Some of the sites have been excluded and the modified sites have been considered in their modified form in the Revised Draft Development Plan. It is seen that even the existing amenities together with the remaining sites earmarked in the 1987 sanctioned Development Plan would not provide all the amenities to the standards adopted for the Revised Draft Development Plan. As a result, some new sites for different amenities have been added in the Draft Development Plan.

The following statements give details of the amenities as provided in the Revised Draft Development Plan.

Annexure E shows in a nutshell, the amenities provided in the Revised Draft Development Plan.

The total provision is compared against the area requirement according to the Planning Standards and the resulting achievement of the Standards after all proposals are implemented, has been shown against each category of the amenities.

The existing amenity, the sites retained from the 1987 sanctioned Development Plan. The additional sites proposed with same purpose in the Revised Development Plan in each of the Sectors and the resulting amenity at the city level, have been added in the proposed land use.

11.3.1 Each of the sites reserved in the Revised Draft Development Plan has been distinctly shown on the proposed Land Use Plan with a red verge and with the purpose of the amenity and site number. Similarly those sites showing amenities/reservations of 1987 DP developed fully are shown in same colour with black verge, sites partly developed or developed under appendix R-7, are shown in same colour and in red verge. Also sites, which have been acquired as per 1987 DP but not developed, are shown in same colour and in red verge. Sites developed fully under Appendix R-7 have been shown in same colour with black verge so that in future, redevelopment may be allowed as per the existing user.

Reservation sites of 1987 DP continued and redesignated, which have been proposed in draft development plan have been given in STATEMENT No 11.1.

11.3.2 The amenities have been provided taking into consideration the prevailing practice observed in the city, as described below:

The 1987 sanctioned Development Plan had made provisions of certain sites for various amenities. While preparing revised development plan of 1987, some of these sites were continued. These sites have been considered along with the other existing facilities. Some of the sites have been excluded and the modified sites have been considered in their modified form in the Revised Draft Development Plan. It is seen that even the existing amenities together with the undeveloped sites of 1987, would not suffice the standards adopted for the Revised Draft Development Plan for the projected population in 2017. Some new sites for various amenities have therefore been added in the Revised Draft Development Plan.

11.4 EDUCATIONAL FACILITIES

11.4.1 Primary Schools:

As per section 63 of BPMC Act 1949, it is the obligatory duty of the Planning Authority to provide primary education to children.

However, primary schools are also run in Pune by the private institutions, which cater to about 60% of primary school going student. It is

observed that PMC run primary schools are the best options available to the children coming from poor families, slums, etc. It is utmost important that each school should have a playground of its own.

The sites for Primary schools have been so located that students will have to travel a distance of not more than 0.6 km or a travel time of not more than 10 to 12 min by walk. In 1987 sanctioned DP, Sites reserved for primary school were allowed to be developed by owner or institute. Now this provision has been continued by reservation of 10% of total seats for students belonging to economically backward class, as recommended by the Municipal Commissioner.

Sites acquired by PMC may be developed, by inviting tenders, from reputed institutions. In such cases, 30% of total seats shall be reserved for students belonging to economically backward class, as recommended by the Municipal Commissioner.

11.4.2 High Schools

It has been found that about 10% of the total population will avail the facility of high school. Since the 1987 sanctioned DP, several sites designated in the DP, as also on private plots have been developed. It has been proposed that sites reserved for high school shall be developed by PMC or, if PMC so wishes, by private institutes. In the latter case, proper tendering process shall be followed. For sites acquired by PMC and allowed to be developed by institutes, it shall be ensured that 30% of the total seats shall be reserved for students belonging to the economically backward class as recommended by the Municipal Commissioner. For sites developed by owners/private institutions (without PMC acquiring them), 10% of the total seats shall be reserved for students belonging to the economically backward class as recommended by the Municipal Commissioner.

There is cut throat competition in the field of education. This, coupled by the fact that both the parents are working, makes it difficult for them to devote time towards the studies of their children. This has resulted in the mushrooming of the coaching classes all over the city.

It is found that some of private coaching classes are run in residential area and many a times prove to be a nuisance to the neighborhood. Taking this into consideration, these uses shall permit the PMC to allow running of private coaching classes in the premises of schools run by both, the PMC and private institutions, after the school hours. In such cases, 15% of total intake shall be for students belonging to economically backward class, as suggested by the Municipal Commissioner.

11.4.3 Hostels

Pune city is known as the "Oxford of the east". There are lots of students coming into the city for the education purposes. It is a fact that there are inadequate accommodation facilities for students in the education campus. In many housing colonies, students are not allowed to reside. Hence separate accommodation is needed.

To tackle this situation, any landowner may be allowed to develop his property wholly for hostel purpose with an additional FSI of one in lieu of premium, provided his property lies within 500m radius from the boundary of educational institute and the owner executes a Contract with the concerned educational institutions.

Minimum 10% rooms shall be kept reserved for students belonging to economically backward class/ LIG/socially backward class nominated by the Municipal commissioner. These rooms shall be made available free of charge.

11.4.4 Industrial Training Institute

There is only one industrial training Institute in Pune which is in Aundh area and Sholapur Road area. No new sites have been proposed.

11.5 HEALTH FACILITIES

As per section 63 of BPMC Act 1949, it is the obligatory duty of the Planning Authority to provide primary health facilities.

Dispensaries and maternity homes have been considered under health facilities. It is important to note that private institutions play a big role in providing health facilities to the general public. Taking this into consideration, the health facilities to be catered by the planning authority have been considered for 50% of the population. Thereby, it has been ensured that the sites for dispensaries (run by private institute or PMC) shall be available to the people within an influence zone of radius of 0.6 km to 0.8 km. The same, for maternity home and hospital shall be about 1.6 km.

The sites reserved for hospital and maternity home may be allowed to be developed by private owners/institutions. Due to scarcity of urban land to provide citizens with medical facilities, additional FSI will be given to such institutions by charging premium. Sites reserved for hospital and maternity home may be acquired by planning authority, which may be allowed to be developed, by the planning authority or by private institutions. In latter case, development shall be done by inviting tenders. In cases where sites for hospitals are developed by owner/private institutes, free medical treatment to the extent of at least 10% of the total number of beds, of the additional FSI shall be given to persons from economically weaker sections of society or to persons below the poverty line, referred by Municipal Commissioner. In addition, 10% of the total number of patients in OPD shall be provided treatment at concessional rates i.e. rates that are being charged in Government hospitals.

If any Owner/Charitable Institute proposes to develop a hospital on an unreserved plot, he/it may be allowed to do so with a maximum FSI of 4.0 and on conditions mentioned above.

Note: In cases where no additional FSI in lieu of premium is proposed by owner/institute, the condition of free medical treatment to the extent of at least 10% of the total number of beds and concessional rates to 10% of the total number of patients in OPD, shall not be applicable.

In cases of severe trauma, it becomes a priority to transport patients suffering from severe trauma as fast as possible to specialists, most often found at a hospital trauma center, for definitive treatment. In emergency medicine, the golden hour refers to a time period lasting from a few minutes to several hours following traumatic injury being sustained by a casualty, during

which there is the highest likelihood that prompt medical treatment will prevent death. Giving consideration for such worst situations, sites have been reserved for trauma hospitals along highways passing through city limit or major spine road, carrying high traffic volume.

11.6 RECREATIONAL FACILITIES:

Creation of a sustainable physical and social environment for improving quality of life is one of the major objectives of the plan**.** The almost unprecedented scale and speed of urbanisation in Pune has resulted in enormous pressure on the physical environment with a severe adverse impact in terms of pollution. Today, Pune is considered to be among the most polluted cities in India. With a view to address these situations, it is necessary to reserve sites in sufficient numbers for Children's Play-Ground, Play-Ground, Parks, and Gardens.

Sites for Children Playgrounds have been provided with easy access to small children within 5 to 10 minutes walking distance or 0.2 to 0.3 km. Number of suitable sites have been proposed, wherever possible, for this purpose.

The playgrounds should be well distributed suitably to make them available for maximum number of residents, with easy accessibility. The Playgrounds, which have been attached to the schools, would be restricted only to the school going children.

Parks provide recreation to the citizens who can enjoy the thematic eco-friendly environment and the scenic beauty of the area. Some of these sites have already been earmarked on large area of hills, and since this is a city level amenity, for obvious reasons, no standard of accessibility can be applied to such sites.

Gardens act as the major lung spaces for the city. Till date, 103 small and large gardens have been developed by PMC in the city and about 25 new gardens are likely to come up in the coming 3 years. Various theme gardens such as palm garden, bamboo garden, blind garden, moghul garden, nalla garden, Japanese garden, Spice garden, etc are being developed in the city. Taking into consideration the need of gardens as breathing spaces for the city,

few more gardens have been proposed in this revised development plan. New proposals like amusement parks, floriculture, Traffic Park, adventure sports parks, etc. are introduced in the revised development plan.

11.7 COMMERCIAL ZONE:

As per the aims and objectives defined earlier, in order to generate more employment in the city and to step up the work force ratio from 37% to 60%, an attempt has been made to motivate the tertiary sector by encouraging development in finance sector like banking, IT, service industries, hospitality etc. Commercial zone /district commercial zone is shown in the plan. The congested zone is the main commercial centre in the city. The commercial zones are identified and shown as C-1 zone in congested area and C-2 zone in non-congested zone. Laxmi Road has been earmarked as commercial zone and policies have been framed for the same.

11.8 FIRE BRIGADE STATIONS:

To enable the firefighting squad to speed off from the stations in different directions within the shortest possible time, adequate number of sites for Fire-Brigade stations have been provided in different parts of the city at suitable locations. The facility has been provided, as required as per the standards, i.e. 1 station for 2 lakh populations within 3 km radius. In addition to the existing sites, few more sites have been designated in the proposed Land Use Plan. In the revised DP, provision of development of sites reserved for fire brigade by the owner, has been continued on the lines of the provision in 1987 DP.

11.9 CIVIC & CULTURAL CENTERS:

The 1987 Development Plan had an adequate provision of civic and cultural centers. Some of the designated sites have already been developed. In the revised plan, the remaining sites have been continued and few more, newly designated. One site is designated for civic and cultural centre which can be developed as multi-drama theatres. This is a new concept on the line of multiplexes. On this site, four to five drama theatres of small and big

capacities will be constructed. This will be the cultural hub for amateur as well as professional dramas. Full-fledged activities for all age groups will be provided. Provision has been made in the Development Control Regulations for construction of multipurpose hall in educational campus, and the same is to be made available for rehearsal of dramas in halls of municipal school, after the school hours. In order to give opportunities to amateur artists to present their skills, small open stages will be allowed in large parks.

In the revised DP, provision for sites reserved may be allowed to be developed by the planning authority/owner or institute, is continued with modification.

11.10 PUBLIC & SEMI PUBLIC USE:

Lands owned by Government or other public authorities or institutions, charitable trust and under existing use for some or the other public purpose have been zoned for public and semi-public use. Since these are not the reserved sites, a verge does not bind them.

It is desirable that the facilities available on such sites should be continued. Uses in this zone are specified in the Development control regulations.

11.11 OTHER FACILITIES:

Under this category, sites for public purposes such as Municipal Purposes, telephones, posts, police chowky, old age homes, school for handicapped & spastics, public toilets, ward offices etc. have been included.

11.11.1 Parking places:

With the phenomenal increase in personalized motor vehicles, one of the major problems being faced today is an acute shortage of parking space. In the absence of adequate organized parking space and facilities, valuable road space is being used for vehicular parking.

Sites have been included under Traffic Transportation proposals and shown on the proposed Land Use Plan. Private owners are promoted to develop unreserved and unencumbered plots for parking within 200m from

Metro, Bus Depot, BRT stations, Railway stations, Existing Government organisations, important religious and tourist places or plots on the periphery of the congested area.

11.11.2 P.M.P.M.L, Interchange/Bus Terminus etc.

The sites reserved for the bus station terminals or depots, the sites for interchange associated with the proposed High Capacity Mass Transportation Route, interchange, truck terminus, vehicle depot and metro stations etc. have been included under the transportation proposals and shown on the Proposed Land Use Plan.

11.12 UTILITY SERVICES

11.12.1 Crematoriums and burial grounds:

It has been observed, that the existing cremation or burial grounds are not conveniently located from some of the developed areas in the city. Additional sites have been reserved in order to make this facility available within a reasonable distance from all parts of the city. These sites have been shown on the Proposed Land Use Plan accordingly. (Karvenagar GB and Hadapsar 91 variation, katraj)

11.12.2. Dhobi Ghat:

Considering the need of dhobi ghats, site for the same have been reserved at different location in draft development plan.

11.12.3 SEWAGE GENERATION AND TREATMENT SCENARIO IN PUNE CITY:

11.12.3.1 Sewage System:

At present there are sewage treatment plants located at Bhairoba,Tanajiwadi,Bopodi,Erandawane,Naidu,Vittalwadi,Mundhawa,Baner, Kharadi, Kalyaninagar,Vishrantwadi mental hospital etc.



Table No 11-1 : Existing Sewage Treatments Plants			
Sr. No.	**Location**	**Process**	**Capacity, MLD**
1.	Bhairoba	Activated Sludge process followed by Anaerobic digestion	130
2.	Tanajiwadi	Bio-tower and extended aeration Process	17
3.	Bopodi	Extended aeration Process	18
4.	Erandwane	Activated Sludge process	50
5.	Naidu – I	Activated Sludge process followed by anaerobic digestion	90
		Total	**305**

11.12.3.2 Collection & Conveyance System:

Conveyance Lines- For collection & conveyance of sewage generated in Pune City, Conveyance mains are laid for carrying sewage to various Sewage Treatment Plants. The total length of conveyance lines laid along the rivers & nallas is 300 Km. The total length of Sewer lines in the city is about 1900 kms. The Sewage Network covers about 95% of the developed area of the city.

The following table shows the phasing of the works that have been carried out:-

Table No 11-2 : JNNURM Funded- Sewage Treatment Plants				
Sr. No.	**Location**	**Process**	**Capacity, MLD**	**Remark**
1.	Naidu – II	Activated Sludge process	115	Commissioned in April 2010
2.	Vittalwadi	Activated Sludge process	32	Commissioned in March 2009
3.	Mundhwa	Cyclic Activated Sludge Technology	45	Commissioned in March 2009
4.	Baner	Cyclic Activated Sludge Technology	30	Commissioned in Dec 2010
5.	Kharadi	Cyclic Activated Sludge Technology	40	Commissioned in Jan 2012
		Total	262	

Table No. 11-3: Recompilation Sheet		
Sr. No.	**Particulars**	**Estimated cost (lakhs)**
I	**Capital cost**	
A	Collection system and trunk mains	
1	Collection system in Baner and Balewadi	1748.67
2	Trunk sewer and conveyance mains	7790.34
	Total A	**9539.01**
B	Cost of STP	
3	Masty Beej Kendra STP-8 MLD (MBR)	1038.32

4	Mundhwa STP - 45 MLD (SBR)	3789.16
5	Bhairoba STP - 70 MLD (SBR)	7429.06
6	Naidu STP - 125 MLD (SBR)	10800.6
7	Vadgoan STP - 20 MLD (ASP)	1960.44
8	Warje STP - 25 MLD (EA)	1521.69
9	Tanajiwadi STP - 19MLD (EA)	1118.61
10	Botanical Garden STP- 21 MLD (SBR)	2235.93
11	Dhanori - 36 MLD (ASP)	2956.56
12	Kharadi STP - 14 MLD (SBR)	1263.69
	TOTAL B	**34414.07**

C	IPS (Intermediate Pumping Stations)	470.4
D	Land Acquisition	3151.08
E	Public Awareness and Public Participation	35.5
F	Capacity Building Cost	5.75
	SUB TOTAL (A+B+C+D+E+F)	**47615.8**
G	Other	
	Preliminary Work (3%)	1428.47
	Establishment and Supervision (6.75%)	3214.07
	Special T & P (1%)	476.16
	Audit and Account Charges (0.25%)	119.04
	Contingency (3%)	1428.47
	TOTAL G	**6666.21**
	TOTAL (I)	**54282.01**
II	**O&M COST FOR 5 YEARS**	**17223.4**
	TOTAL PROJECT COST (I+II)	**71505.41**

11.12.4 WATER TREATMENT & SUPPLY SCENARIO IN PUNE CITY:

11.12.4.1 Introduction

Water Supply and Sewerage are the basic facilities, which serve as catalysts for organized development and add on to the economic importance of Pune city. With a progressive approach, PMC developed a Master Plan for Water Supply and Sewerage for the year 2025. The planning area considered was Pune Cantonment area, Khadki Cantonment area and 36 villages merged within PMC in September 1997.



Wadgoan Treatment plant

11.12.4.2 Existing Treatment, Transmission, Storage and Distribution Facilities Existing treatment plants

Table No. 11-4 : Existing treatment plants.		
Sr. No.	**Water Treatment Plants**	**Working at (MLD)**

Table No. 11-4 : Existing treatment plants.		
Sr. No.	**Water Treatment Plants**	**Working at (MLD)**
1	Cantonment	360
2	Parvati	535
3	New Warje	100+86
4	Wadgoan	125
5	Holkar Phase - I	40
6	Others [Warje , Wagholi and Holkar (old)]	60
	Total	1306

The phase-wise implementation programme of water supply scheme is as given below:

Phase	**Year**	**Water (MLD)**
Phase I	2005	791
Phase II	2015	1047
Phase III	2025	1506

Table No 11-5 : Capacity of Water Treatment Plant						
WTP	**Phase wise- Additional Capacity**			**Cumulative Capacity**		
	I	**II**	**III**	**I**	**II**	**III**
Parvati	..	..	..	534	534	534
Cantt	..	..	80	280	360	360
Warje	100	68	218	100	168	386
Holkar	40	..	40	66	66	106
Vadgaon	125	90	125	125	215	340

11.12.4.3 Extent of the Water Supply Area

The Pune Municipal Corporation limits till 1997 was only about 147 sq. km. Recently it has increased to 243 sq. km. due to the inclusion of 23 fringe villages. This was a major boost for the outgrowth of the city. Corporation presently supplies water to some of the fringe villages, Pune and Khadki cantonment area.

11.12.4.4. SOURCES OF WATER

11.12.4.4.1 Existing Sources:

Khadakwasla Dam is a live storage across river Mutha constructed in Mawal taluka of Pune district. This dam is located at a distance of 12 km from the project area of Pune. This is the existing source of water supply for Pune city since long period of time. This dam has replenishment from dams such as Panshet, Warasgaon and Temghar, which are located upstream of this dam. The Irrigation department has already granted a supply of 11.50 TMC water from this dam.

11.12.4.4.2 Distribution network: Approximate total distribution networks within the city – about 2400 Km., out of which, the approximate aging of pipe is as below:

Age > 40 years	Length About: 750 km	about 30%
Age 25- 40 years	Length About: 625 km	about 25%
Age 10- 25 years	Length About: 625 km	about 25%
Age 00- 10 years	Length About: 500 km	about 20%

There are 7 Water Treatment plants catering to the need of treated water for the city. Within the city, there are 53 Water Storage Reservoirs and 20 Pumping Stations. The PMC area has been divided into 48 distribution zones based on ESR, GSR and pumping stations. Total length of the Water Lines , which are functioning, is about 2400 km.

11.12.4.4.3. Master Planning

The master plan needs to be prepared considering immediate requirement for the year 2026 and design year 2041 as per JNNURM toolkit.

Master Plan shall be prepared considering following points;

1	Head work at Khadakwasla	Present facility is sufficient for 2026 requirement and it requires augmentation for year 2041 with additional pipeline from Khadakwasla.
2	Transmission system for raw water	The existing system requires augmentation to cater to 2041 demand of about 1300 MLD
3	Water Treatment facility:	Old treatment plant can be augmented or redeveloped. In addition to that, recirculation of the wash water may be considered.
4	The raw water transmission for feeding	Cantonment WTP (CWTP) need to be considered for the year 2041. Additional raw water line has been planned directly from the source up to CWTP.
5	Bhama Askhed Project	This needs to be supplemented by an additional source. This will surely help in reallocation of available water to other parts of the city from existing Khadakwasla source.
6	Remodeling of distribution system	The immediate improvement in existing distribution network for reduction of NRW to achieve equitable distribution along with the provision for distribution network to the recently merged villages. This requires rigorous distribution, modeling and amalgamation with the existing network after carrying out detailed distribution analysis, pressure monitoring and sufficiency analysis for year 2026 and year 2041.
7	Metering System	100% metering is envisaged to improve the collection system as well as check on consumption of water by way of telescopic rates. The consumer metering as well as bulk metering system for billing and recovery is essential as per JNNURM toolkit and for funding. This will definitely check the consumption pattern and NRW of water. Installation of the advance water meters in line as per the prevailing practice at other corporations such as Mumbai, KDMC, PCMC etc. can also be adopted.
8	SCADA System	A well defined SCADA system connecting all nodes of water supply system with advancement recording and monitoring facility is necessary.

11.12.4.5 GROUND WATER SURVEY

Study of the shallow groundwater regime in the Pune Municipal Corporation area is carried out by the Research and Development Cell of Groundwater Surveys and Development Agency, Water Supply and Sanitation Department Government of Maharastra. The detailed study like assessment of groundwater resources in urban watersheds, groundwater characteristics, groundwater as alternative source etc has been carried out.

11.12.4.5.1. Groundwater- an important alternative source

Groundwater continues to be an important constituent in supplying urban populations with sizeable quantities of drinking water and is an 'unsung hero' in large and small cities of India. The competing demands for water in different sectors are ever increasing and groundwater of suitable quality can substitute for surface water in this regard.

There is an ample scope in the present study area to encourage dual systems for use of raw groundwater and potable drinking water. Presently, treated potable pipe water is being used for all activities. Raw, untreated groundwater can be used for gardening, flushing toilets, bathing, washing and recreation. This will reduce the quantity of potable pipe water required for drinking and related commercial purposes, thereby saving on purchase, treatment and storage of potable water.

11.12.4.5.2. Potential Recharge zones

The study of hydrographs of typical unconfined phreatic aquifers from the study area also highlight the fact that recharge is primarily from the monsoon rains. Pattern of rise and fall of water levels is directly related to the amount and duration of precipitation, seasonal fluctuation and water abstraction for different water uses.

11.12.4.5.3. Roof top Rainwater Harvesting

Rainwater harvesting is a deliberate collection of rainwater within the catchment for the purpose of drinking, irrigation, etc. Collection and storage of

rainwater can be made in manmade structures or natural depressions in the catchments. Catchment includes rocky surfaces, hill slopes, and rooftops or artificially prepared impervious or semi-pervious land surface. Storage is generally done in man-made tanks, lined pits and small dams or in the sand beds of seasonal rivers. The collection and storage generally begins and ends with the rainy season. Users are left with a fixed volume of water until the next rainy season comes. Thus the amount of water harvested (collected and stored) depends on the frequency and intensity of rainfall, the catchment characteristics, amount of water need and capacity of the storage tanks.

11.12.5. SOLID WASTE MANAGEMENT

11.12.5.1 Existing solid waste management practices in Pune.

Municipal Solid Waste Management (MSWM) has been a crucial issue while planning a growing city like Pune. Municipal Solid Waste generation in Pune is among the highest in Indian cities with an average 0.450 kg per person per day of waste being generated. Currently, about 1200-1300 metric tonnes solid waste is generated per day. The source-wise broad composition of solid waste generated in the city is Commercial 25%, Market Area 5%, Hotels & Restaurants 25%, Vegetable Market 5% and Household 40%. Organic and bio-degradable portion of solid waste is about 50% and therefore can contribute significantly in solid waste management.

Out of the total solid waste generated i.e. 1200 to 1300 MT/day, about 50% contains the bio-degradable solid waste and remaining is non-recyclable waste. Out of total 650 MT of bio-degradable waste, 50 MT is treated in Bio-methanation plants, about 400 MT is segregated and treated at Urali Devachi and about 200 MT biodegradable wastes is treated at Hadapsar Industrial Estate No. I using vermin-composting on a plot, admeasuring 4 Acres. On this same plot, the work of erecting another vermin-composting plant of 100 MT is in progress and will be commissioned shortly. Out of this, 50% about waste is of non-recyclable waste and this is treated at Urali Devachi by adopting Residual Derived Fuel technology and plastic pallatisation technology.

11.12.5.2 Various methods of solid waste management are

1. **Biomethanation-cum-Power Generation Plants**

The major portion of urban solid wastes is the organic fraction (@ 50%) which can be easily treated by anaerobic digestion. Apart from this, the solid wet waste generated in urban areas from vegetable markets, hotels, hostels, community/individual kitchen wastes etc. are best suited for this process due to the presence of high moisture and organic fractions (up to 90%).This biogas can then be used as a source of renewable energy to produce electricity. The solid residue, which remains after bio-methanation process, can be separated and utilized as manure.

2. **Vermiculture treatment**

Solid waste can also be treated by providing vermicuture pits in the building premises.The solid waste, mainly the wet waste is collected daily from households and stored in pits provided as per week days, which is further treated and converted into compost /manure.

11.12.6. Implementation of Biomethanation-cum-Power Generation Plants in Pune



Hadapsar plant



Mundhwa plant

Pune Municipal Corporation is the first Municipal Corporation in India, to implement the decentralized MSW treatment plants. The number of projects under various stages of implementation is as follows;

Table No. 11-6 : Municipal Solid Waste Management plants and capacity.				
Sr No.	**Name of Ward Office**	**Sector**	**Capacity (TPD)**	**Output**
1	Kasba - Vishram	1	1X5 Tonnes/day	Electricity & Manure
2	Dhankawadi	2	2X5 Tonnes/day	Electricity & Manure
3	Bibvewadi	2	1X5 Tonnes/day	Electricity & Manure
4	Karve Rd.	3	1X5 Tonnes/day	Electricity & Manure
5	Ghole Rd.	3	1X3 Tonnes/day	Electricity & Manure
6	Aundh	4	1X5 Tonnes/day	Electricity & Manure
7	Yerawada	5	1X5 Tonnes/day	Electricity & Manure
8	Hadapsar	6	2X5 Tonnes/day	Electricity & Manure
9	Hadapsar	6	1X2 Tonnes/day	Electricity & Manure

11.12.7 POWER SCENARIO IN THE CITY



A city like Pune which is growing or expanding very fast, needs energy for its development. Energy is needed for residential, commercial, industrial fields and other fields.

11.12.7.1 Pune – Facts and Figures

Total Consumers (HT + LT)	:	16, 70,042

HT Consumers	:	2,628
LT Consumers	:	16, 67,414
Residential Consumers	:	12, 76,555
Commercial Consumers	:	1, 61,035
Agricultural Consumers	:	1, 61,598
Metered	:	46,094
Un-metered	:	1, 22, 504
Others		
ST Light	:	7,750
Power Loom	:	53
PWW (U)	:	74
PWW (R)	:	2,326
Poultry	:	2,389

- Pune Electric Supply Company , a private company was formed after taking the permit under the Electricity Act of 1910
- Oil driven units for producing electricity were installed at Rasta Peth Power House
- This company was nationalised and taken over by the MSEB in 1964
- Basically, MSEB was formed only for the management of the Grid, but for different reasons, the nationalisation of more than 100 permit-holding companies was done by MSEB.
- Power Shortage in Maharashtra is about 6000 M.W, Losses and Non-recovery of charges is very high
- In Pune Zone, losses amount to about 39 %

11.12.7.2 Pune Model

- Initiative taken by the Industrialists
- Electricity generation by using Oil driven units

- Compensation for power shortage
- 42 Paise per unit is the additional charge borne by the citizens for this initiative
- House-hold Consumers using less than 300 units are exempted from this additional charge

- Even though the percentage of losses in Pune is less as compared to the other cities and towns, Puneites have to pay extra charge in addition to the 42 paise, on account of cross-subsidization.

The demand of electrical energy for Pune city is as follows.

Year	**Electrical demand in Million Units (MUs)**
2007-08	4700
2008-09	4980
2009-10	5295

(Source :- Samarth Pune 2020)

The overall no of users in the city are as follows:-

Table No. 11-7 : Overall electricity users

	Residential User	**Commercial User**	**Industrial User**	**Other Users**	**Total**
Consumer Nos.	1138720	165496	25227	11573	1341016
Percentage of total	85%	12%	2%	1%	100%

Source: ESR, 2009-10

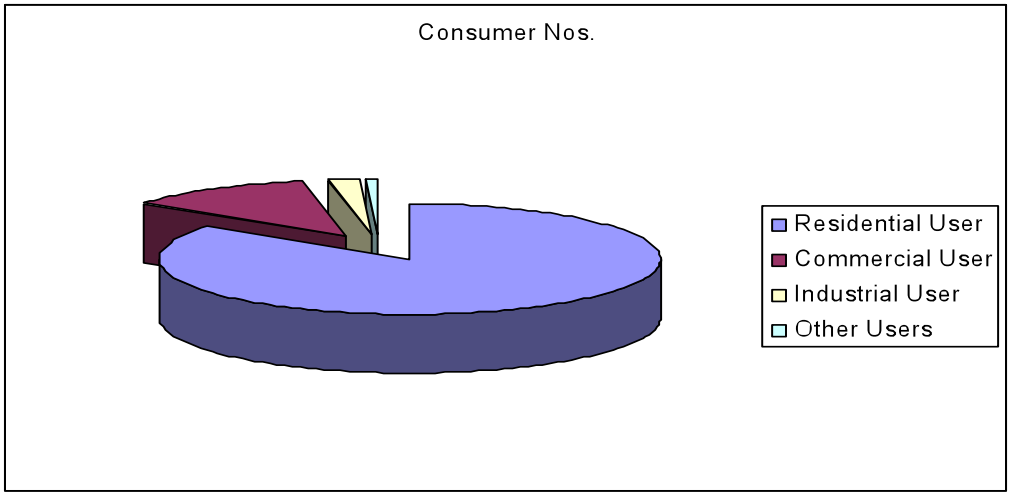


Figure No. 11-1 : No. of Consumers of electricity uses

The following table gives details regarding the % of the total energy consumption in the city:

Table No. 11-8 : Total energy consumption.

	Industrial	Residential	Commercial	Public work	Street light	Total
% of total energy consumption	42%	32%	21%	4%	1%	100%

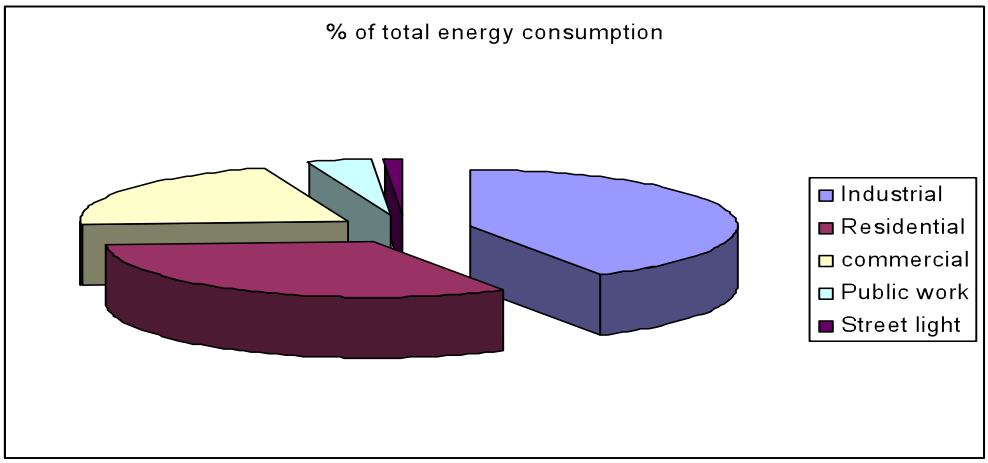


Figure No. 11-2 : Percentage of total energy consumption

It is observed from the above Pie chart, that even though the no. of residential consumer is 85% of the total no., the energy consumption is 32% and even though the no. of Industrial consumers is only 2%, the energy consumption is 42%, which is substantially high. For commercial users, energy consumption is 21% and for other users, i.e street lights, it is only 1%.

In the light of energy crisis, PMC is trying to enhance energy efficiency for street light energy consumption.

11.12.7.3 Use of Non-Conventional Energy

Pune city is taking the lead in demonstrating the applications of solar energy for its various activities, such as for heating water.





Taking advantage of the various schemes and subsidies provided by MNRE/ MEDA, the residential, commercial, and industrial sectors are using solar energy on a large scale.

To promote the usage of non-conventional energy among the housing projects, the municipal corporation has introduced ―eco-housing projects.

11.12.7.4 Future Requirement of power

Present Requirement of Pune is 700 MW

Projected requirement of Pune in 2020 is 2500 MW

The above figures indicate that the energy requirement is likely to increase by more than three times in the next decade.

11.12.7.5 Initiatives undertaken by Pune Municipal Corporation for energy management

In light of the energy crisis in Maharashtra, Pune Municipal Corporation is trying to enhance the energy efficiency. To achieve energy conservation, basically energy audit and implementation of the energy saving projects suggested in audit report is necessary. Pune Municipal Corporation has prepared an action plan for the same.

11.12.7.5.1 The Electrical department of PMC is working on street lights, garden lighting, various art galleries, Auditoriums, illumination of various buildings & crematoriums. The average yearly electrical consumption is as follows:

For street lights	**33.81 mwh / year**
For garden lights	**1.05 mwh / year**
For Building lights	**3.67 mwh / year**
For water supply and drainage	**189.70 mwh / year**

Since Pune city is expanding, the street light requirement is also increasing. PMC's electrical department has concentrated on energy management for street lights. In 2007-08, number of energy meters was 1430 & in 2009-10 the number has increased to 1578.This means that on an average, there is an increase of 150 no. of meters. 1500 KW load has increased in the last 2 years.

11.12.7.5.2. Provisions in Development Control Regulations

(A) Provision of solar panels on roof tops has been made mandatory for all constructions in the city. Concessions are offered in the property tax.

(B) Eco housing program has been launched by PMC. The provisions include steps to reduce energy usage by the use of energy saving fittings, fixtures and lighting system. Developers are encouraged to adopt the eco housing program and are incentivised based on the performance of their project.

(C) Provisions have been included in the development control regulations making it mandatory for all residential and commercial schemes having an area more than one acre to provide LED fittings and fixtures in all internal common areas such as staircase, passage, parking etc. within the buildings and solar fittings & fixtures in external areas such as on streets

11.12.7.3.2 An Energy Park has been established in Peshave Park in co-ordination with MEDA which is meant to explain to the general public, the nuances of renewable energy, its importance on the backdrop of the depleting resources and the pollution associated with them.

11.12.7.5.3 An energy park of a different type has been proposed on Ram Tekadi hill in Hadapsar, where non-conventional energy will be produced.

STATEMENT NO 11.1

Details of Reservations from 1987 DP in Proposed Land Use

Sector No.	No. of reservations Continued in proposed land use.	No. of Reservations continued with redesignation in proposed land use
I	64	9
II	82	16
III	62	18
IV	41	16
V	29	21
VI	82	13
Total	360	93

CHAPTER NO 12.

HERITAGE RESTORATION, CONSERVATION & TOURISM

12.1. Existing Situation

Pune City is not an exception to the phenomena of growth of a traditional city in to a prosperous Metropolis city, which was ruled by many dynasties in past centuries. The earliest evidence found in copper plates of 758 A.D. and of 768 A.D. reveals that the *Rashtrakootas* ruled this region then. At that time, Pune was referred to as *Punaka Vishya* and *Punya Vishaya*. Copper plates of 960 A.D. refer to it as *Punaka Wadi* and *Punaka Desha*. Here *Vishaya* means region. The Pune Gazetteer explains the term Pune as *Punya* – a holy place. In Hindu tradition, confluence of two rivers is sacred. Hence, this city where there is a confluence of two rivers is *Punyanagari.*

12.2 Urban Morphology:

The ward Bhamburda i.e. present Shivajinagar rose to importance in the post 1911 period.Water supply to the town was brought from the Katraj reservoir built in 1750. Parvati Lake was built in l755 at the southwest corner of the town by Balaji Bajirao as a feeder to the Katraj reservoir. Ambil Odha stream was dammed and diverted (with sluices provided in the dam) to fill the lake from the floods of the stream. In 1782, the city was provided with drainage. For the City's water supply, two more reservoir were built- one in 1778 by Sardar Raste at Kondhawa and another in 1790 by Nana Phadanawis at Narhe Ambegaon to the south of Pune.

12.3 Urban Elements:

Diverse activity pattern in the historic area has given rise to different types of Urban Elements. These elements have typologies that have evolved over several generations. The various urban elements existing in the historic area are: Wada, Bazaars, Temples, Alis, Ghats, and Caves.

Major Historical Places in the City

Shaniwar Wada



Nana Wada



Kasba Ganpati Mandir and Kasba Peth



Mahatma Phule Mandai



Vishrambaug wada



Belbaug Mandir



12.4 Projects supporting Economic Development, Culture, Heritage and City beautification

While PMC doesn't have a direct role to play in the economic development of the city or the region, it proposes to play a proactive role in facilitating and supporting the same through identified projects, from time to time. While the infrastructure development initiatives are in this direction, other initiatives like; revitalisation of the old city by decongesting the core area through relocation of specific economic infrastructure like markets, wholesale and trade centers etc to appropriate locations on the periphery, have been proposed. PMC proposes to lend a helping hand to the heritage of the city through various initiatives so as to aid the tourism activities in the city.

These initiatives include development of heritage walks and restoration works on heritage sites etc. The details are presented below.

- Heritage list for Grade I, II & III updated from time to time by heritage committee PMC.
- Documentation of heritage structure like photograph, models, videos, microfilming etc.
- Through a joint venture between Deccan College (Archaeological dept.) and PMC, a Heritage Park is proposed to be developed.
- In the first phase, the Heritage Structures of Vishrambaug wada, Nanawada, Kasba ganpati and Mahatma Phule wada have been identified for restoration and beautification through DPDC funds.
- A Heritage Walk as a guided tour is proposed to be developed covering Shaniwarwada, Lal Mahal, Nanawada, Kasba Ganapati, Muzumdar wada, Tambat Alli, Shitolewada, Mahatma Phule Mandai, Vishrambaug, Tulsibaug and Belbaug.
- At identified locations like Pashan Lake, Peshwabaug and Katraj Lake, display areas are proposed to be developed for display of paintings by amateur artists.

12.5 Heritage Walk

The Pune Municipal Corporation has prepared a list of heritage properties that need to be preserved and conserved. With the help of Central Government, the P.M.C. has been successful in the conservation and preservation of Shaniwar wada and the adjoining surroundings along with Vishrambag Wada, Nanawada, Kasba Ganpati Mandir and Mahatma Phule Mandai. If the construction of roads, railing and street light arrangement is done in resemblance with the historical heritage properties, it will attract a lot of tourists that come to Pune to see these Historical places.

In respect of the above points, P.M.C. has prepared a project named "HERITAGE WALK". The motive of this particular project is to preserve and conserve the old monument in the congested area and attract tourist. This project will help the tourists and visitors to view the old historical places in city by taking a walk along the Heritage path. To view these historical monuments, a walking way namely "HERITAGE WALK" has been finalized in this project.

The tourists, visitors and the citizens will be given information regarding the historical, traditional and cultural importance of Pune. The project "HERITAGE WALK" consists of site-seeing of historical monuments like Shaniwarwada, Tambat Ali. Kasba Ganpati Mandir, Lal Mahal, Nanawada, Nagar Vachan Mandir, Bhide Wada, Mahatma Phule Mandai, Vishrambgwada, Tulshibag, Belbag, Amruteshwar Mandir. Before quoting an appropriate budget for this project and to start its implementation, it is necessary to prepare detailed master plan and to undertake a detailed analysis.

12.6 TOURISM IN PUNE CITY:

12.6.1 Introduction:

Tourism can be defined as travel undertaken for recreational, leisure or business purposes. The World Tourism Organization defines tourists as people who "travel to and stay in places outside their usual environment for more than twenty-four hours and not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited. Tourism has become a popular global leisure activity.

Tourism sector has contributed to the economic growth of Pune city. Factors related to Tourism are industrialization, education, higher number of qualified professionals, opening up of foreign markets, liberal trade policies and better advertising, cultural activities and strategic marketing.

The above factors have been collectively responsible for boosting Pune city's economic reserves and the impact of economic growth on tourism is increasingly being felt in specialty sectors like spiritual tourism, spa tourism, student/senior citizen or family vacation plan segments in tourism as well as adventure tourism, Medical Tourism, Sports Tourism etc. Better amenities and modernization of roads, infrastructure in hotels, local lodging options, accreditation of genuine travel operators and guides etc., training being imparted by government and private sector individuals interested in developing specific regions for tourism promotion and encouraging global gains, will surely boost tourism in city.

12.6.2 Recommendations and scope in Tourism for Pune city:

Cultural and Heritage Tourism, Eco-Tourism, Medical tourism, Educational tourism, Sports tourism.

CHAPTER NO. 13

TRAFFIC AND TRANSPORTATION PLAN FOR THE PUNE CITY

13.1 INTRODUCTION:

Traffic & Transportation is the lifeline of city metabolism. Transportation Planning is an integral part of development planning. Pune city is an important urban center in Maharashtra and a rapidly growing metropolis of the country. The metropolitan area of Pune extends over 2100 sq. km. The Pune Metropolitan Area (PMA) consists of Pune Municipal Corporation (PMC), the Pimpri -Chinchwad Municipal Corporation (PCMC), Cantonment Boards of Pune and Kirkee and some villages. The total length of road network in PMC area is about 2250 Km, out of which 243km roads were proposed as DP roads in 1987 Development Plan. Out of these, about 166 km i.e 68% roads have been developed.

13.2 NATIONAL URBAN TRANSPORT POLICY FRAMEWORK:

The National Urban Transport Policy (NUTP) is formulated to transform the current urban transport system into a safe, convenient and efficient transportation system across all urban areas in India. It is necessary to ensure that the various urban transport projects that are being developed by the cities are NUTP compliant i.e they focus on mobility of people rather than vehicles and accordingly give priority to pedestrians, non-motorized transport (NMT), all modes of public transport and IPT."

The objective of the National Urban Transport Policy is to ensure safe, affordable, quick, comfortable, reliable and sustainable access for the growing number of city residents to jobs, education, recreation and such other needs within the city.

The objectives of NUTP can be approached through a affirmative approach that would revolve around the following issues:

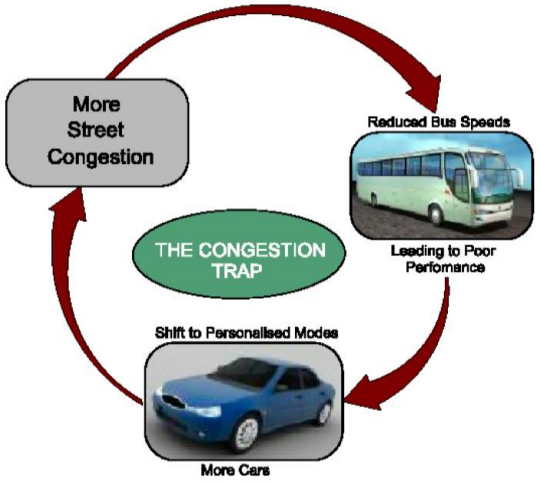
1. Pedestrian Facilities and pathways

2. Non Motorized Vehicles
3. Priority to the use of public transport
4. Integrating landuse and transport planning
5. Integrated public transit system
6. Parking
7. Freight Traffic
8. Capacity building
9. Pollution Reduction etc.

This chapter attempts to present the evolution of the Development Plan for Pune City within the NUTP Framework.

13.3 PRESENT SCENARIO IN THE CITY:

As per 2011 census of Pune, this city is a home to 31,15,454 people.



Pune has about 21 lakhs vehicles in the city. (source ESR 2011 PMC) The city has experienced a steep enormous population growth due to inward migration of both skilled and unskilled labour on account of rising industrial activity and service sector.

For the last two decades, Pune has registered a steep growth in the number of public-private vehicles. But the road infrastructure and the utilities have not expanded commensurate with the increase in number of vehicles.

The City manifests all the problems of a metropolis like-

1. Increase in traffic congestion, speed reduction, environmental pollution and degradation in the quality of life.

2. Urban congestion due to unprecedented growth in motorized vehicles which is further aggravated by the interstate truck movement that cuts through the Pune City
3. Existing public bus service falls short while catering to rising demand.
4. Central City is experiencing capacity gaps, parking problems, low-speed travel, congestion and urban decay
5. Road safety problems are on the rise due to lack of footway and safe crossing facilities, encroachments, bottlenecks and stressful travel etc.
6. One thing which will have greatest influence on urban life all over the world in next 100 years is **CAR.**
    a. 1900 – 100,000 cars in the world
    b. 1950 – 50 millions cars in the world
    c. 2000 – 500 million cars in the world
    d. 2050 – Likely to exceed 1000 million

Finding Balance between Car, other motorized transport and Pedestrians in the city poses a serious challenge before the city planners.

i. Lack of traffic management.

ii. Delay in development of integrated road and rail terminals are increasing pressure on roads

iii. Lack of development of full cross section of roads.



To address these issues and concerns and to efficiently cater the increased traveling demand, an imminent need to formulate a "Comprehensive Traffic and Transportation Plan for the Pune City" was recognized and the plan was accordingly prepared by the PMC.

This plan recognizes the synergy between landuse, transport and urban economy to improve urban transport through balanced development strategies.

13.4 CHALLENGES AND OPPORTUNITIES IN PUNE URBAN TRANSPORT

Transport demand has increased substantially, due to increase in population as a result of the natural increase in population and migration from rural areas and smaller towns. Availability of motorized transport, increase in household income, and increase in commercial and industrial activities have further added to the transport demand. Pune City's economy and transportation has continued to evolve since the last development plan. Some of the key challenges are as follows:

13.4.1 Growth :

Pune has been experiencing tremendous growth, and is fast transforming into one urban complex. In 1997, 38 fringe villages were merged in the Pune city limits.Further in 2001, 15 entire villages and 5 part villages were delinked from the city limits. DP for the next 20 years was exclusively prepared for these 23 fringe villages (valid till 2021). The total population in the PMR region considered in Traffic & Transportation Policies and Strategies in Urban Areas in India by Ministry of Urban Development & WSA is 42 lakhs (2007). The projected population of the PMR is 11.41 millions by 2031. (Source: CMP 2008). Some of the upcoming employment and industrial centres have emerged beyond the PMR boundary. While the existing roads that emanate from close to core area may be developed as radial arterials, clear ring roads are not available in the transport network of Pune.Another challenge for Pune is to organise its landuse pattern.

13.4.2. Socio Economics :

The influx of IT sector has resulted in change in the life style preferences. Incomes are increasing and homes and workplaces are becoming more spread out from the core area. Each month 10,000 – 13,000 new vehicles are registered (a rate of over 400 to 500 per day). Inadequate public transportation system has resulted in people finding it more convenient to use the private vehicles. The number of vehicles in the city is increasing at an alarming rate. Number of vehicle in the city is more than 20.91 lakhs. Every month about 12000 to 15000 new vehicles are registered (*Source: Traffic & Transportation Policies and Strategies in Urban Areas in India by Ministry of Urban Development & WSA)*

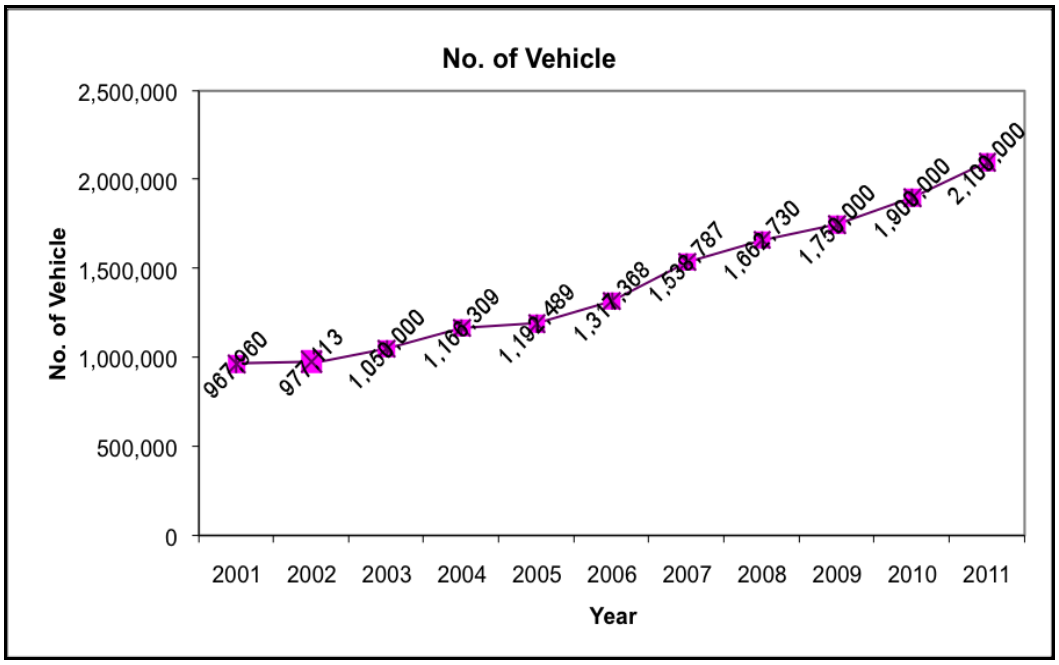


Figure No. 13-1 : Vehicles registered in Pune

Table No. 13-1 : Number of registered vehicles in Pune 2001- 2011

Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Total	967960	977113	10,50000	1166309	1192489	1317368
Year	**2007**	**2008**	**2009**	**2010**	**2011**	
Total	1538787	1662730	17,50,000	19,00,000	21,00,000	

(Source:- ESR PMC-2011.)

As a result of the tremendous increase in the number of personal vehicles, the city is facing growing vehicular traffic on the roads.

13.4.3. Pubic Transit :

Public transport systems have not been able to keep pace with the rapid and substantial increases in demand over the past few decades. Bus services in particular have deteriorated and their relative output has been further reduced as passengers have turned to personalised modes and intermediate public transport (such as three-wheelers and taxis), adding to traffic congestion which has had its impact on bus operations. The existing bus fleet/lakh population is 30 .(Source CMP report 2008), where as the norm is 40.

13.4.4 Non Motorized Transport:

Pune is known for its use of bicycles. Over the recent years, the use of bicycles has come down significantly due to the rise in motorized vehicles. Due to the significant slum population and student population, there is still a significant continued usage of bicycles in Pune. Walking and cycling constitute approximately 33-35% of the total trips in Pune.(Source CMP report 2008) It is important that initiatives need to be taken to not only preserve but to enhance the share and safety of the NMT.

13.4.5. Funding:

Recent advances in technology, such as Intelligent Transportation Systems, electronic toll collection, smart-card technologies etc., have introduced new ways of improving the system efficiencies as well as new ways of funding strategies. It is evident that a persistent funding gap exists for city transportation needs and therefore it is imperative that Pune City needs to embrace new funding and financing strategies that support the Mobility Plan. Further the JNNURM provides an opportunity to seek assistance for city funding needs.

Working to achieve such a vision would make transportation more multimodal, efficient, and economic and will aid in linking the investment decisions in a better way, to achieve the goals set for Pune city.

13.5 BRIEF REVIEW OF EARLIER TRAFFIC AND TRANSPORTATION STUDIES:

To improve the traffic and transportation situation of the Pune region, the traffic authorities of Pune have carried out feasibility studies from time to time and implemented the recommended measures to a great extent. The major transportation studies carried out for Pune region include :

- Cycle Network Project for Pune, Town Planning Dept., Pune, 1981
- Traffic and Transportation Plan for Pune Metropolitan Area-2001 by Dept. of Town Planning Maharashtra, 1984.
- Traffic and Transportation Flows for Selected Cities in India by CRRI,1986
- Transport in Pune Metropolitan Region by CRRI,1987
- High Capacity Mass Transit System for Pune : Feasibility Study by MTP(Railways),1988
- Report of the Pune Action Plan, 1991
- Deshmukh Committee Report for Long Term Measures for Pune Agglomeration, 1994
- Report of the Committee appointed by Divisional Commissioner, Pune Division, Pune to recommend "short Term Measures for Improvement of Traffic in Pune City" 1994
- Pune Traffic 2000 'Parking', 1996
- Project Report : Mega City of Pune, 1997
- Feasibility Report on Construction of Flyover, Traffic Planning Cell, Pune,1998
- Mass Rapid Transit System for Pune Metropolitan Area by RITES,1998

- Sharing of Inter-City Services Operated by PMC & PCMC, CITR,2000
- Final Report on "Study on the Working of Pune Municipal Transport" CIRT, 2000
- A study on Traffic and Economic Analysis of Road Improvement Project in Pune by CIRT, 2001
- Comprehensive Traffic and Transportation Study for Pune City, Span Travers Morgan, 2003
- Comprehensive Mobility Plan by PMC in consultation with IL&FS and Wilber Smith Associates.

Brief details on some of the major studies are presented in the following sections:-

13.5.1. Traffic and Transportation Plan for Pune Metropolitan Area- 2001 by department of Town Planning, Maharashtra, 1984

A comprehensive Traffic and Transportation Plan for Pune Metropolitan Area 2001 was prepared in the year 1984.Various surveys and studies were carried out to establish the characteristics of the existing traffic and the ability of the different parts of the existing transportation network and systems to accommodate the traffic. Based on the studies carried out and the proposals framed, the following recommendations were made :

- Development of an independent cycle network.
- Development of a High Capacity Mass Transportation Route (HCMTR), with essential facilities for interchange between road and rail
- Development of areas along the river banks and nallahs.
- Priority for bus transport system with necessary infrastructure facilities to augment the road based mass transportation services and their coordination with the rail based system.
- Development of additional terminal facilities on the rail system.
- Improvement of intersections to achieve level segregation of pedestrians and slow moving vehicles from fast vehicles.
- Improvement of Sight Distance.

13.5.2 Traffic and Transportation flows for Selected Cities in India,CRRI,1986:

The objectives of the study were to carry out limited traffic and transportation flow studies on corridors of selected cities in India and analyze flows to bring out salient features. For Pune city, the road corridors identified were Satara Road, Yervada Bridge, Karve Road and kennedy Road (R.B. Motilal Road) Some of the salient observations are :

- Cycles and two-wheelers together constitute 60% of total vehicles
- The corridors displayed distinct peaking characteristics
- Buses carried nearly 60% of the total passengers followed by Cycles (16%) and Two-Wheelers(8%) respectively.

Transport in Pune Metropolitan Region by CIRT,1987

After conducting the necessary surveys, the following improvement measures were recommended :

- Urban transport improvement directions
- Road improvement aspects
- Bus route planning for PMT (Mass Transport)
- Emphasis on merging PMT and PCMT
- Segregation of pedestrian and cycle movement

13.5.3 Feasibility Study of High Capacity Mass Transit System, MTP (Railways), 1988

In the Traffic and Transportation Plan for Pune Metropolitan Area-2001 prepared by Dept. of Town Planning. Maharashtra, a high capacity mass transit corridor was identified. PMC has carried out the feasibility study through MTP (Railways) in order to confirm the suitability of the alignment and take steps to freeze the required land. The principal recommendations outlined in the study were :

- A more comprehensive study should be carried out for deciding on the best High Capacity Mass Transportation System (HCMTS) route and

connected network taking into account influence of the industrial development in the Pimpri-Chinchwad and Hadapsar area.

- Since the high capacity system will be required on the modified route, steps will have to be taken for finalizing the alignment.
- The land should be reserved or preferably acquired at this stage itself
- Detailed cost-benefit analysis and cost-effective analysis of the alternative system will have to be carried out on the suggested corridor.
- As a medium term solution, the possibility of providing a Magnetic levitation (Mag-Lev) link, across the core area may be gone into.

13.5.4 Mass Rapid Transit System for Pune Metropolitan Area by RITES, 1998 (RAIL INDIA TECHNICAL AND ENGINEERING SERVICES)

The objective of this study was to examine the feasibility of a High Capacity Mass Transport System for Pune Metropolitan Area (BOOT)basis.

The recommendations of the study were as follows:

- MRT network of approximately 85.92 km. length consisting of 6 Lines have been proposed and their commissioning was proposed in 3 phases. In each phase, 3 lines have been included. A joint venture company owned by PMC and PCMC named Pune Mass Rapid Transit Authority be incorporated with the responsibility of implementation of the project and operation of the system.
- Enact enabling legislation empowering Pune MRT Authority in the matter of carriage of the commuters by Pune MRTS.
- Land identified for Line (1) and (2) to be reserved immediately and action to acquire the land be initiated.
- MSEDCL be approached for firm commitment to supply power at the requisite points.
- Identify the cross-subsidy schemes to make the project financially viable so that private capital can be attracted.

- Initiate action for administrative approval of various concessions to be made applicable for this project.
- Initiate action to pre-qualify the parties / firms so that private sector participation can be expendited.

Table No.13-2 : Recommended MRT Network		
	Length(Km.)	**Proposed Year of commissioning**
Line 1 : Agricultural College - TELCO	12.54	2002
Line 2 : Agricultural College - Warje	10.10	2006
Line 3 : Karve Road-Swargate-Hadapsar	11.56	2011
Line 4 : Agricultural College - TELCO	22.84	2016
Line 5 : Agricultural College - Loni Road	16.11	2021
Line 6 : Agricultural College - Chinchwad	12.76	2021
Total	85.91	

(Source : Mass Rapid Transit System for Pune Metropolitan area by RITES, 1998)

Table No.13-3 : Traffic Speeds (Km/hr.) on Major Roads					
Section/Road		**Morning Peak**		**Evening Peak**	
		Up	**Down**	**Up**	**Down**
1	Maldhakka-Lakshmi Road (JL Nehru)	15	16	19	23
2	Lakshmi Road - 7 Loves (JL Nehru)	18	21	18	18
3	7 Loves - Jedhe Chowk (shankarsheth)	24	20	14	15
4	Dengale Bridge - Sambhaji Park	23-26	25-28	12-21	4-23
5	Sambhaji Park - Sambhaji Bridge	4-17	3-24	4-20	3-4
6	Aundh - Sancheti Bridge	28-36	29-50	8-38	20-24
7	Sancheti- ZP Pune RS	18-30	11-24	11-20	10-33
8	Pune RS – ROB	26-43	32-43	32-60	20-52

9	Alka - Swargate (Tilak)	5-23	4-18	5-22	5-15
10	Fergusson College Road	22-60	23-58	33-64	30-57
11	Tilak Road - Shivaji Bridge	19-35	21-32	14-23	18-20
12	Lal Bahadur Shastri- Bypass (Singhgad)	20	19	17	16
13	PCMC Buld. TELCO Road	25-36	22-40	24-37	23-40
14	Chapekar Chowk – Bypass	5	6	5	4
15	Bypass - Hinjewadi	5	6	5	4
16	Wanawadi -Kondhva	51	19	25	26
17	Kondhva - PMA Boundary	28	73	83	85
18	Phursungi Road - Kondhva via undri	11-19	20-24	9-18	18-23
19	Bhosari - Pradhikaran (TELCO /Old B B Pune)	25-52	30-50	22-47	25-47
20	Holkar Bridge - Dapodi(Elphinston)	29-85	38-60	29-45	29-60
21	Old Mumbai Pune Road upto Aundh	12-53	7-41	4-39	41-49

(Source : Mass Rapid Transit System for Pune Metropolitan area by RITES, 1998)

Table No. 13-4 : Critical Peak Hour Volume and V/C Ratios on Major Roads

Sr.No.	Road Name	Location	Critical Peak hour Volume	V/C Ratio
1	Band Garden	Holiday Inn	5399	0.77
2	J.L.Nehru	Timber market	5002	1.67
3	Shankarsheth	Poornima Towers	4063	1.35
4	Laxmi Road	Pune Central Restt.	3765	1.79
5	J.L.Nehru	Kabir Chowk	3043	2.54
6	Z.P.Chowk-Pune RS	Vaishali hotel	7022	2.42
7	Motilal	Pune Railway station	4120	2.06
8	Shivaji	Pahdgate Police Station	6656	3.70

9	Bajirao	Telephone Exchange	6062	3.37
10	Tilak	Kaka Sweet	4741	2.63
11	Fergusson College	Hotel Sheetal	3897	2.17
12	Karve	Nal Stop	11089	3.7
13	Law College (Chiplunkar)	Law College Road	4240	2.36
14	Bhosari-Krishna Nagar	S B Chowk	3420	1.14
15	RTO Bridge	RTO Bridge	3917	2.18
16	Motilal	Sangam Bridge	3577	1.19
17	Dengale Bridge	Dengale Bridge	4938	2.74
18	Shivaji Bridge	Shivaji Bridge	6126	3.40
19	Shinde Bridge	Shinde Bridge	6241	2.60
20	Saras Baug	Patil Plaza	6939	2.89
21	Old Mumbai-Pune	Aundh octrio Post	2890	1.45
22	Chichwad Railway Station	Central Bank	1502	0.83
23	Bhosari-Krishna Nagar	S B Chowk	3420	1.14

(Source : Mass Rapid Transit System for Pune Metropolitan area by RITES, 1998)

13.5.5 A Study on Traffic and Economic Analysis of Road Improvement Project Pune by CIRT,2001

The objectives of the study were to analyse the existing traffic scenario, to identify the traffic problems and suggest alternative strategies for solving traffic problems, study and evaluate the feasibility of road improvement project, to carry out economic analysis, study the Environmental Impact Assessment of road improvement projects, identify the location of pedestrian subways on major corridors, provide technical standards for various roads, review and suggest schemes to improve traffic situation in the city etc.

Table No. 13-5 : Recommendations of CIRT Study	
Sr.No.	**CIRT's Recommendations**
I	Katraj Kondhwa-Hadapsar Saswad Road should be given high priority The inner ring road is proposed to continue from Wagholi to Lohegaon, Lohegaon to Nirgudi and Nigudi to Charoli' The outer ring road connecting Loni-Kand to Wadhu Kud and further continuing to Phulgaon, Tulapur and ending at Charoli BK New links have been proposed from Hinjewadi to Rahatne and Kiwale to Dehu Road.
II	In the absence of detailed data on the proposed ROB locations, no specific analysis has been carried out. But the average delay at the proposed ROB location was 25 minutes which will accumulate substantial amount of time. Considering this point of view, the proposed ROB may be justified.
III	Based on the traffic analysis and guidelines of IRC on Warrants for Flyovers, CIRT has recommended flyovers in stages. Sr. No. 1 to 5 by year 2001 and Jangli Maharaj Road Junction near Modern Café by year 2001.At other locations, flyovers would be required after long time only.

In addition to above, CIRT had recommended pedestrian subways at the following locations. However, CIRT recommended further detailed survey for the feasibility of the subway at these locations.

1. Bibvewadi
2. Wagholi
3. Law College Road
4. Dapodi
5. Paud Phata
6. Near Mental Hospital Road
7. Near Lakshmi Road
8. Near Wanwadi
9. Near Mental Hospital
10. Deccan College, Yerwada
11. Pune Station

13.5.6 Traffic Study for Pune City by AAKAR Enterprises, 2003

To provide efficient traffic management system in Pune city, government of Maharashtra, through MSRDC has decided to undertake construction of various flyovers, bridges, ROBS, widening of roads etc. A separate project has been formulated namely "Integrated Road Development Program in Pune Metropolitan Region". Government of Maharashtra has sanctioned this project at an estimated cost of Rs. 250 crores. The main objective of carrying out traffic surveys and analysis was to assess toll revenue and toll plaza locations. M/s AAKAR Enterprises has been appointed as consultants for carrying out Traffic surveys and analysis.

Classified traffic volume surveys were carried out at 7 major locations, which are the entry points to Pune city and traffic survey locations are baner, Kiwale, Nigadi, Warje, Chandani chowk, Wakad Chowk and Dange Chowk. The survey were carried out for 3 days in the months of February and March, 2003.

For assessing travel characteristics, vehicle registration Number Plate Surveys were carried out at seven locations namely, Dehu Naka, Warje Chowk. These locations are same as those locations for which the traffic volume count survey was carried out. These surveys were carried out for 2 days in the months of February and March, 2003. In addition, survey was also carried out at Nigadi Octrai Post for one day.

Summary of AADT traffic at all the traffic survey locations are presented in Table No 13-6.

13.5.7. Major findings of the study are briefly summarized below:

- Approximately 42,500 vehicles are entering / leaving the Pune city through the seven survey locations.
- Jeeps/Vans constitute about 38.1% and cars constitute about 15.5% Freight traffic i.e. LCV and Trucks constitute about 25.5%

- The directional distribution of traffic varies from 58% to 52% which can be treated as almost 50% :50%
- Large variation has been observed in Peak hour traffic expressed in percent of AADT and the range is 4.5% to 12%
- Increase in car/ jeep traffic during weekend compared to weekday is almost double.
- Truck traffic during weekend compared to weekday is lower by 10%
- LCV traffic on Saturday is higher by 10%, on Sunday lower by 40% as compared to week day.
- The total AADT on Dehu Road is around 11,980 vehicles and this traffic is the highest among all the traffic survey locations.
- The estimated total toll from the seven locations is approximately Rs. 4.86 laks/ days.

TABLE NO 13-6. AVERAGE ANNUAL DAILY TRAFFIC (AADT) OBSERVED AT MAJOR ENTRY LOCATIONS OF PUNE CITY													
Sr.No	**Location**	**Cars**	**Jeeps/Vans (Loc)**	**Jeeps/Vans (PVT)**	**Six Seated**	**Auto**	**LCV**	**Bus ST**	**Bus Others**	**Trucks**	**MAV**	**Tractors**	**Total**
1	Dehu	3055	0	1780	625	308	1257	781	795	2724	649	5	11980
2	Baner	2849	19	837	26	97	206	84	127	224	3	1	4473
3	Kiwale-Rawatgaon	30	3	11	1	13	7	0	0	86	1	1	152
4	Dehu-Kiwale Wasti	8	0	8	1	28	5	0	2	25	1	3	81
5	Chandini Chowk	215	502	5863	112	432	529	295	297	479	6	2	8731
6	Wakad Chowk	163	238	3224	102	250	601	102	412	776	15	18	5901
7	Dange Chowk	102	218	2051	474	457	824	12	228	1356	54	18	5796
8	Warje Chowk	157	223	2444	93	706	423	622	152	590	22	12	5445
Total	6579	1203	16218	1434	2291	3852	1896	2013	6260	751	60	42557	

13.5.8 Comprehensive Traffic and Transportation Study for Pune City 2002

The study was initiated by Pune Municipal Corporation (PMC) and M/s Span Travers Morgan Consultants have been appointed as consultants for the study.

The main objectives of the study were to match the demand and supply in terms of the existing and proposed infrastructure system control and management with optimal utilization of existing infrastructure. The study included the estimation of the existing traffic situation and demand to identify package and develop projects so as to arrive at an action plan which shall primarily lay a thrust on low cost and short term solutions, in addition to outlining the medium and long term measures for safe and efficient traffic and transportation system.

13.5.5.9 Reconnaissance Survey

Reconnaissance survey of the study area (PCMC and PMC) has been made by the Consultants with the following objectives :

- To understand the existing condition of road network in terms of road width and capacity encroachments, bottlenecks, adjoining land use, traffic condition importance of various links in the network
- To study the feasibility for improving and upgrading the network
- Assessing the extent of primary traffic survey to be carried out
- Preparing site appreciation report and befitting methodology for the proposed scope of work

The ensuing sections will describe the quantum and methodology proposed to undertake various suryeys.

13.5.10. Comprehensive Mobility Plan for Pune City 2008

In order to ensure that the various urban transport projects that are being developed by the cities are NUTP compliant, the ministry has in March 2007 circular indicated that a "Comprehensive Mobility Plan (CMP) be prepared that focuses on mobility of people rather

than vehicles and accordingly give priority to pedestrians, Non-Motorized Transport (NMT), all modes of public transport and IPT." Comprehensive Mobility Plan was prepared by Pune Municipal Corporation in 2008 in consultation with IL&FS and Wilber Smith Associates.

The Comprehensive City Mobility Plan addresses traffic growth for all modes of transportation and suggests a direction for the multi-modal transport system of Pune. The CMP will improve and emphasize Sustainable Transport Modes.

13.5.10.1. The objectives of this Study are

- To understand present day traffic characteristics and prepare forecasts of these characteristics through the development of a transportation model.
- To develop a transportation vision for Pune.
- To identify specific strategies and measures to address traffic growth for all modes of transportation in an effort to meet the set goals.
- Prepare a programe of CMP implementations along with block cost estimates.

13.5.10.2. A methodology for the Study has been evolved giving due consideration to:

- Study Area Demographic and Travel Characteristics
- Project Challenges
- Issues and Concerns of all project stakeholders

Five different stages have been involved in developing the Mobility Plan for the Study.

- Stage1: Mobilization and Reconnaissance
- Stage2: Data Collection
- Stage3: Urban Travel Demand Model Development and Forecast Traffic characteristics
- Stage4: Draft Mobility Plan
- Stage5: Stakeholder Participation & Updation of Draft Mobility Plan.

13.5.10.3. Some of the indices that may be used for the CMP are

- Safety
- Public Transport
- Bus Transport
- Non Motorized Transport
- Walkability
- Cyclability
- IPT
- On-street Parking
- Accessibility
- Congestion
- Average Speed

Table No. 13-7. Definition, formulation evaluation and targets for the indices in CMP 2008 PMC.

INDEX	DESCRIPTION	Formulation	TARGET
Average Speed of Network	Average Network speed	Average Network speed	30
Modal Share of PT Motorized	Average category modal share	Public Transport Trips/Total Motorized Trips	80%
Modal Share of NMT	Average category modal share	NMT Trips/Total Trips	50%
VC Ratio	Average category VC Ratio	(Road Traffic Volume/Road Capacity)	0.8
Access ibility	%of work trips with TT<15min	(Work trips with Travel Time less than 15 min/Total Trips)	60%
Bus Supply	Buses per Lakh Pop	(Bus Fleet in Nos.)/Population in Nos.)X100000	55
IPT	IPT vehicles per Lakh Pop	(Registered IPT vehicles in Nos./Population in Nos.)X100001	1000
Walkabity	Availability & Usability of FP	(Footpath Length in Km/Road Length in Km)X100	100%
Cyclability	Availability & Usability of FP	(Cycle track Length in Km/Road Length in Km)X100	100%

Fatality	Fatalities per lakh population	(No.of Fatalities/Population)X101	0
Parking on Mobility Corridors	%of Road Length Used	(Length available for Parking in Km/Road length in Km)X100	0%

(Source –CMP 2008 PMC)

13.5.10.4. Mobility Plan Elements

Based on the aforementioned framework of the plan and the strategy for achieving the vision, Mobility plan action items are summarized as follows:

1) Mobility Corridor Plan
2) Traffic Management Plan
3) Public Transport Plan
4) Non Motorized Transport Plan
5) Passenger and Commercial Terminal Plan
6) Flyovers and Bridges Plan
7) Travel Demand Management Plan
8) Road Maintenance & Management Plan

Table No. 13-8 : Summary of Comparisions of different types of Transit Systems

Transit Mode	Commuter Rail	Metro	Monorall/ AGT	LRT	BRT
ROW Options	Exclusive ROW General railroad Mixed traffic	Exclusive ROW Grade separated	Exclusive ROW Grade separated	Exclusive ROW Semi-exclusive Mixed traffic lanes	Exclusive ROW Semi-exclusive Mixed traffic lanes
Station Spacing	2 to 10 miles	1 mile	½ to 1 mile	½ to 1 mile	¼ to 1 Km

Vehicles	Locomotive with set of passenger coaches	High platform cars operating in multiple car trains sets	High platform cars operating in multiple car trains sets electric propulsion	Articulated double articulated low floor can operated in multiple car sets electric propulsion	Standard articulated or double articulated, low floor or high platform diesel diesel/hybrid propulsion of ETB
Seated Capacity	90-185 per car	60-80 per car	30-75 per car	65-85 per car	40 standard 65 articulated 85 double art.
Average Speed	25 to 45 mph (40-70kmph)	15-35 mph (25-55 kmph)	15-35 mph (25-40 kmph)	15-30 mph (25-50 kmph)	15-30 mph (25-50 kmph)
Passenger throughput	Up to 30,000 PPHPD	Up to 60,000 PPHPD	Up to 15,000 PPHPD	Up to 30,000 PPHPD	Up to 8,000 PPHPD
Min. Curve Radius	50m	40 m	20 m- AGT 75m-MRL	25 m	13 m
App O & M Cost per km	40-60 lakh	100-200 lakh	40-60 lakh MRL	50-60 lakh	-
App Capital per km	80-100 crores	200 crores	80 crores	80 crores	15 crores
Implemented Cities (Internat ional)	Moscow Jakarta Johannesburg. Buenos Aires	Bangkok, kuala, Lampur, Mexico City, Cairo	Tokyo, Kuala, Lampur, Sydney, Seattle	Hongkong, Shanghai, Kuala, Lampur	Istanbul, Taipei, Leeds, Bogota, Curitiba, Pittsburgh, Adelaide
Implemented Cities (India)	Mumbai, Chennai, Kolkota,	Delhi	-	Kolkota	Ahmebadad, Indore, Pune

	Hyderabad				

(Source :- For Typical Indian Conditions (1-lane BRT)

Note : The recommendations made in CMP regarding traffic and transportation has been considered in the draft development plan.

13.5.11 DETAILED PROJECT REPORT FOR PUNE METRO :-

The detailed project report has been prepared for the Pune Metro by Delhi Metro Rail Corporation Ltd in consultation with IIT Bombay.

Public Transport System should be an efficient user of space, with reduced level of air and noise pollution. As the population of a city grows, share of public transport, whether road or rail-based, should increase. Experience has shown that, in cities like Pune where roads do not have adequate widths and which cater to mixed traffic conditions comprising slow and fast moving vehicles, road transport can optimally carry 8,000 persons per hour per direction (phpdt). When traffic density increases beyond this level, average speed of vehicles comes down, journey time increases, air population goes up and commuters are put to increased level, of inconvenience. Thus when on a corridor, traffic density during peak hours crosses this figure, provision of rail-based mass transport, i.e. Metro system should be considered.

13.5.12 New Route Alignment has been proposed

Corridor -1 : Pimpri Chinchwad (PCMC) – Swargate

Alignment from (-) 450 m to 16589 m From dead end (Ch. – 450 m) of PCMC station to dead end of Swargate station (Ch. 16139m), the length of corridor 1 is 16.589 km, out of which 5. km is underground and remaining 11.570 km is elevated including length of Switch Over Ramp(SWR). Total 15 numbers of stations have been planned along this corridor out of which 9 are elevated and 6 are underground stations.

Corridor -2 : Vanaz (Kothrud) – Ramvadi

Alignment from (-) 684.8 m to 14925 m

From dead end (Ch – 684.8 m) of Vanaz station to dead end of Ramvadi station (Ch. 13790m), the length of corridor 2 is 14.925km. Total 15 number of elevated stations have been planned along this corridor.

Note: The recommendations made in Metro report for traffic and transportation have been considered in the draft development plan.

13.6 STUDY AREA FOR TRAFFIC STUDIES.

13.6.1 Area

The study area considered was the area comprising the present Pune Municipal Corporation area, Pimpri Chinchwad Municipal Corporation area and both the cantonment areas namely Pune and Khadki (with major concentration on PMC area). The study area that was adopted in this study will be similar to the one adopted during the Pune metro study by IIT Bombay, but with appropriate modifications as stated above and as per the area decided by the development plan. The map in Figure No 13-2. shows the Pune Metropolitan Region showing the areas mentioned above forming the study area.

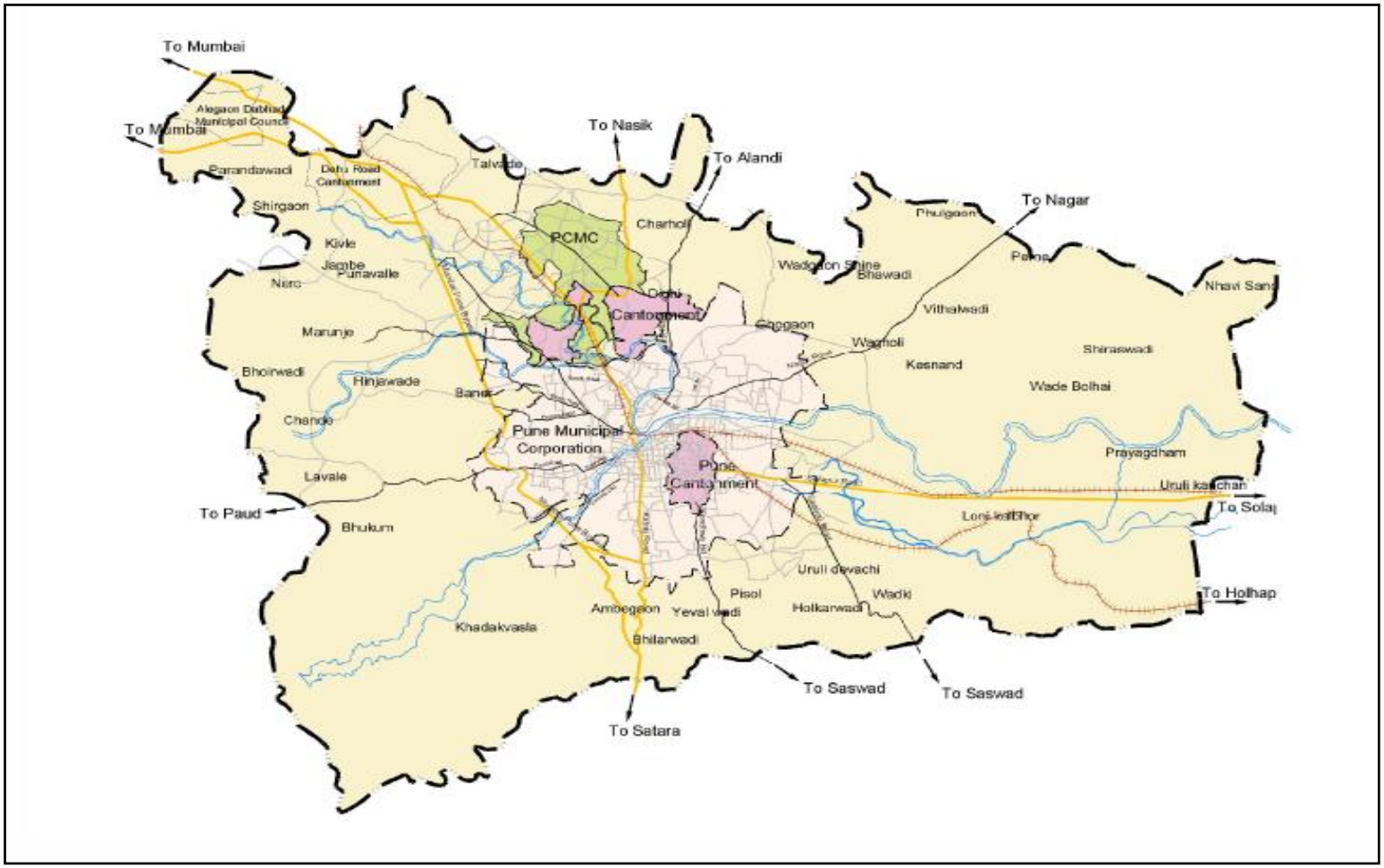


Figure No. 13-2 : Study area for traffic studies

13.6.2 Traffic analysis zones

The zoning system considered for the Pune metro study by IIT Bombay comprises of 91 internal zones and 13 external zones. In the present study, it was proposed to redefine these traffic analysis zones (TAZ) to the extent possible as per the administrative units like wards utilizing the available GIS maps with PMC and PCMC. Accordingly, the zoning system of the present study has been adopted based on the City Development Plan (2007-2027) comprising 144 zones in the PMC area, 105 zones in PCMC area and 16 zones in hinjewadi. Pune and Khadki cantonments have been considered as two zones. In addition to these 267 internal zones, 13 external zones are considered. These 13 external zones represent the catchments of the 13 entry points at the outer cordon. This delineation of the study area as adopted in this study is shown in Figure No 13-2.



Figure No. 13-3 : Zonal Map of PMC Region

13.6.3 Screen-lines and Cordon-Lines

Screen lines were established along the natural barriers viz., railway lines and rivers in PMA. Screen line count stations were formed at the intersection of the transport links and the screen lines. The volume counts at screen line stations were utilised for validating the O-D matrix as well as the models. All the past studies more or less adopted two screen lines, one along the existing railway line and other along Mula – Mutha River. In this study also the same two standard screen lines were adopted. The boundary of the study area was the outer cordon line. Figure No 13-4. shows the location of these screen lines and screen line stations at which traffic counts were taken in Metro study.Figure No 13-5 shows the external cordon line and the cordon stations where in addition to traffic counts, origin – destination surveys were done.

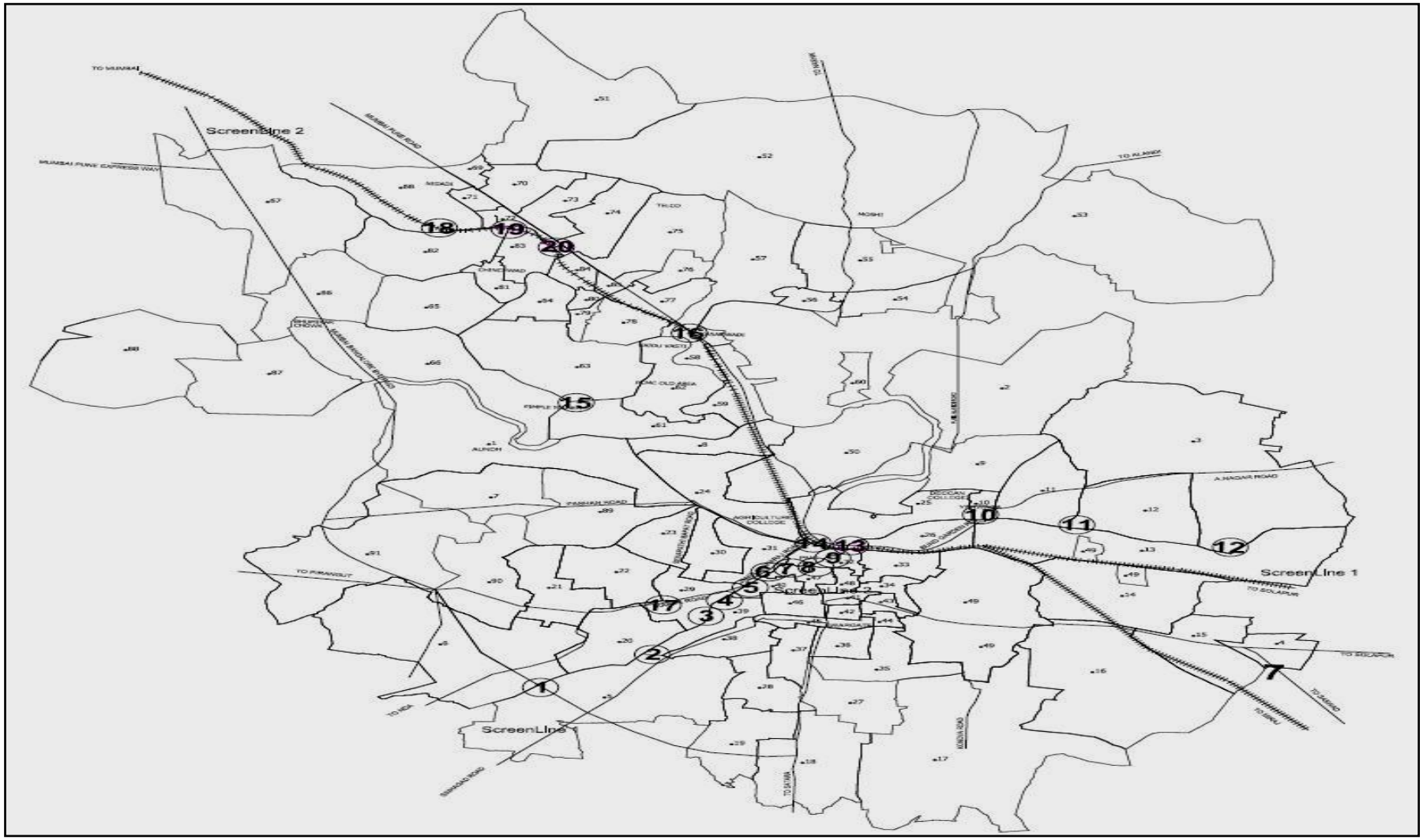


Figure No. 13-4 : Locations of Screen Lines in Study Area

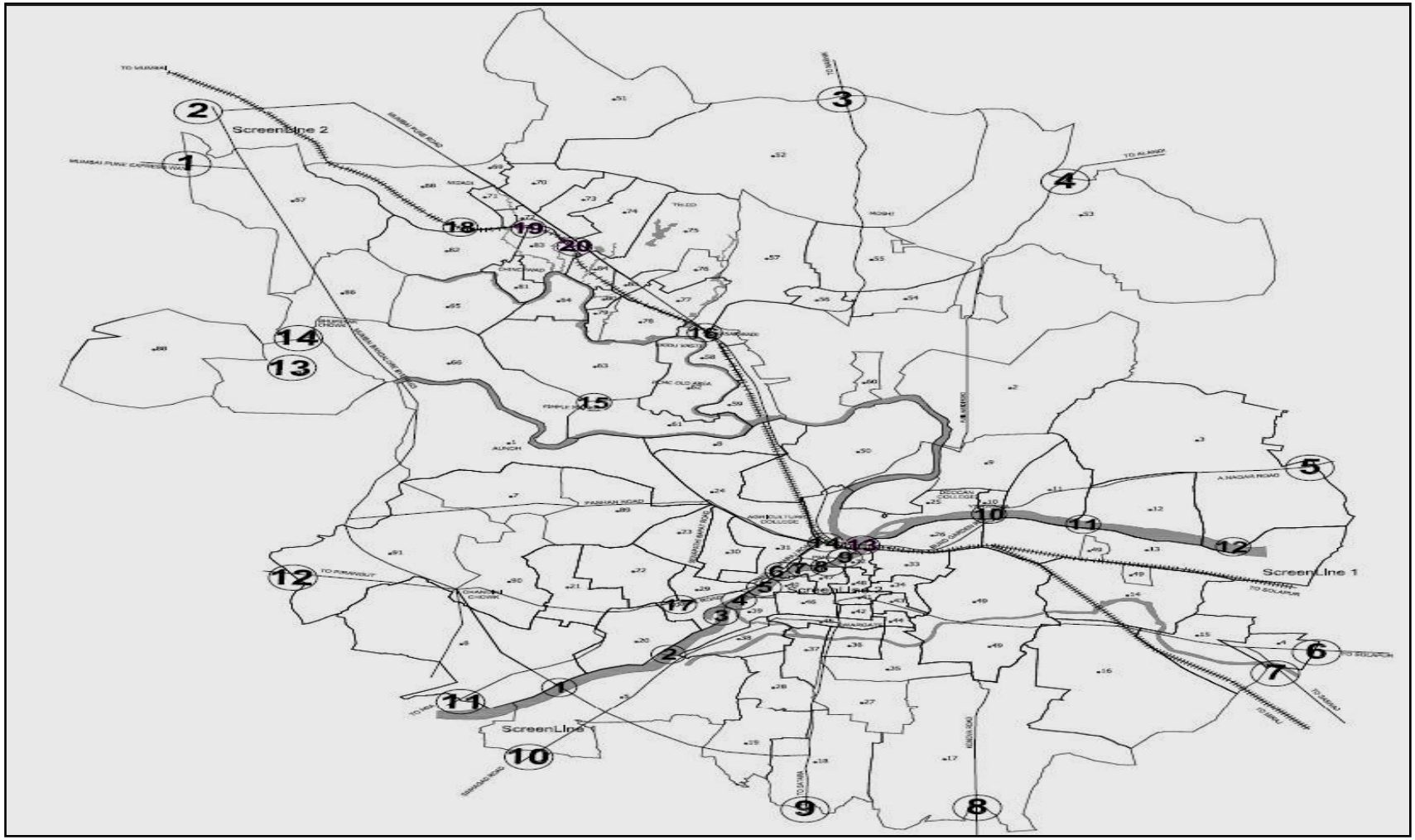


Figure No. 13-5 : Locations of Screen Lines and the External Cordon.

Table No. 13-9 : PCU Values adopted for the Study		
Sr. No	**Vehicle Type**	**Adopted PCU Values**
1	Car / Jeep	1.0
2	Bus	3.0
3	Autorickshaw	0.8
4	Two-wheeler	0.5
5	LCV/ Mini-bus	2.5
6	Truck	3.0
7	Truck Trailer	3.5

(Source: Traffic studies by IIT Powai 2010)

13.6.4 Vehicular Growth and Modal Split:

In 2002, 58.8 million vehicles were plying on Indian roads (Table 1). According to statistics provided by the Ministry of Road Transport & Highways, Government of India, the annual rate of growth of motor vehicle population in India has been about 10 percent during the last decade. The basic problem is not the number of vehicles in the country but their concentration in a few selected cities, particularly in metropolitan cities (million plus).

It is alarming to note that 32 percent of these vehicles are plying in metropolitan cities alone, which constitute about 11 per- cent of the total population. During the year 2000, more than 6.2 million vehicles were plying in megacities (Mumbai, Delhi, Kolkata, and Chennai) alone, which constitute more than 12.7 percent of the total number of motor vehicles in the country (Table 2). Interestingly, Delhi, which contains 1.4 percent of the Indian population, accounts for nearly 7 percent of all motor vehicles in India.

Table No.13-10 : Growth trend in Vehicle Population (in thousands)							
City	1995	1996	1997	1998	1999	2000	Annual growth rate (1995 – 2000) in %
Pune	358	412	468	527	568	593	11

Table No.13-11 : Number of Vehicular type in Pune		
	Type of vehicle	**No of vehicles Upto march 2011 (Source RTO Pune)**
1	Car	3,86,559
2	Jeep	57,215
3	Two wheeler	17,96,339
4	Autorickshaw	69,946
5	Bus	10,001

Table No. 13-12 : Modal Share in %							
	Year	**Walk**	**Cycle**	**Two wheeler**	**Public Transport**	**Car**	**IPT**
1	2007 (*Source: T& T Policies and Strategies in Urban Areas in India by Ministry of Urban Development & WSA)*	25	11	26	21	10	7

Public Transport Share in %

PT share estimated	Rites 1994	WSA 2007
	45.8 to 59.7%	11.2 to 32.1%

Table No.13-13 : Estimated Mode Share in future in %												
	2007			2011			2021			2031		
	PT	PV+ IPT	NMT	PT	PV+ IPT	NMT	PT	PV+ IPT	NMT	PT	PV+ IPT	NMT
1. (*Source: Traffic & Transportation Policies and Strategies in Urban Areas in India by Ministry of Urban Development & WSA)*	22	42	36	21	45	35	15	51	34	12	54	34
2. (Source Metro Study by DMRC and IIT Powai)	36	64		39	61		40	60		41	59	

Note: PT- Public Transport, PV- Personal vehicles, IPT- Auto rickshaw, NMT- Non motorised transport including walk and cycles.

13.6.5 Road Accidents

Following are the data for accidents from 2001-2009 for the Pune Police Commissionerate area including PMC, PCMC , cantonment board and suburban areas.

Table No. 13-14 : Road accident data			
Criteria	2006	2007	2008
People involved	4482	4878	4880
Seriously injured	338	462	634
Minor injury	1408	1575	1256
No injury	197	186	195
Death	372	414	477

Total injured	1746	2037	1890
Total accidents	2123	2347	2270

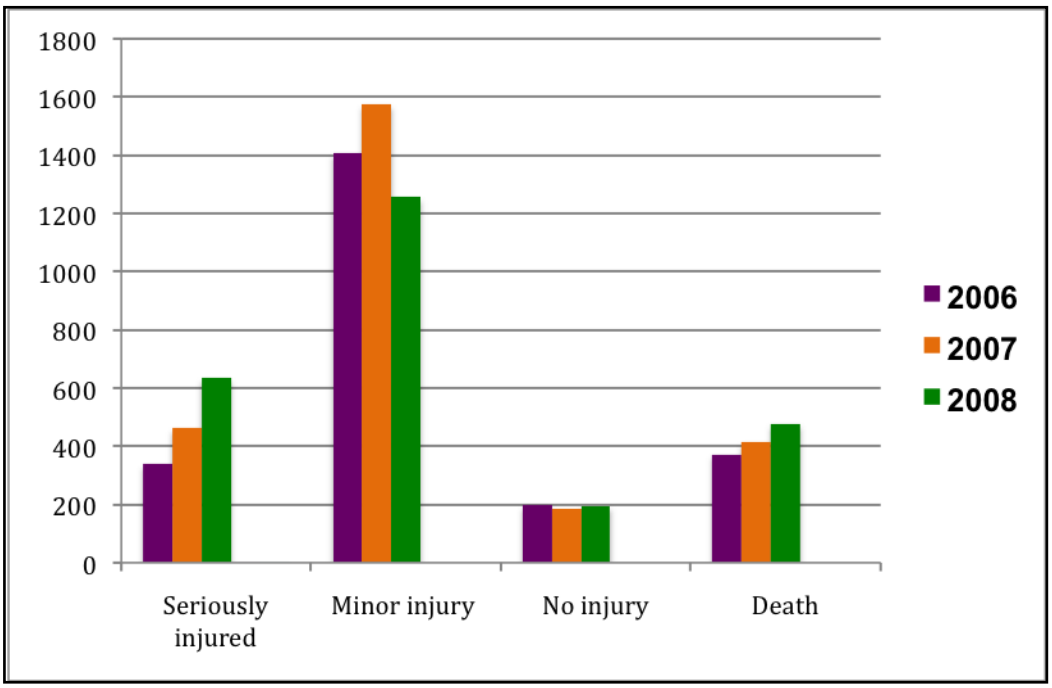


Figure No. 13-6 : Road accident data.

CHAPTER NO 14

TRAFFIC AND TRANSPORTATION PLANNING – PROPOSALS

Pune is poised for rapid economic growth. It is projected that Pune's urban population including the 23 fringe villages would grow to about 45.53 lakhs in 2017 (as per demographic projections done by Gokhale Institute 2009) and 61 lakhs in 2031.(Source. Pune Metro study by DMRC 2008). This projected future growth is largely attributed to the increased activities in secondary and tertiary sectors. Cities must not only meet the mobility needs of the current population but also provide for the needs of those yet to join the urban population.

14.1 Sustainable Transportation Goals

Sustainability reflects the fundamental human desire to protect and improve our earth. It emphasizes the integrated nature of human activities and therefore the need for coordinated decisions among different sectors, groups and jurisdictions. Sustainability generally refers to a balance of economic, social and environmental goals, including those that involve long-term, indirect and non-market impacts. They are shown in Figure 49 Sustainability planning (also called *comprehensive planning*) expands the objectives, impacts and options considered in a planning process, which helps to ensure that individual, short-term decisions are consistent with strategic, long-term goals.

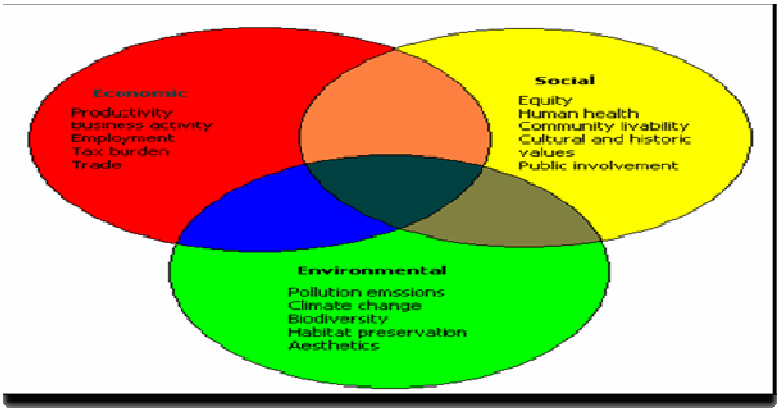


Figure No. 14-1 : Sustainable Transportation Goals

Table 14-1 : Summary of Sustainable Transportation Goals, Objectives and Performance Indicators		
Sustainability Goals	**Objectives**	**Performance Indicators**
Economical		
Economic productivity	Transport system efficiency. Transport system integration. Maximize accessibility. Efficient pricing and incentives.	Per capita GDP Portion of budgets devoted to transport. Per capita congestion delay. Efficient pricing (road, parking, insurance, fuel, etc). Efficient prioritization of facilities
Economic development	Economic and business development	Access to education and employment opportunities. Support for local industries.
Energy efficiency	Minimize energy costs, particularly petroleum imports.	Per capita transport energy consumption Per capita use of imported fuels.
Affordability	All residents can afford access to basic (essential) services and activities.	Availability and quality of affordable modes (walking, cycling, ridesharing and public transport). Portion of low-income households that spend more than 20% of budgets on transport.
Efficient transport operations	Efficient operations and asset management maximizes cost efficiency.	Performance audit results. Service delivery unit costs compared with peers. Service quality.
Social		
Equity / fairness	Transport system accommodates all users, including those with disabilities, low incomes, and other constraints.	Transport system diversity. Portion of destinations accessible by people with disabilities and low incomes.
Safety, security and health	Minimize risk of crashes and assaults, and support physical fitness.	Per capita traffic casualty (injury and death) rates. Traveller assault (crime) rates. Human exposure to harmful pollutants. Portion of travel by walking and cycling.
Community development	Help create inclusive and attractive communities. Support community cohesion.	Land use mix. Walkability and bikability Quality of road and street environments.

Cultural heritage preservation	Respect and protect cultural heritage. Support cultural activities.	Preservation of cultural resources and traditions. Responsiveness to traditional communities.

Environmental		
Climate stability	Reduce global warming emissions Mitigate climate change impacts	Per capita emissions of global air pollutants (CO2, CFCs, CH4, etc.).
Prevent air pollution	Reduce air pollution emissions Reduce exposure to harmful pollutants.	Per capita emissions of local air pollutants (PM, VOCs, NOx, CO, etc.). Air quality standards and management plans.
Prevent noise pollution	Minimize traffic noise exposure	Traffic noise levels
Protect water quality and minimize hydrological damages.	Minimize water pollution. Minimize impervious surface area.	Per capita fuel consumption. Management of used oil, leaks and stormwater. Per capita impervious surface area.
Openspace and biodiversity protection	Minimize transport facility land use. Encourage more compact development. Preserve high quality habitat.	Per capita land devoted to transport facilities. Support for smart growth development. Policies to protect high value farmlands and habitat.

(Source : IIT Bombay report,2010-11)

14.2. Common sustainable transport objectives include:

i. *Improved transport system diversity:* This generally means improving walking, cycling, ridesharing, public transit, car sharing, and creating more walkable and transit-oriented communities.

ii. *Smart growth land use development:*. This includes land use policies that create more compact, mixed, connected, multi-modal development, and provide more affordable housing in accessible, multi-modal locations.

iii. *Energy conservation and emission reductions:* This may include more fuel efficient vehicles, shifts to alternative fuels, and reductions in total motor vehicle travel. This

includes improving the quality of energy efficient modes including walking, cycling, ridesharing, public transit and increase land use accessibility.

iv. *Efficient transport pricing:* This includes more cost-based pricing of roads, parking, insurance, fuel and vehicles.

14.3 Studies for Traffic and Transportation

Several studies, relating to traffic and transportation aspects in Pune Metropolitan Area, have been carried out in the recent past by various organisations. These studies covered transport systems like metro, bus rapid transit, tram, non-motorised transport and aspects like mobility, traffic management and road improvement schemes etc which are specified in earlier chapter no 13 Traffic and Transportation planning Part-I.

A comprehensive mobility plan (CMP-2008) was prepared. The CMP suggested several transportation infrastructure and system improvements necessary for the future. Around the same time, IIT Bombay developed a transportation planning model for the study area covering Pune and Pimpri – Chinchwad Areas for the purpose of forecasting passenger demand on the proposed metro rail lines. This exercise was part of the Detailed Project Plan on metro rail corridors in Pune taken up by Delhi Metro Rail Corporation (DMRC, the consultant) for PMC (the client).

IIT Bombay has presently done the consultancy work, with a view to evaluate the development scenarios towards sustainable transport strategy for Pune city, has upgraded the transport planning model developed for the metro study based on the enormous data available from previous transport plans which has been fully integrated with the revised development plan. The work included updation of the transportation planning model and using it for evaluating the alternative transportation scenarios for the envisaged land use development scenarios towards evolving sustainable strategies in the development plan on the Transportation infrastructure. The data on planning variables and the transportation system is listed below. These were collected during previous studies and made available for the present study.

- Planning Variables

- Population
- Employment
- Transport System data
- Highway network and link attributes
- Public transport network and link attributes
- Public transport routes and system data

Generation of alternative transport scenarios based on existing traffic situations, CMP & envisaged land use scenarios as done by IIT Bombay. These are listed as follows:-

14.3.1 Usual Land Use Scenario (Scenario 1):

With the prevailing land us pattern (base year is taken as 2008), forecasting the traffic for future with different transportation network for the horizon year 2011, 2021 and 2031.

14.3.2 Increasing Floor Space Index (FSI) along Metro corridor (Scenario 2):

In this scenario, horizon year is considered as 2021, wherein the transport network consists of metro. FSI of 4 is considered, 500 m along both the side of the metro corridor. The basic variables used in the four stage planning model are the population and the employment. Population and employment has been forecasted for the year 2021 and the distribution is done as per the land use scenario considered. Employment can be worked out with the type of commercial and industrial activity to be increased along the metro corridor.

The zonal map is superimposed on the road network of the PMC region and the area along the metro corridor taking 500 m on both the side. Calculation have been made for the zones through which the metro line is passing, using the ArcGIS software.

Considering the total area of the city area under influence of metro corridor as 32.95 sq km, the population is estimated for the area under the influence of metro by taking the FSI of 4. This scenario is developed for horizon year 2021. 75% of the land is being used as a part of construction. The population for all other zones has been calculated as per the prevailing condition of land use pattern of individual zones.

14.3.3. Considering Public transport share as 80% (Scenario 3) :-

A hypothetical scenario has been developed wherein the share of public transport is considered as 80%. Due to large Public Transport share, its effect on the Public transport has been analysed.

14.3.4 Considering Work Participation ratio of 0.6 (Scenario 4):-

A hypothetical scenario has been developed wherein the work participation ratio considered is 0.6. Due to increase in work participation ratio, there is an increase in employment which subsequently results in the increase in trips

Table No. 14-2 Estimated Travel for Base year and Forecast Years (Daily passenger trips)

Mode	scenario 1		scenario 2		scenario 3		scenario 4	
	2021	2031	2021	2031	2021	2031	2021	2031
PT	3050631	3900096	3307700	3941537	5045786	6170485	3639251	4663259
PV	3361606	3985096	3104541	3500441	1366444	1714699	4261023	4981778
CV (PCU)	15338	16005	15395	15548	15395	15548	15395	15548
	6427575	7901197	6427636	7457526	6427625	7900732	7915669	9660585

Soucre :- (Final Report on Evaluation of development plan towards Sustainability for Pune Metropolitian Area by IIT Bombay 2011)

Table No. 14-3 Peak Hour Passenger boardings and passenger distance for all modes for horizon year 2021								
2021	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	(Usual land use)		(Increasing FSI)		(PT share as 80%)		(Work participation ratio of 0.6)	
Mode	Passenger Boarding	Passenger Distance(km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)
BUS	107899	422375	104818	374739	214854	2236964	187520	2144029
IPT	30807	100084	19713	55340	35438	114027	37081	119440
TRAIN	326	4945	0	8.8	125	4291	477	7113
BRTS	32234	93222	24465	62388	67621	184887	42663	120255
METRO	217654	1528152	222356	1370980	336481	2319802	257602	1816065
MONO RAIL	35160	157410	32759	119726	66754	29594	43948	196852
TOTAL	424080	2306187	404111	1983182	721431	5155924	877103	5943781

Table No. 14-4. Peak Hour Passenger boardings and passenger distance for all modes for horizon year 2031								
2031	Scenario 1 (Usual land use)		Scenario 2 (Increasing FSI)		Scenario 3 (PT share as 80%)		Scenario 4 (Work participation ratio of 0.6)	
Mode	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)
BUS	119804	456826	112311	394997	234821	2291674	200564	2191081
IPT	36244	114333	24437	69465	49710	150637	46468	140228
TRAIN	372	5610	0.9	135	1438	21027	522	7661
BRTS	49098	140537	27090	68528	97204	252908	63928	175685
METRO	289960	2135564	245623	1533537	401953	2779827	335871	2435751
MONO RAIL	47050	214506	36635	137043	91977	447707	62277	290209
TOTAL	542528	3067376	446096.9	2203705	877103	5943780	709630	5240615

Table No 14-5. Peak Hour Passenger boardings and passenger distance for different P.T. modes for horizon year 2021								
2021	Scenario 1 (Usual land use)		Scenario 2 (Increasing FSI)		Scenario 3 (PT share as 80%)		Scenario 4 (Work participation ratio of 0.6)	
Mode	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)
BUS	107899	422375	104818	374739	214854	2236964	187520	2144029
BRTS	32234	93222	24465	62388	67621	184887	42663	120255
METRO	217654	1528152	222356	1370980	336481	2319802	257602	1816065
MONO RAIL	35160	157410	32759	119726	66754	29594	43948	196852

Table No 14-6. Peak Hour Passenger boardings and passenger distance for different P.T. modes for horizon year 2031								
2031	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	(Usual land use)		(Increasing FSI)		(PT share as 80%)		(Work participation ratio of 0.6)	
Mode	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)	Passenger Boarding	Passenger Distance (km)
BUS	119804	456826	112311	394997	234821	2291674	200564	2191081
BRTS	49098	140537	27090	98528	97204	252908	63928	175685
METRO	289960	2135564	245623	1533537	401953	2779827	335871	2435751
MONO RAIL	47050	214506	36635	137043	91977	447707	62277	290209

Table no 14-7 Peak hour Metro Loading for the year 2021

LINE NAME	Length (km)	Scenario 1- Usual Land Use			Scenario 2- Increasing FSI			Scenario 3- PT Share of 80%			Scenario 4 -Work participation ratio 0.6		
		Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD
AC to Nigdi	15.86	41133	21861	18418	37255	16811	16160	63971	32520	27662	50262	26406	21777
AC to Hinjewadi	15.65	41711	27950	19521	40813	22633	16221	67332	44334	30378	52083	35109	24205
AC to Katraj	12.01	36449	21157	15992	40558	23201	16860	49567	25622	20906	39091	21807	16943
Chandini Chowk to Ramwadi	17.96	54677	15773	23629	54057	14291	17485	89603	25997	35747	66101	19229	27702
Deccan GymKhana to Yerawada Bridge	13.94	45040	15410	14700	49672	16575	15073	66007	24126	19066	50065	17293	16214

Table No Peak hour Metro Loading for the year 2031													
		Scenario 1- Usual Land Use			Scenario 2- Increasing FSI			Scenario 3- PT Share of 80%			Scenario 4 -Work participation ratio 0.6		
LINE NAME	Length (km)	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD
AC to Nigdi	15.86	55823	29796	24253	42394	280532	17410	79450	40550	31691	67757	35546	28325
AC to Hinjewadi	15.65	58452	40403	28296	50819	453573	21742	84656	51677	35694	71565	46829	32234
AC to Katraj	12.01	49996	33000	21728	42061	283870	17345	60956	34695	24356	53532	33433	22493
Chandini Chowk to Ramwadi	17.96	68876	20105	29927	57333	271666	20545	99085	27707	37735	81158	23750	33429
Deccan GymKhana to Yerawada Bridge	13.94	56812	19635	18547	53014	243893	15890	77804	29729	21906	61858	22356	18951

Ridership Estimation on Monorail Corridor													
		Scenario 1- Usual Land Use			Scenario 2- Increasing FSI			Scenario 3- PT Share of 80%			Scenario 4 -Work participation ratio 0.6		
YEAR	Length (km)	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD	Passenger Boardings	Passenger km/km	PPHPD
2021	32	35160	4919	9149	32759	119726	4748	66754	9249	16859	43948	6152	11391
2031	32	47050	6703	11246	36635	137043	5177	91977	13991	21283	62277	9069	14002

Peak Hour Passenger Boarding and Passenger Distance for BRTS								
	Scenario 1- Usual Land Use		Scenario 2- Increasing FSI		Scenario 3- PT Share of 80%		Scenario 4 -Work participation ratio 0.6	
YEAR	Passenger Boardings	Passenger Distance (Km)	Passenger Boardings	Passenger Distance (Km)	Passenger Boardings	Passenger Distance (Km)	Passenger Boardings	Passenger Distance (Km)
2021	32234	93222	24465	62388	67621	184887	42663	120255
2031	49098	140537	27090	68528	97204	252908	63928	175685
	81332	233759	51555	130916	164825	437795	106591	295940

Recommendations by IIT-Bombay.

	Scenarios considered	Remarks
1	Land use(Do nothing)	Metro Rail, HCMTR & BRTS to be implemented as per Master Plan.
2	Densification along the Metro Corridors	Likelihood of achieving Sustainable Development
3	Share of public Transport – 80%	Public Transport services will get overloaded due to saturation level. In this case, public Transport Services would be required or now metro line to be laid for areas not covered earlier
4	Work participation Ratio-60%	Substantial increase in the number of trips, significant impact on the transport network due to increase in household employment. Metro rail system with proper co-ordination with BRT & Bus system is needed.
5	Specific Condition	i) Implementation of integrated master plan of high capacity Transit systems planned with last mile connection of wake bicycles, bus & IPT mode in that order, for achieving urban transportation system . ii) Transit oriented land use planning with densification along the metro is considered necessary for achieving sustainability. iii) Adoption of concept of mixed land use in the large IT & ITes employment centre and other employment and growth centre and the ones planned in the future, Minimizing commuter trips is recommended.

14.4 Urban Transport Components in Planning

Demand for urban transport components will be specific to suit their requirements. However, the common requirements are listed below:

1. **Urban Roads**
2. **Traffic improvements**
3. **Non Motorised Transport (NMT) management**
4. **Road Safety**
5. **Mass transport system**
6. **Intermediate Public transport (IPT)**
7. **Urban Transport Planning & Operation Data**
8. **Terminals**

14.4.1. Urban Roads

The urban roads are classified into hierarchy of roads namely

a) National Highways

b) Arterial roads

b) Sub-Arterial roads

c) Local roads



4.4.1.1. National Highways

There are two national highways passing through the city i.e 60m NH-4, NH-9.

14.4.1.2. Arterial roads :-

The inter city roads having width more than 30m are called as major arterial roads. Some new roads have been suggested in the Development Plan. Some of the roads which were shown in the sanctioned 1987 Development Plan, have been further widened. At certain locations, new links have been proposed. Number of roads had been proposed after the sanctioned 1987 Development Plan, under the section 205 of the BPMC Act 1949 and also widened under section 210 of the BPMC Act 1949. Most of them have been shown in the proposed development plan. Those which have not been shown on this proposed development plan will be deemed to be not in force.

Some arterial roads have been proposed to be further widened, as listed in statement no.14-1. These roads can be provided for public mass rapid transport system which may include BRT. Cycle tracks are also considered to be developed along these roads

14.4.1.3. Sub-arterial roads :-

The inter-city roads having width between 15m and 30m are called as sub-arterial or distributor roads. These roads connect major arterial roads, and are intended to collect traffic from local streets within residential units. These roads have been proposed to be further widened, as listed in statement no 14.1. Cycle tracks can be developed on these roads.

14.4.1.4. Local roads

All the roads having widths less than 15m with dominant function to provide local connectivity within the same neighbourhood unit are termed as local Roads. These roads can be developed for pedestrian as also for cyclists having suitable road design.

New missing links have been proposed. Development of major arterial roads in the outer-city area, with capacity augmentation has also been considered as listed in STATEMENT No 14-2. Some new bridges/bypass, flyovers, subways have been developed and also proposed as listed in STATEMENT No. 14-5 and 14-7. New railway over-bridges have also been proposed as listed in STATEMENT No. 14-8.

14.4.2. Traffic improvements

Traffic management should be undertaken to ensure that the hierarchy of road that is planned, operates as effectively and safely as possible, in accordance with the needs of all user groups and the functions associated with each street.

14.4.2.1. Junction improvements

Junctions are widened so as to ease vehicular movement. The turning radius is also increased to improve visibility. At some locations, islands have been proposed which will help the traffic move in an orderly pattern. Some junctions identified for development are listed in STATEMENT No. 14-10. Care should however be taken to provide proper storm water drains in order to reduce water logging at junctions.

14.4.2.2. Parking (Off-street / On-street)

Easier access of work places to and from such parking spaces can encourage the use of sustainable transport systems like BRT, Metro etc. On-street and off-street parking areas are to be planned after proper design and signage. Authorized parking spaces in public areas must be marked physically on ground in addition to display of signage.

Park and ride facilities for bicycle users with convenient interchange is an useful measure. Parking for Para-transport / feeder modes is to be prioritized and subsidized. Park and Ride areas are to be provided only at terminal MRTS/RRTS/BRTS stations, with a view to reduce the number of commuters driving into the central congested areas along high-demand corridors. Also, parking for cycles has also been proposed. Underground parking facilities can be created under the open spaces without disturbing the green areas on the surface and surrounding environment.

Variable Time-based Pricing – Differentiation in parking fees can be done according to zone, peak hour demand, days of the week, etc. by charging higher rates during peak hour and by progressively increasing the rates per hour.

14.4.2.3. Road Information System

Proper signages should be shown with street furnitures.



14.4.2.4. Intelligent Transport System

Installation of Automatic Traffic Control devices at the junctions will help in synchronizing the junctions in a particular area as proposed.



Installation of Automatic Traffic control devices at the junctions will ensure a continuous flow on the main corridor, thereby reducing the vehicular conflicts at the junctions.

Intelligent transport system can be used to obtain real-time dynamic traffic information online, such as road speed, CCTV, CMS (Changeable Message Signs), weather information, etc., and various kinds of road events, like traffic block, construction, signal break, disaster, accidents, locations of roads which are affected by water logging. etc.

CCTV cameras can be installed to make parking lots safe for women/ users. Intelligent transport system has been developed at Swargate and is monitored by PMC.

14.4.2.5. One-Way Operations

One way road operations are very helpful in increasing the roadway capacity and reducing the intersection conflicts, paving the way for reduced delay in traffic and increase in safety. The one way operations on Fergusson college road and Jangli Maharaj road have proved very fruitful in this regard.

14.4.3. NMT management

Prioritisation for walking, bicycling, and transit by providing safe, accessible, convenient, and comfortable facilities for these modes, particularly on designated routes and at critical network connections is very important for the safety of pedestrians and cyclists.



Continuous and safe NMT lanes with adequate crossings are essential throughout the city. Ample parking facilities will be allotted for NMTs at all MRTS stations, railway stations,ST stands,Bus stands etc. Cycle tracks can be developed on Arterial and Sub arterial roads. New cycle tracks have been proposed along the Mutha right bank canal from race course to Hadapsar. Similar such proposals have been suggested in DP.

14.4.3.1. Pedestrian foot path and safe crossing facilities

Where grade separated facilities cannot be provided,at-grade facilities such as zebra crossings, striping, pedestrian flashing signals etc. would be provided.

To encourage and cater to walking trips, footpaths need to be installed on all roads without any exception. The following is suggested for the installation of footpath:

- It is desirable to have a footpath of minimum width 2m on all roads.
- Footpath design must discourage two wheelers using the footpath during periods of congestion
- Footpaths at all busy intersection must be provided with handrails to enforce pedestrians cross at zebra crossings
- Subways/ foot over bridges should be provided at appropriate locations such as at grade separator for safe and smooth passage of pedestrians etc.

14.4.3.2. Pedestrian subways

New subways have been proposed in the plan as listed in STATEMENT No. 14.7 in this chapter. On the mobility corridors, specifically at busy intersections and mid block bus stops (at public transit corridors), pedestrian foot-over-bridges or subways would be required.

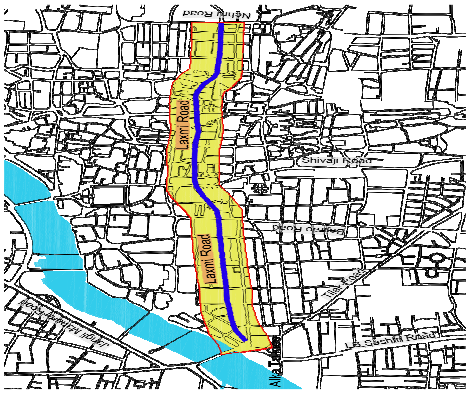
14.4.3.3. Pedestrian zones

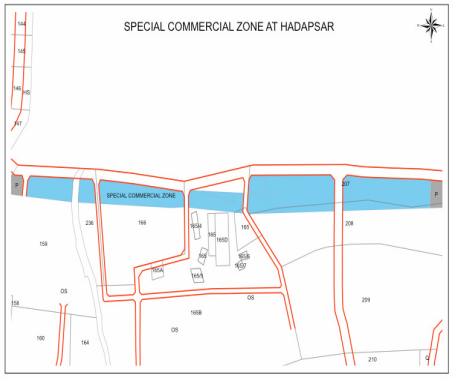
Commercial crowded areas have been identified and underground subways can be developed with road side shopping provided in subways. Some part may be used for parking, which will aid in minimizing parking on road as, thereby creating space for pedestrians, without disturbing the traffic on road.

14.4.3.4. Encourage and Designate Pedestrianization in Core Area

The core area with its array of high density retail and commercial uses and narrow streets is well suited for pedestrianization. Converting a street or an area for car-free use is called pedestrianization. Well-designed and placed public spaces can enliven an area. M.G. Road in the city has already being made a Pedestrian Plaza on Sundays. One of the pedestrian busy streets in core

area is Laxmi road, as can be seen from the pedestrian survey results. Similarly the surrounding roads also have a very high pedestrian count. On an experimental basis, vehicles may be banned on Laxmi Road and adjoining streets (within 50m to 200m) from 8 am to 8 pm, effectively turning an area of approximately about 0.5~1.0 square kilometers into a vehicle-free zone to ease the air pollution and traffic jams that plague the old city. International experience shows that despite the initial resistance, pedestrianisation has often improved the businesses and economy of the area which is in addition to the social benefits. If the ban proves successful, it could be made permanent.

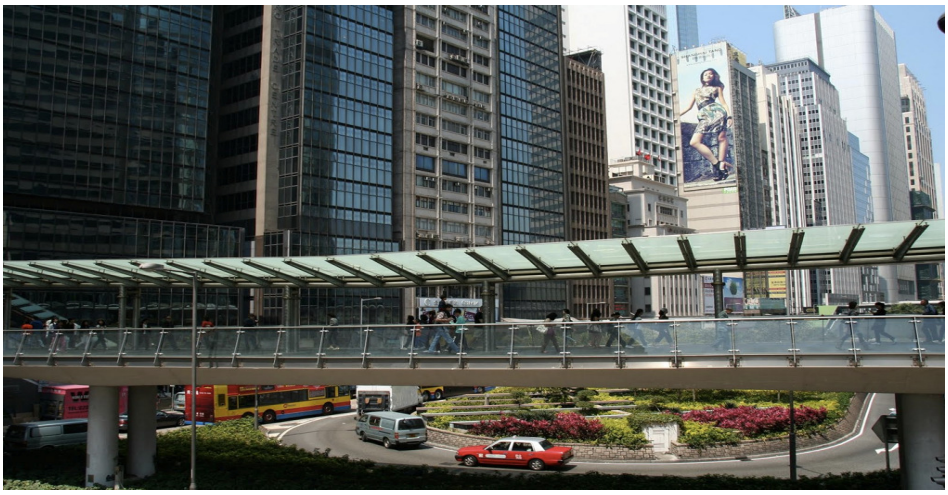






14.4.3.5. Skywalk

The Pune Municipal Corporation (PMC) has undertaken a feasibility study to ascertain the financial and technical viability of the two skywalks proposed in the annual civic budget. One such skywalk has been suggested from Shivajinagar to Shaniwarwada and the other from Swargate to Mandai.



A lot of people walk from Shivajinagar to Shaniwarwada. A skywalk will help the commuters to avoid congested roads. The project will ensure a hassle- free and safe pedestrian movement from the busy Shivajinagar railway station and Swargate bus station.

The proposed **Shivajinagar Station - Swargate Skywalk** will join Shivajinagar Station to Swargate via Shaniwarwada, Dagadusheth Halwai Ganapati and Mandai Market. Pune Municipal Corporation has started a feasibility study of this skywalk on the Shivajinagar Station to Shaniwarwada section and Mandai Market to Swargate section.

This skywalk will be constructed on four sides of Mandai Market. This will be made in three parts i.e. from Shivajinagar Station to Shaniwarwada, Swargate to Mandai Market and Mandai Market to Shaniwarwada.

14.4.3.6. Cycle tracks & terminals

Provisions of separate bi-cycle lanes having at least 2m width would improve the overall traffic flow. To provide separate NMT facilities, sometimes the shoulders and carriageway may be needed to be widened within the ROW. Also in some cases, parking may be needed to be relocated to make way for the NMT facilities at certain locations.

Cycle tracks would be proposed with landscaping, cycle stands, water drinking facilities, toilet facilities etc.





The right bank canal is no longer used by the irrigation dept and can be used as the cycle track from race course to Sade Satra nalli in Hadpasar. This track can be developed upto 10 km, thus creating more space for pedestrians and cyclists. A cycle track is also proposed to be developed from Salisbury park to Rajaram bridge overs the service road along the right bank canal.

Cycle track is proposed to be developed along roads having width more than 15 m.

14.4.3.7. Traffic Segregation

To reduce accident risk and increase level of service, central medians need to be provided on mobility corridors. Bicyclists and pedestrians are more efficient users of scarce road space as compared to private motor vehicles, as regards combat congestion. Bicycling and walking are the most efficient and environmentally sustainable means of making short trips.



Figure No. 14-2 : 3D View of BRT Corridor

Pune has already begun implementing Projects of developing bicycle lanes and should continue to do so on all corridors, more specifically, the mobility corridors. Cyclists using the carriageway, along with motor vehicles and other road traffic, cause hazards for themselves. This is particularly true when cycle traffic is more. Under such circumstances, it is necessary to segregate cyclists from other modes of traffic.

14.4.4. Road Safety

14.4.4.1. Signage

Marking of zebra crossing, lanes, parking lanes, traffic signages has to be done on roads. Road signs are classified into three categories: Mandatory/Regulatory signs, Cautionary/Warning signs, and informatory signs. It is recommended that signs near schools should be installed on priority basis. Traffic control devices such as: Center line, Traffic lane lines, Stop lines, Pedestrian crossings, Parking space limits, Kerb marking for visibility, Obstruction marking etc. must be provided keeping in view all users of the road and especially for night time driving.

All the traffic signs should be facilitated as per the guidelines provided in IRC publication 67-2001. Proper lighting should be done for night traffic

14.4.4.2. Training & education

To educate people regarding various aspects of safety rules and regulations of traffic planning. Traffic Parks**.** may be developed at specific identified locations, earmarked as Park in the Development Plan.

14.4.4.3. Accident information system

Surveillance system is proposed to be operated at major junctions / major roads in the city.

14.4.4.4. Trauma care facilities

With a view to address the issues of accidents and other mishaps, sites have been identified for specialty and trauma care centre at key locations in the development plan.

14.4.4.5. Management of accident prone areas

Widening at junctions and by providing adequate chamfers helps in eliminating blind spots at junctions. Also Speed breakers to reduce speed at junctions, may also be provided.

14.4.4.6. Signal Coordination & Optimization

When properly used, traffic control signals are valuable devices for the control of vehicular and pedestrian traffic. They assign the right-of-way to the various traffic movements and thereby profoundly influence traffic flow. Traffic control signals that are properly designed, located, operated, and maintained will have many advantages. Traffic signal type, spacing, phasing, offsets should be optimized for all modes of traffic on all mobility corridors to ensure a speedy thoroughfare. Wherever possible, actuated (demand response) traffic signals must be provided

14.4.5. Mass transport system

14.4.5.1. Commuter rails/LRTS/ Metro

A detailed project report for the study was submitted by DMRC Delhi and IIT-Mumbai. A travel demand forecast model was developed for the metro project. The study recommended a high capacity rapid transit system on six alignments.





The following alignments have been finalized for the Metro:

Line 1: Agricultural College to Nigdi via Pune Mumbai Rd (length- 16 km)

Line 2: Agricultural College to Warje Via JM and Karve Rd (length- 8.7 km)

Line 3: Agricultural College to Swargate and Katraj via Shivaji Rd (length- 12 km)

Line 4: Agricultural College to Vagholi via Bund Garden Rd (length- 16 km)

Line 5: Agricultural College to Hinjewadi via Aundh (length- 17.5 km)

Line 6: Agricultural College to Hadapsar via Mhatre Bridge (length- 16 km)

Note: The metro routes proposed are shown on the proposed development plan. The alignments are indicative and likely to change slightly depending on the site conditions. The Policies for development of Metro Stations shall be finalized at a later stage.

Those owners, who come forward and hand over their lands, for Metro stations, shall be incentivised by giving them TDR of twice of which is permissible.

14.4.5.2 High Capacity Mass Transportation Route.

The feasibility report of High Capacity Mass transport system for Pune Metropolitan Area has been carried out by RITES. The total HCMTR route is proposed along 34 km length. It has a width of 24m and its alignment is as shown in the RITES study. Any other form of alignment would require land acquisition that is too prohibitive considering the financial and social constraints. The alignment shown is not a closed loop but with the utilization of existing roads and road widening, the loop can be made a closed one.

The route is aligned as a ring to run from the Khadki Railway Station, along the eastern boundary of the Pune University Complex, Senapati Bapat Road, by the side of Hanuman and Law College hills, across SNDT hills, over the nalla through Ganesh Nagar up to the Dattawadi Bridge, along or over Ambil Odha, the Mutha right bank canal upto the Pune Cantonment limits, through the cantonment area and via Lulla Nagar, Netaji Nagar, SRP area, across the river entering Wadgaon- Sheri and via viman Nagar, Central Jail upto Alandi Road within old PMC limit.

The route is proposed to be used only for operating the mass transportation system and hence it will be connected to the existing or proposed road network only at selected interchange points. This route would be developed to operate the rapid bus transport system initially and converted progressively to operate the higher capacity systems, such as the trolleys, trams, monorail and finally the rail based rapid transit system. The interchange stations have been suitably located along the route, where the buses operating on the conventional routes can switch over from the road network to the High capacity route and vice-versa. After conversion of the route into the rail corridor, these inter-changes. Stations would operate as interchanges between the rail system and the feeder bus system.

The alignment has been designed accordingly to suit the operation of the rail-based system and incorporated in the Revised Draft Development Plan

for the first part of 33.90 kms, passing through the area in the Municipal Corporation, Cantonments and Wadgaonsheri village. The proposal has been shown in red lines and washed in grey color.

14.4.5.3. Public Transport

Pune has a low share of public transport and a high share of private transport. PMPML is operating buses in the PMC limits. With a fleet of about 960 buses transporting nearly 5.50 lakh passengers per day, a staff of about six and a half thousand, six depots, eighteen main bus stations and about 200 operational routes PMPML is a very important body in Pune. PMPML has been recently formed by merging PMT and Pimpri Chinchiwad bus corporation. The gap between transport demand and supply is increasing in pune. Mumbai's BEST had a fleet of 1800 buses in 1971 when it had to cater to a population of 27 lakh people. Pune, today has roughly the same number of people [today as Mumbai did back then] but PMPML has only about 960 buses in running condition.

Incorporating public transportation is an important parameter at the urban planning stage rather than being a consequential requirement. This can be achieved by introducing an Intelligent Transport Systems for traffic management. It will result in developing concerns regarding road safety, trauma response and reducing pollution levels within the city.

14.4.5.4. Bus transport system (intra-city / inter-city) /BRTS





The launching of the JNNURM has provided a timely platform for providing significant financial support from the Central Government for investments in urban transport infrastructure**.**

The main motive of BRTs is to wean people away from the private vehicles to the public transport. The existing bus transport system obviously operates with and subject to the same limitations as the other vehicles, due to conditions prevailing in different sections of the existing road network. The service capacity and the resultant efficiency of the bus system primarily depends upon the turnover from each unit or a bus. Its overall efficiency is greatly affected due to the congestion on roads resulting in lower average speeds, higher fuel consumption, greater wear and tear of the vehicles due to frequent application of brakes and change of gears, and tension on drivers thereby reducing their efficiency.

It is necessary to introduce bus priority measures on the road network by providing bus lanes, either with- flow or contra flow, wherever the width of the existing roads is sufficient, on one way roads and when new roads are designed. This would increase the average operational speed of the buses resulting into extracting greater seat per kilometer and raising the revenue receipts from the same fleet, while keeping the operational costs almost constant. Cost savings associated with BRT can enable the city to focus its resources on other urban improvements. Width of new roads and widening of some of the existing roads have been proposed to make these measures feasible.

One of the successful ways of increasing the public transport trips in addition to the fleet augmentation is to increase the speed and capacity of the public transportation system by way of dedicated public transport corridors. A public transport corridor is an alignment mostly on existing transport network system either at grade or grade separated with dedicated carriageway to carry public transport trips. It is important connecting routes should feed the spine routes of BRT, in terms of passengers. The more robust the network, the more useful it will become, and the more likely people will choose to use it.

PMC's BRTS Report (Network Development for BRT for Pune City under the Scheme of JNNURM – Main Report, July 2006) identifies 21 corridors/routes for BRTS, based on earlier studies and some fresh surveys. Various parameters such ROW, present PMPML ridership etc are considered in the determination of the routes.

The 21 routes thus identified, adding up to about 101.70 km in length are listed in as below :-

Table No. 14-11 : Routes proposed for BRT	
Name of Corridor	**PMC**
	Length (kms)
Satara Road	5.5
Solapur Road	7.7
Yerwada to Vishranthwadi Road	4.5
Ahmednagar Road	5.2
Singhagadh Road	7.2
Airport Road	2.2
Mundhwa bypass	2.8
Karve Road	6.4
High Capacity River Side Road	10.4
Paud Road	4.6
Vishranthwadi-Dhanori Road	6
Airport to Ramwadi Jakat Naka	1.45
Sancetti Hospital to University Junction	2.73
Baner Road	3.2
Hotel Green Park to Balewadi stadium crossing westerly bypass	5.69
Vishranthwadi Airport	2.4
Kalyni Nagar Junction to Alandhi Road	2.33
Airport Road to Deccan college via hot mix plant	2.55
Westerly bypass-Balewadi road to Baner road	2.83
Bajirao Road Old Mumbai Road	2.3
Old Mumbai Road	5.5
Shivaji Road	3.3
Nehru Road	5
Bhairoba Magarpatta Road	-
L.B. Shastri Road	-
J.M. Road	-
Yerwada - Bhairoba nanla	-
Bibewadi Road	-
Saswad Road	-

Pashan Road	-
Kondhwa Road	-
Aundh Road	-
Alandi Road	-
Total	101.7

(source CMP 2008 PMC)

Recommendations for improvement in BRT performance

- Modern bus stations with pre-board ticketing and comfortable waiting areas.
- Multi-door buses that dock with bus stations to allow rapid boarding and alighting.
- Bus prioritisation at intersections either as signal priority or physical avoidance (e.g., underpasses).
- Real-time information displays on expected bus arrival times.
- Excellence in customer service that includes clean, comfortable and safe facilities, good information and helpful staff.

  BRT designs for different width of roads have been indicated in STATEMENT NO 14-9.

14.4.5.5. Inter modal transfer facilities

14.4.5.6. Inland water facilities

Pune city is bounded by two major rivers, namely Mula and Mutha. These rivers can be used for navigation from Rajaram bridge at Karvenagar to Kharadi i.e total length of 16 km. This can be further extended on upstream side i.e Shivane The water level in the river should be maintained for navigation. Also beautification can be proposed along the river bank. This option of water water transport needs to be explored at the earliest.

14.4.5.7. Intermediate public transport (IPT)

As of 2007, about 58916 three wheelers are running on the streets of Pune.(Source CMP 2008).They provide connectivity to the city core, which has a narrow road network. Auto rickshaws tend to serve areas with poor bus

service provision and offer point to point service. According to Pune traffic Control Branch,three wheelers wait for commuters at nearly 500 designated stands on streets..(Source CMP 2008). Rickshaw stands have been suggested at major traffic junctions, townships, neighbourhoods, hospitals, bus stands, railway stations ,airport etc.

14.4.6. Urban Transport Planning & Operation Data

1. Urban Road Information System
2. Data Collection
3. Collation & Management
4. Planning & research activities

14.4.7. Terminals

14.4.7.1. Rail

The Pune station is the major railway junction in the city.All national and intercity trains are attracting passengers from this junction. There are also other railway stations at Khadki, Shivajinagar and Hadapsar.

14.4.7.2. Bus (Inter-city/intra-city/Tourist etc)

Bus Terminals

There are four major bus terminals in Pune, namely Shivaji nagar, Pune Railway station, Swargate and Pune Municipal Corporation. Some of the major problems associated with these bus terminals can be solved to a certain extent as follows:-

- Access roads leading to these bus terminals have been proposed to be widened. However, these should be kept free from encroachment by hawkers, shop keepers and parked vehicles.
- Facilities within bus terminals in terms of bus bays, boarding alighting platforms and circulation can be provided.

Following are the seven bus depots/terminals situated in the city.

- Swargate Depot
- N.T.Wadi (Shivaji nagar) Depot

- Kothrud Depot
- Katraj Depot
- Hadapsar Depot
- Market Yard Depot
- Pune Station Bus Terminal
- Mahatma Gandhi Bus Terminal
- Katraj Bus Depot.

Among these seven bus terminals, Swargate, Shivaji Nagar and Pune Station bus terminal are situated in the congested area.

New Bus Terminals have been proposed at Bibwewadi, Parvati, Pashan, Yerawada, Sangamwadi, Lohegoan, Mula road.

14.4.7.3. Truck terminals

The truck terminals have been proposed at some locations in the Development Plan of the 23 villages. In order to reduce congestion due to heavy traffic in the city, truck terminals sites having an area of 100 acres each can be identified along Satara road, Sholapur road, Nagar road and Bombay-Pune road, on the periphery of city, along the ring road. These sites shall be developed for Truck parking. These will incorporate godowns for loading and unloading, goods platforms, sorting sheds, facilities like hotels, rest rooms, restaurants etc. They can also be provided with bus terminus. Heavy traffic for transport of freight shall not be permitted to enter the city during day time.

14.5 Achievement as per National Urban Transport Planning (NUTP) in Traffic Planning in Development Plan

The National Urban Transport Policy (NUTP) has been kept as the focal document, while preparing various Traffic and Transportation proposals in the revised Development plan. As per the requirement of NUTP, PMC has prepared a comprehensive Mobility plan (CMP) for the city. This plan has been prepared after the study of all the responses pertaining to traffic studies prepared in the past are studied.

14.5.1 Planning for Healthier Transport

Sustainable transportation options rely heavily on promotion of public transport and non- motorised modes.

Buses and non-motorised modes of transport will surely remain the backbone of mobility in mega- cities like Pune. Bus use needs to be increased without increasing the pollution and the rate of road accidents. This can be made possible as the following points have been considered in planning:-

1) Safe entry and exit procedures for bus passenger. This would include buses equipped with closing doors, low floors, and appropriately designed bus stands.

2) Operation of buses at safe speeds:- This can help in improving frequency and reduction in the travel time.

3) Bus stop locations that ensure route changes, convenience and safety of commuters.

4) Increase in use of public transport also results in increase in the walking/bicycling trips.

5) Freight traffic is proposed to be restricted in congested part and will be allowed in the city only during the night timings.

14.5.2 Segregated lanes for non-motorised transport and safer pedestrian facilities:

The bicycle/non-motorised vehicle plan has been planned for Pune to fulfill the following objectives:

(1) Traffic flow of all vehicles using that corridor will improve;

(2) Number of accidents involving bicyclists will be reduced;

(3) Potential bicyclists will be encouraged to use bicycles

Detailed designs for road cross sections and intersections have been prepared on the basis of following criteria:

1. Physically segregated bicycle tracks on routes which have >30m ROW.
2. Recommended lane width for motor vehicles on main carriageway 3m (minimum).
3. Recommended lane width for buses 3.3 m (minimum).
4. Recommended lane width for bicycles 2.5 m (minimum).
5. Separate service lane and footpath.
6. Intersection modification to include the following:
    - No free left turns for motor vehicles
    - Modification of traffic signal cycles
7. Roadside furniture to ensure safe bicycle movement and minimise interference from motorised two wheelers.

Pedestrians and cyclists form a very important part of any systems. It is necessary that they should be provided facilities which are safe, comfortable and convenient in the reserved D.P 18 km of network of cycle track has been proposed. Also, in order to create dedicated path for pedestrians, skywalk has been proposed from shivajinagar railway station to swargate chowk. It is suggested to prepare a one way plan for the roads in Pune city. This should incorporate cycle tracks and footpath for non-motorised transport sector.

14.5.3 Road user charges.

Due to the increase in number of vehicles in the city there has been an increase in the congestion and pollution in the city. In order to reduce traffic moving in congested area, and also to motivate people to use more of Public transport and Non-motorised transport, extra charges can be levied on motor vehicles entering the core area which can be termed as road user charges. These can also be levied during congestion hours.

14.5.4. Efficient mass transport system.

1. Construction of metro rail system is considered an important counter measure for reducing the congestion and pollution. PMC has embarked on the Metro Project, wherein 31 kms have been identified in the Ist phase of plan. Further new lines have also been proposed in subsequent phases of metro. A comprehensive BRT network has also been planned. Phase I pilot project has already been been implemented and executed accordingly.

Total length of route = 13.8 km

Swargate- Katraj = 6.50 km and Swargate -Hadapsar = 8.2 km (ind. PWD 2.4 km.

Table No. 14-12 : Pilot BRT Project in Pune

Details	Swargate- Katraj	Swargate- Hadapsar
Length	6.50 km	8.2 km
No of Bus stops	12	15
Junctions	13	16
Terminals	4	2

The focus of the Traffic & Transportation proposals is investment in the public transport. Appropriate stations, Bus Depots, Parking, Transportation Hubs, Truck Terminals, Parking for Auto Rickshaws and other vehicles, private buses. etc. have been earmarked in the development plan.

The formation of unitary body, PMPML has effected due to the amalgamation of two bodies, PMT & PCMT. The aim of the formation is to create an institution mechanism for coordinating in the planning and management of buses in PMC AND PCMC limits.

14.5.5. Road safety and trauma response

Every year there are thousands of accidents occurring on the road due to reckless driving and over speeding. Traffic park can be developed in one of the sites reserved as parks in the revised Development Plan. This will help in inculcating traffic awareness in the citizens. This will also help in imparting knowledge regarding. traffic measures, traffic safety etc. Trauma Hospitals have also been proposed at different locations with a view to administer timely help to victims suffering from road and other accidents.

14.5.6. Intelligence transport system

As regards the intelligence transport system for traffic management, PMC has taken a step forward by installing surveillance camera at different locations; A special cell has been established at Swargate BRT office, for this purpose, which is monitored by PMC.

STATEMENT NO.14-1

PROPOSED ROAD WIDENING IN PROPOSED DEVELOPMENT PLAN

(Length in km)

Sr No.	Sector	I	II	III	IV	V	IV	Total Length in km
1	9 m widening	1.65	0.92	0.33	2.36	0.19	0.41	5.86
2	12 m widening	12.21	4.34	3.23	3.61	0.78	6.26	30.43
3	15 m widening	20.8	16.89	6.84	2.21	4.06	7.06	57.86
4	18 m widening	0.74	7.52	8.61	1.11	0.72	5.53	24.22
5	20 m widening	2.59	4.29	14.51	0.34	3.56	3.59	28.88
6	21 m widening	0	0	1.9	0	0	0	1.90
7	24 m widening	6.63	17.52	19.59	5.51	3.75	8.83	61.63
8	30 m widening	5.58	7.51	6.56	1.96	11.25	18.67	51.53
9	36 m widening	2.09	5.82	11.35	3.14	1.64	3.05	27.09
10	42 m widening	0	2.96	6.4	0	0	1.3	10.66
11	45 m widening	0	5.06	1.24	0	0.79	0.79	7.88
12	50 m widening	0	2.7	0	0	0	0	2.70
13	60 m widening	0	0.53	0	0	3.73	4.8	9.06
	Total Length of Road Widening in Pune City							319.71

STATEMENT NO.14-2

PROPOSED NEW LINKS IN PROPOSED DEVELOPEMNT PLAN (Length in km)

Sr no	Sector Road Width	I	II	III	IV	V	VI	Total Length (km)
1	6 M	0	5.54	18.00	0	0	1.34	24.88
2	9 M	0.25	0	0	0.76	1.36	0.96	3.36
3	12 M	0.35	7.53	0.37	4.24	2.31	4.94	19.75
4	15 M	0	0.12	0	0.12	8.92	1.74	10.90
5	18 M	0.44	0.68	1.72	1.11	5.4	4.17	13.52
6	20 M	0	1.12	1.1	1.81	12.81	3.86	20.70
7	24 M	0.59	3.53	2.99	0.68	5.46	8.58	21.83
8	30 M	0.61	0.37	2.16	0.815	5.71	1.2	10.87
		Total Proposed New Road Links in Pune City						137.83

STATEMENT NO.14-3

PROPOSED CYCLE TRACKS IN PROPOSED DEVELOPMENT PLAN

SR. NO.	LOCATIONS		LENGTH (KM)	WIDTH (M)	REMARKS
	FROM	TO			
1	Wanwadi	Hadapsar	6.30	4.5 m	Along Old Canal
2	Warje STP	BMCC College	6.00		Along Canal
Total Length			**12.30**		
Note:	Cycle track provided on the road of 24 m wide and above in all sectors.				

STATEMENT NO.14-4

PROPOSED METRO ALIGNMENT IN PROPOSED DEVELOPMENT PLAN

SR. NO.	PROPOSED METRO ALIGNMENT		STATUS OF METRO (ELEVATED OR UNDERGROUND)	LENGTH IN KMS (Within PMC Limits)	REMARKS
	FROM	TO			
1	Deccan Gymkhana	Ramwadi	As Mentioned in DPR of Metro	11.33	Branch of main line running from Kothrud to Ramwadi.
2	Ramwadi Octroi Naka	Airport		3.00	Branch of main line running from Kothrud to Ramwadi.
3	Ramwadi Octroi Naka	PMC limit upto Wagholi		2.80	Extension to main line running from Kothrud to Ramwadi.
4	Swargate	Nigadi		5.85	Via Shivajinagar, Bopodi.

5	Swargate	Katraj		6.50	Branch of main line running from Swargate to Nigadi.
6	Shivajinagar	Hinjewadi		5.50	Via Pune University and Aundh.
7	Pune University	Baner		2.50	Branch of main line from Shivajinagar to Hinjewadi
8	Shivajinagar	Warje		12.00	Via J.M.Road, Kothrud, Karvenagar

STATEMENT NO.14-5

PROPOSED FLYOVERS IN PROPOSED DEVELOPMENT PLAN

SR.NO.	SECTOR	LOCATION
1	II	Satara road near Dhankawadi
2	II	S P College main gate,Tilak road
3	II	Laxmi narayan vhowk
4	II	Jedhe Chowk
5	II	Market road Jn and Premnagar Jn
6	II	Sharda Arcade Jn & Padmavati Jn on old NH4
7	III	Karve Putala Chawk
8	IV	Engineering college junction
9	IV	At Bopodi Jn on old NH4
10	IV	At Simla office Jn on Ganesh khind Rd
11	IV	At Sancheti Jn on Ganesh khind Rd
12	IV	New Sangamwadi Bridge to Old Mumbai – Pune Road
13	IV	Elevated bridge adjacent to CID office connecting river side roads
14	IV	J.M. Road Junction at GPO
15	IV	J.M. Road Junction at Modern Highschool
16	V	Shastrinagar & Kalyaninagar Jn.
17	V	Gunjan Chowk Jn.
18	V	Sadalbaba Darghah Jn.
19	VI	Juna Bazar - Pune Station Road
20	VI	Collector Office Junction
21	VI	Poona Club - Council Hall
22	VI	Laxmi Lawns N-W Corner
23	VI	Magarpatta S-W Corner
24	VI	Hadapsar Ind Area - Hadapsar TPS II
25	VI	Bharat Forge
26	VI	Botanical Garden
27	VI	Newly Proposed MPG
28	VI	Bhairoba Nala
29	VI	Blue Diamond
30	VI	Flyover at Netaji Nagar-HCMTR

STATEMENT NO.14-6

PROPOSED FOOTOVER BRIDGE/PEDESTRIAN BRIDGE IN PROPOSED DEVELOPMENT PLAN

SR NO	SECTOR	LOCATION
1	IV	Bopodi(Mumbai – Pune Road)
2	IV	Engineering college to Engineering College Hostel
3	VI	Hadapsar PMPML Depot
4	VI	Mundhawa Rail Station
5	VI	Mega Center
6	VI	Solapur Road near Burial Ground
7	VI	Hadapsar TPS II
8	VI	Mundhawa Rail Station
9	VI	Kondha Gaothan N Side
10	VI	Pune Station PMPML Depot
11	VI	Zilla parishad square

STATEMENT NO.14- 7

PROPOSED SUBWAYS IN PROPOSED DEVELOPMENT PLAN

SR NO	SECTOR	LOCATION
1	I	Appa balwant chowk
2	I	City post chowk
3	I	Shanipar chowk (vishrambaug wada)
4	I	S. P. college
5	II	Bibwewadi chawk (pedesrtian)
6	II	Swargate
7	III	Paud road, more vidyalaya
8	III	Paud road, vanaz
9	III	Dahanukar colony
10	III	Warje road, near Kakade city
11	III	Near Garware college
12	III	Tukaram paduka chowk
13	III	Goodluck chowk
14	III	Dnyaneshwar paduka chowk
15	III	Vetal baba chowk
16	IV	Bopodi naka (pedestrian)
17	IV	Pune university
18	IV	Engineering college
19	IV	Pashan gaothan on pashan road (pedestrian)
20	IV	Dyaneshwar paduka chawk on fc road (pedestrian)
23	VI	Jahengir hospital
24	VI	Wadia college
25	VI	Hadapsar PMPMLdepot
26	VI	Solapur road Hadapsar
27	VI	Hadapsar Mundhawa link
28	VI	Pune Saswad rail crossing
29	VI	Mundhawa at BT Kawade road junction
30	VI	Pune Miraj Railway line at Mundhawa, BT Kawade road &Ghorpadi.

STATEMENT NO.14-8

PROPOSED RAILWAY OVERBRIDGE (FOR VEHICLE) IN PROPOSED DEVELOPMENT PLAN

SR NO	SECTOR	LOCATION	REMARKS
1	IV	Sancheti hospital	existing bridge widened to 30 m
2	VI	Anant cinema	vehicular rail crossing
3	VI	Hadapsar TPSchemes	vehicular rail crossing

STATEMENT NO.14-9

PROPOSED BRT ROUTES IN PROPOSED DEVELOPMENT PLAN

Sr no	SECTOR	NAME OF ROADS	LENGTH (KM)
1	I	Nehru road	5.00
2	I	Shivaji road	3.30
3	I	Bajirao road	2.30
4	II	Satara road	5.50
5	II	Sinhagad road	7.20
6	III	High Capacity River side road	10.40
7	III	Karve road	6.40
8	III	Paud road	4.60
9	III	FC ROAD	1.40
10	IV	J M road	1.59
11	IV	Old Mumbai road	5.00
12	IV	Govt. Poultry Farm to Harris Bridge	4.00
13	IV	Sancheti Hospital to University Jn.	2.73
14	V	Yerawada to Vishrantwadi road	4.50
15	V	Ahmednagar road	5.20
16	V	Airport road	2.20
17	V	Airport to Ramwadi Octroi naka	1.45
18	V	Airport to Vishrantwadi	2.40
19	V	Kalyaninagar Jn. To Alandi Road	2.33
20	V	Airport to Deccan Colllege (Via Hot Mix Plant)	2.55
21	V	Vishrantwadi-Dhanori road	6.00
23	VI	Mundhawa Bypass	2.80
25	VI	Solapur Road	7.70
		Total Length of BRT Route	96.55

STATEMENT NO.14-10		
PROPOSED TRAFFIC ISLANDS IN PROPOSED DEVELOPMENT PLAN		
Sr no	**Sector**	**Name Of the Junction**
1	II	Satara road Katraj junction
2	II	Satara road Biwewadi junction
3	III	PMC building chowk near Tilak bridge
4	III	Om Super Market chawk
5	III	Prabhat road junction near Law college
6	III	Kakade city and Warje treatment plant Jn
7	III	Patwardhan baugh road & River side road Jn.
8	IV	Bopodi chowk
9	IV	Engineering college chowk
10	IV	Parihar chowk
11	VI	Jahangir hospital chowk
12	VI	Lulla nagar chowk
13	VI	Sadhu Vaswani chowk
14	VI	Fathima nagar chowk

CHAPTER 15

ENVIRONMENTAL PLANNING

15.1 Scope in the Development Plan

Environment plays a very important part in any project. In today's scenario, it is an element which requires maximum attention. Developers and Environmentalists are at loggerheads, most of the time. Any new development project undertaken, would normally cause some harm to the environment. A development plan is a document, which guides the development of the city and includes amenities earmarked in it. Provision of amenities to the general public would never be a matter of debate at any time. It however needs to be ensured, that due attention is given to the environmental aspect of planning.

Pune is blessed with a wonderful topography. It is shaped like a saucer with surrounding hills on all sides. Policies need to be framed for the preservation of hills, which are the lung spaces of the city. In addition, the water bodies namely the rivers, nallas, canals, streams, rivulets etc. need to be maintained. Ample number and area for Gardens, Play-grounds; Parks etc have to be provided. A healthy body makes an healthy mind; Planners need to keep this in their minds all the time and plan accordingly, for their cities.

15.2 Natural Features in the city

The following proposals have been framed in the Revised Draft Development Plan bearing in mind the above mentioned objectives.

15.2.1 Hills & Hill-slopes.

Pune is located in a saucer shaped basin surrounded on all sides by hills at different altitudes. The rise of the ground slope is gradual from the river, with R. L. 530 mtr. (1750 ft) towards the hills with the highest R.L. 710 mtr. (2300 ft) at the Kedareshwar.



During the preparation of the revised DP of 1987, the Technical Group, which was constituted, decided that a gradient of 1 in 5 should be considered as the beginning of the hill slopes. In this development plan, a detailed contour survey (with 1:5 criteria) has been carried out and line of hill top-hill slope zone has been finalized. For lands with such or steeper gradient, limited construction will be allowed. The hill slopes along with the hill tops formed by the land enclosed or surrounded by such slopes, has been determined accordingly and shown in this Draft Development Plan.

15.2.2 Rivers:

Rivers are the prominent features of Pune city .Two rivers namely Mula and Mutha flow through the city. River Pavana flows through Pimpri-Chinchwad. The rivers Mula and Mutha meet at Sangam bridge and flow as a single entity. Several nallas flow through the city and ultimately meet the rivers at different locations.



PMC has undertaken many rivers improvements in the past years. Dredging of rivers is one such important project. Channelization of rivers in the city limits is nearly complete.

PMC has over the years, constructed Bunds at various locations across the rivers, thereby forming water bodies. Water bodies have been formed in Dapodi, near Bund Garden, near the Sathe Biscuit Company, in the Mutha River, flowing through the central congested part of the city. With a view to conserve the river, a buffer of green belt is shown in some places along the river. In addition to the river improvement and beautification aspects, river navigation is also under consideration.

Under the JNNURM, a substantial funding has been approved by the central Government for Pune City. This is under two heads: For construction of bandharas, Improvement of lakes, improvements of nallas (Bio-remediation and landscaping) , Rs 97.66 Crores have been approved and most of the works are underway. For Mutha river improvement and beautification, channelization construction of retaining walls, Rs.99.95 Crores have been approved and works contemplated are underway.



With a view to improve the environment along the river course, there is a need to develop a continuous water body and undertake large scale plantation of a variety of trees along the river banks. It is also worthwhile to think of the possibility of water based transport and creation of facilities for water sports. Such a water based transportation system would be beneficial, especially to the urban poor, as an additional mass transportation system in the region, since the course of all the rivers together are very well aligned with reference to the residential areas and the work places or the industrial areas. It is suggested that during the lean periods, the bed of the river beyond the channels may be used for various activities like circus or volleyball, basketball courts etc. which shall however involve no permanent construction.

15.2.3 Nallas:

Ambil Odha, Nagazari nalla, Bhairoba nalla are some of the major nallas in the city. A detailed survey has been carried out by PMC from PRIMOVE and the cross section and width of nallas have been worked out for the maximum discharge. There are encroachments of slums along some nallas. PMC has undertaken to shift these slums and rehabilitate them under slum rehabilitation /BSUP projects. Plantation of trees on a large scale, creation of

jogging tracks, development of cycle tracks and skating tracks with landscaping can be achieved along the nallas.

15.2.4 Lakes

There are two major lakes in Pune city, Katraj lake in the southern part of Pune and Pashan lake in the north western part of Pune. These lakes have a huge potential of being the major tourist attraction spots in the city. Systematic efforts need to be channelised in this direction.



Financial Assistance from the Central Government under JNNURM

With a view to improve the environmental conditions in the rivers, nallas and lakes, PMC had prepared Detailed Project Reports for the improvement and beautification of rivers, nallas and lakes. Projects worth Rs. 200 Crores have been approved by the Central Government under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The works covered under this, are channelization in river bed, desilting of rivers, lake formation in river beds, construction of barrage, Bio-remediation, etc. Rs 8.65 crores out of the Rs 200 crores have been earmarked for channelization of nallas, beautification of nallas, bio-remediation of nallas, etc. Rs. 17.96 Cr.

have been allotted for the improvement and beautification of Katraj lake and Rs. 16.71 Cr. for the improvement and beautification of Pashan lake. Most of the works have commenced on site. On completion of all these works, the water bodies in the city are set to improve drastically thereby resulting in the creation of an enhanced environment.

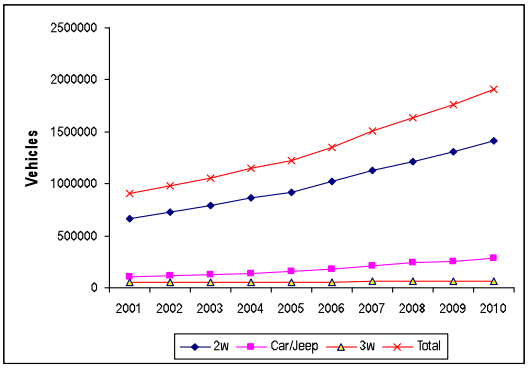
15.3 ENVIRONMENTAL QUALITY

15.3.1 Air Quality:

The introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to human beings or other living creatures and interfere with their normal functioning, is termed as Air pollution. The uncontrolled and irregulated industrialization of society, ever increasing number of motorized vehicles combined with exponential growth in population, has led to air pollution.

The major sources of pollutants in urban areas are transportation (predominantly automobiles) and fuel combustion in stationary sources, including residential, commercial, with industrial heating and cooling as also coal-burning power plants. Motorized vehicles produce high levels of carbon monoxides (CO), carbon dioxide ($C0_2$) hydrocarbons (HC) and nitrogen oxides (NOx).

The population of Pune city has increased from 17 lakh to 35 lakh from the year 1991 to 2010 (including newly merged 23 villages). The number of vehicles in the city has also increased proportionately. In comparison to this growth, the road area in the city has not increased in same proportion. The following table shows the increase in number of vehicles in the decade 2001 to 2010.



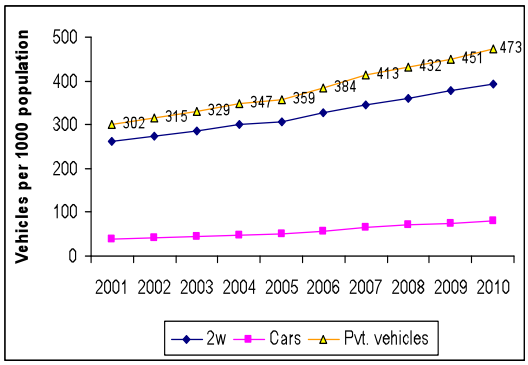


Figure No. 15-1 : Vehicular growth from 2001 – 2010 and vehicle ownership per 1000 population.(Source : RTO, Pune)

Ambient Air quality in Pune city is measured at areas representing residential, commercial and industrial zones. Out of the four parameters measured, it is observed that the SO_2 and NO_2 levels are within the limits. However the SPM and RSPM levels are on the higher side of the prescribed limits. This is mainly due to the heavy traffic in the city. Harm is caused to human health on account of high concentrations in RSPM levels. Excess level of RSPM is an indicator of degraded air quality.

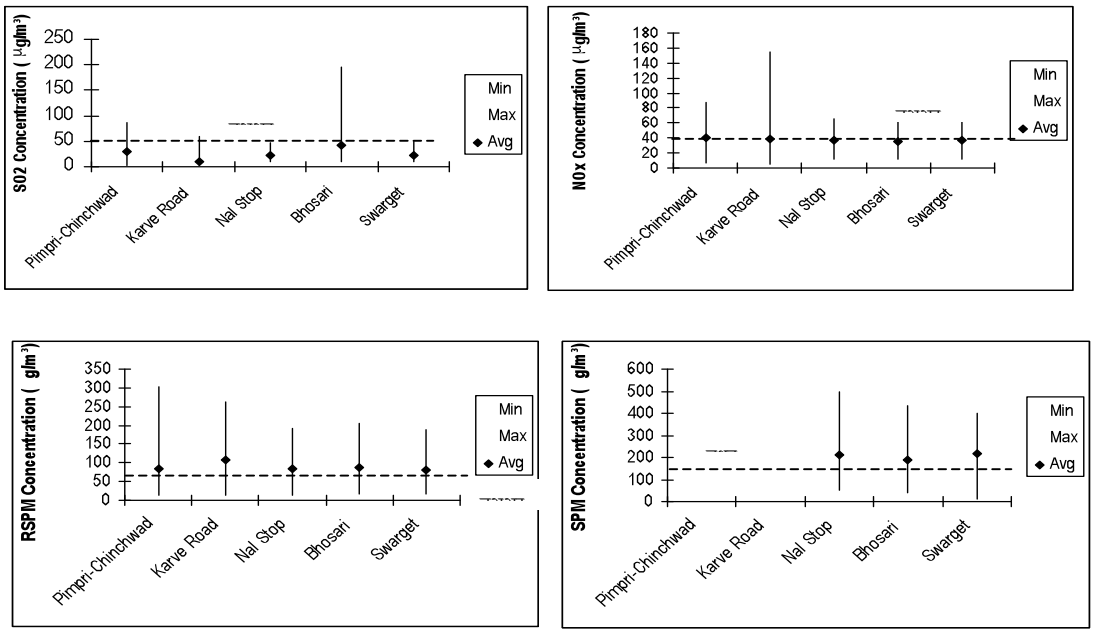


Figure No. 15-2 : Air pollution levels in terms of SO_2, NO_2, RSPM and SPM levels in Pune

a) Pune emissions inventory

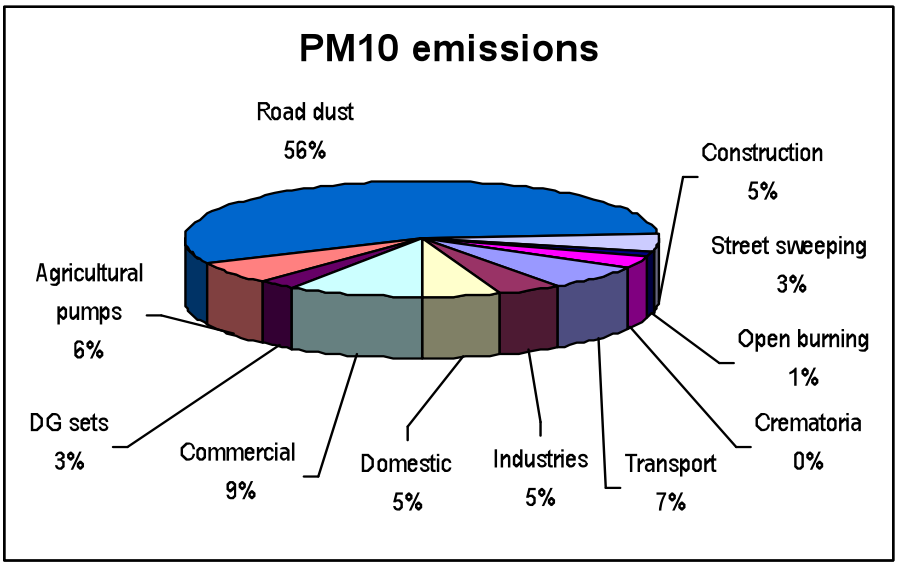


Fig No. 15-3 : Source of Air Pollution

Compilation of data for all the sources of air pollution, which are primarily responsible for air quality changes in a city, is termed as Emissions inventory. An effort was made by NEERI (National Environmental Engineering Research Institute) and AQM (Air Quality Management) and AQM (Air Quality Management) Cell of PMC to understand the dynamics of PM10 emissions from various sources in the city. The overall source- wise contribution of emissions in Pune city by various sources was considered in the study. The above pie chart shows the emission levels.

b) Ozone:

In the month of April, normally, higher concentrations of Ozone levels are observed in the city, whereas lower concentrations are observed in the month of August. It is observed that the ozone levels vary according to the seasons.

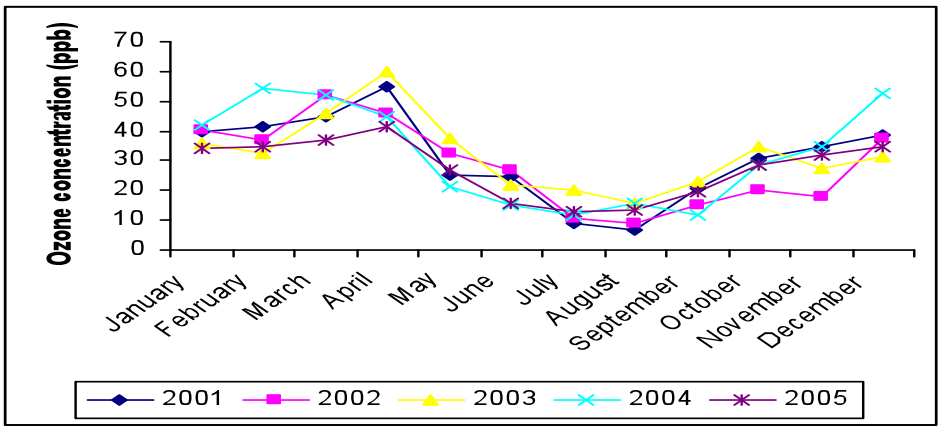


Fig. No. 15-4 : Monthly Ozone level Variation

(Source ESR 2010-11 PMC)

15.3.2 Water Quality

Water bodies (ground water and surface water) in close proximity to urban areas are often very important sources of drinking water. The rapid increase in population is resulting in production of more sewage and consequently an increase in the pollution levels of rivers.

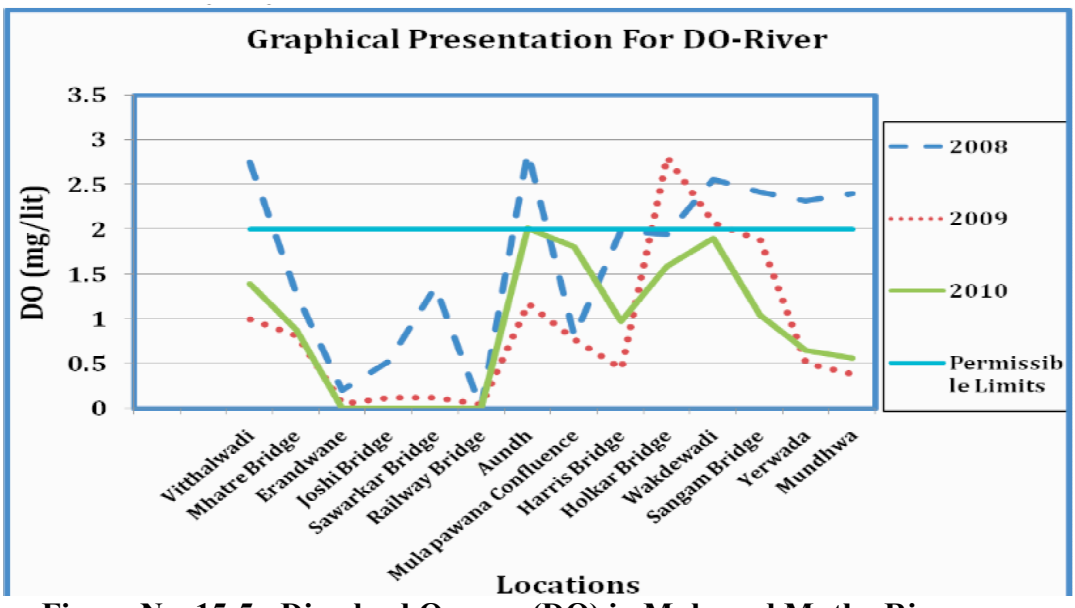


Figure No. 15-5 : Dissolved Oxygen (DO) in Mula and Mutha River.

Important physicochemical parameters such as pH, Electrical conductivity, Temperature, Total Dissolved Solids **(TDS),** Total Suspended Solids **(TSS),** Total Hardness **(TH),** Chemical Oxygen Demand **(COD),**

Biochemical Oxygen Demand **(BOD),** Dissolved Oxygen **(DO),** Alkalinity, Chlorides **(Cl),** Sulphates **($S0_4^2$)** and Phosphates **(PO_4^2)** are monitored with a view to understand the pollution loads as well as to assess the drifts of these loads in the surface water bodies. Out of the above parameters, BOD, COD and DO are the main indicators of pollution levels in water bodies.

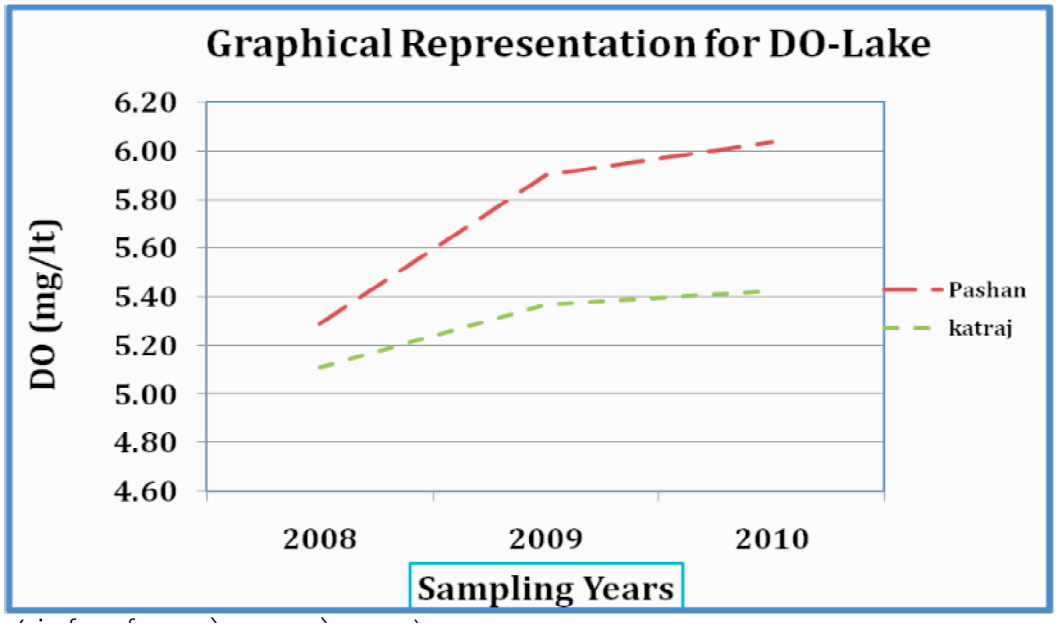


Figure No. 15-6 : Dissolved Oxygen (DO) in Lakes

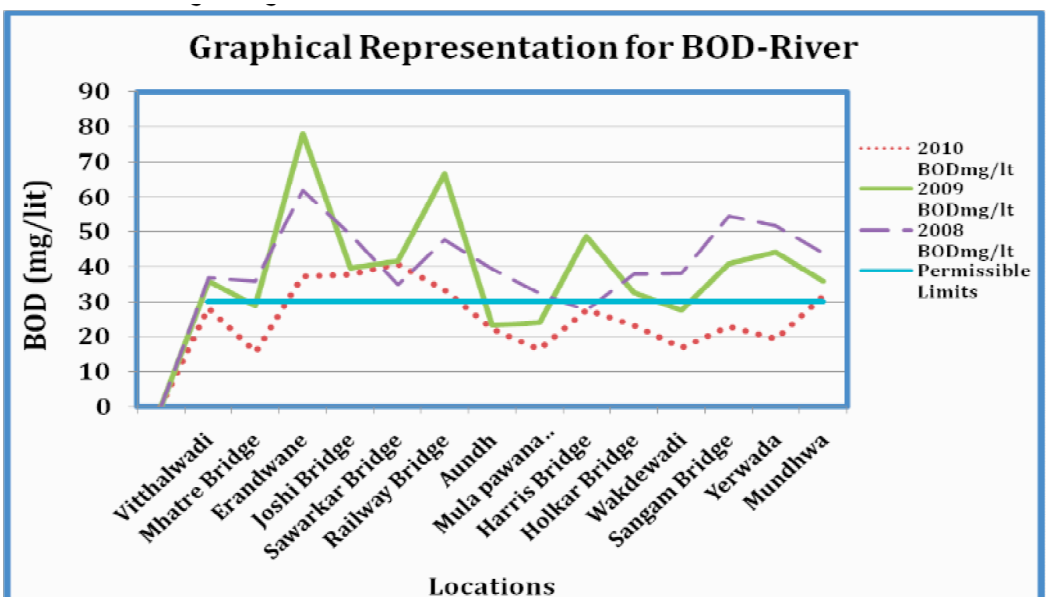


Figure No. 15-7 : BOD levels in Mula Mutha River

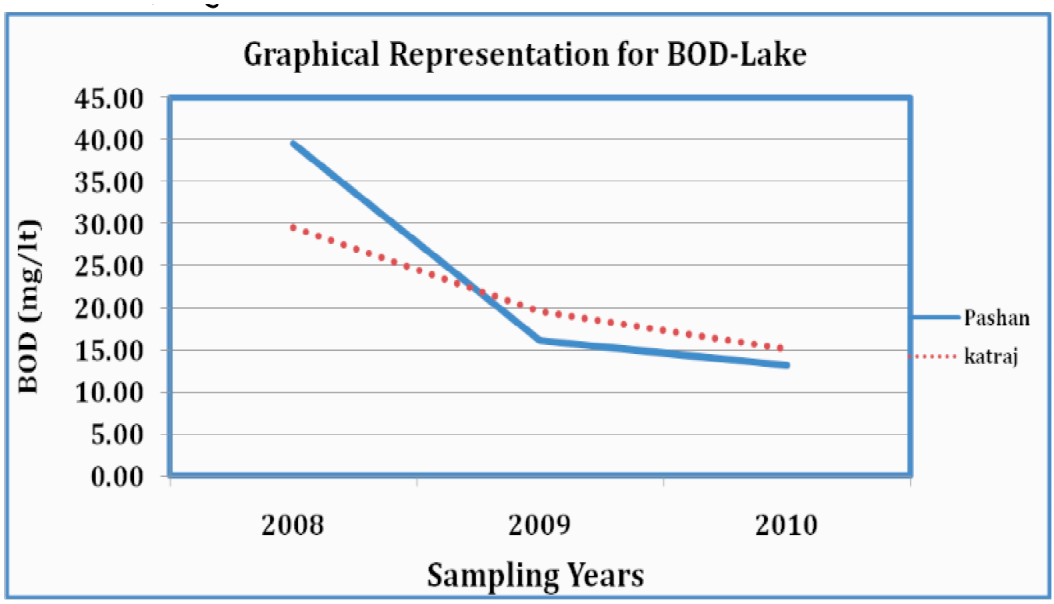


Figure No. 15-8: Biochemical Oxygen Demand (BOD) in Lakes

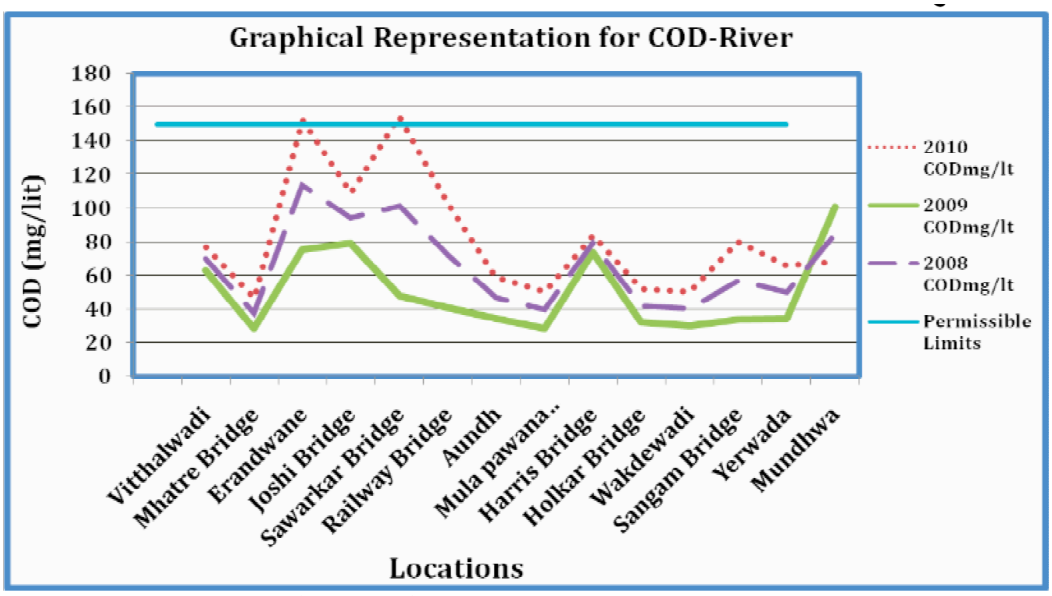


Figure No.15-9: COD levels in Mula Mutha River:

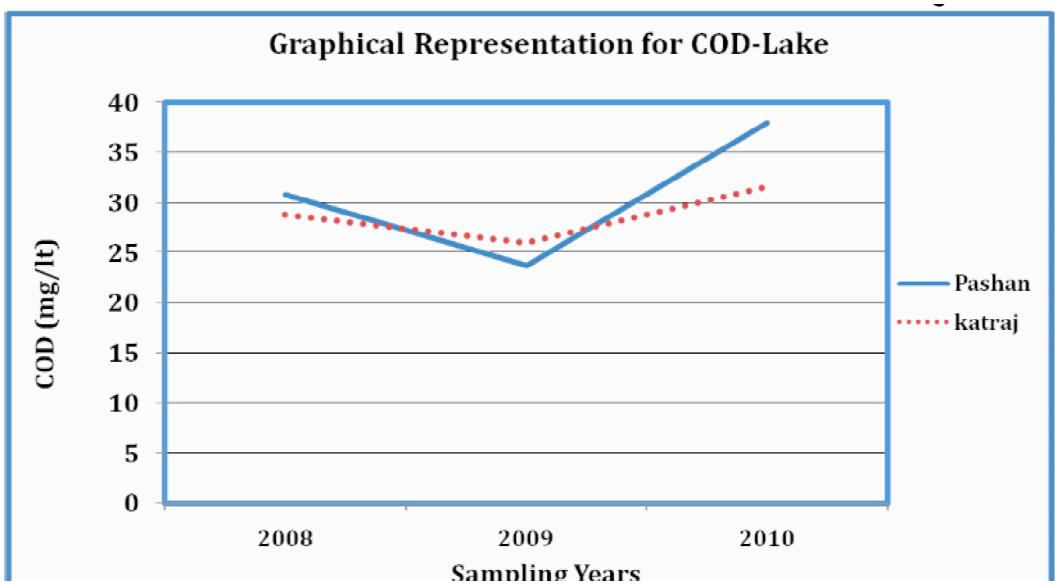


Figure No.15-10 : COD levels in Lakes

15.3.3 Noise Quality

Noise levels in the city are monitored at certain locations in the Residential, Commercial and Sensitive Zones. The average noise level in the city is more than the limits prescribed by Pollution Control Boards.

Vehicular traffic is the main source of noise in the city. The following table shows the trend of noise pollution in 2008, 2009, and 2010.

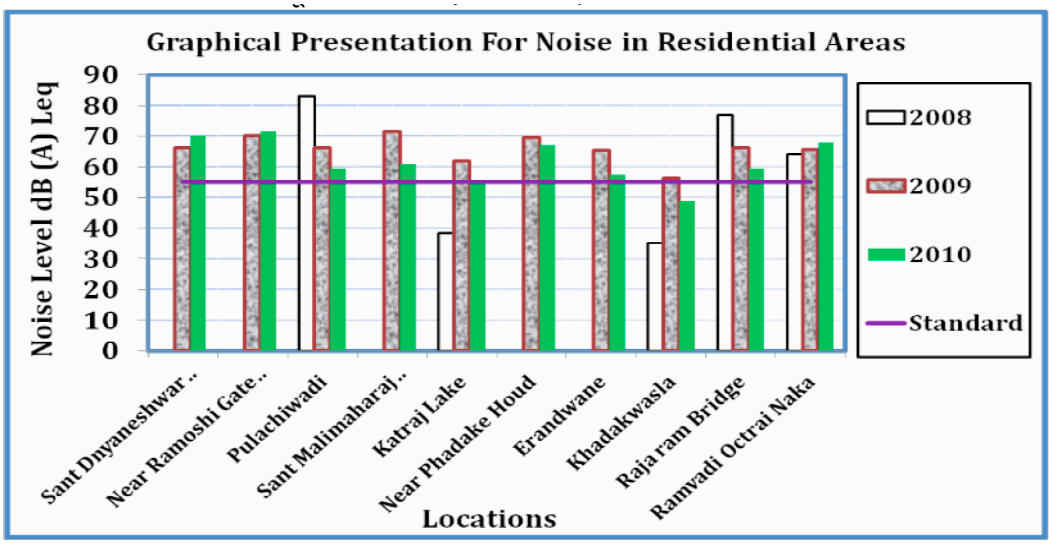


Figure No. 15-11 : Noise in residential areas

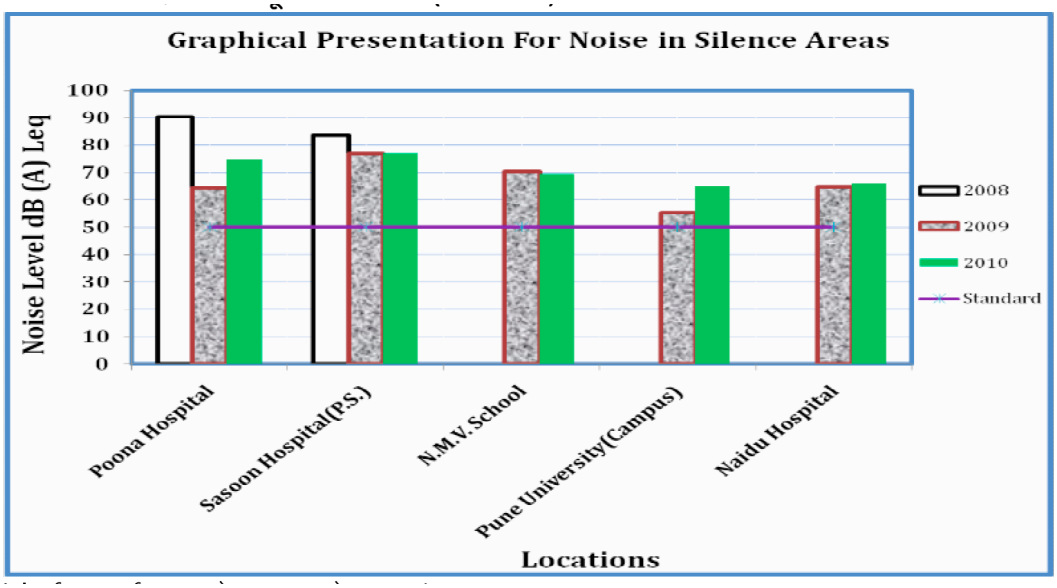


Figure No.15-12 : Noise level in silence areas

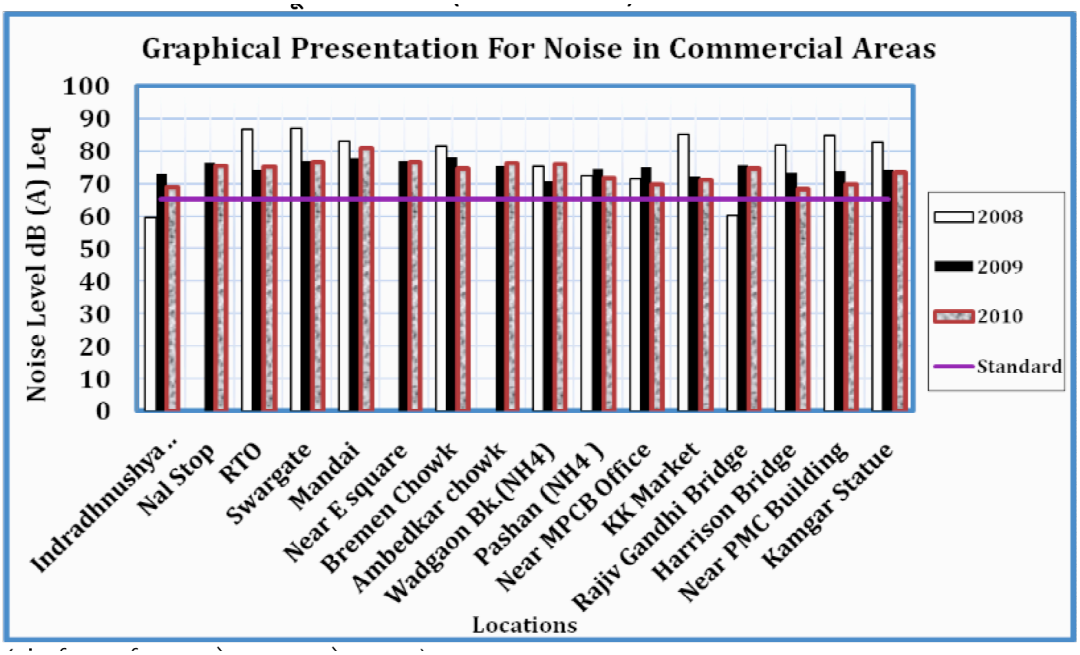


Figure No.15-13 : Noise level in commercial areas

(Source: ESR 2010-11 PMC)

CHAPTER NO. 16

STRATEGIC ENVIRONMENTAL ASSESSMENT

16.1 Background of Strategic Environmental Assessment

16.1.1 Basic concepts

16.1.1 Environment is defined in the Portuguese Framework Environmental Law (Law 11/87, of 7 April) as a set of physical, chemical and biological systems and their relationships with economic, social and cultural factors with direct or indirect, gradual or immediate effect on living beings and human quality of life. The Academia de Ciências de Lisboa (Lisbon Academy of Sciences) (2001) dictionary defines environment as that which surrounds, envelops or is related to the physical, social or moral surroundings in which humans live.

16.1.2 Sustainability is a relative concept that is based on the term 'sustainable', which according to Heinberg (2007) means "that which can be maintained over time". It is associated to the concept of sustainable development, which has a number of formal definitions, the most well-known being that given by the World Commission on Environment and Development in the Brundtland Report: "the development that satisfies the needs of the present generation without compromising the capacity of future generations to satisfy their own needs". Wikipedia (26/08/2007) defines sustainability as the characteristic of a process or state that can be indefinitely maintained at a certain level. The term 'sustainability' in this Guide is used to designate the state or the process resulting from the achievement of sustainable development objectives over a long period of time.

16.1.3 Strategy is a concept that originated in military science and generally refers to the study and planning of means to achieve policy objectives. It can also be defined as a set of actions deemed to be important means of achieving objectives (Academia das Ciências de Lisboa, 2001). Strategic approaches in policy and planning, according to Mintzberg (1994), are not intended to find out what can happen in the future but aim to plan and steer actions that make up possible routes to a desirable future.

16.1.4 Assessment is the action of assessing. It is to ascertain the value attributed to something, by more or less meticulous calculation, expressing a value judgement. It is also the approximate determination of magnitude or a quantity without resorting to direct measurement, by estimation (Academia das Ciências de Lisboa, 2001). Assessment entails the assumption that an object of assessment exists, the value of which is estimated, and that there is an assessor, expert or any other qualified person that knows how to gauge the value or qualities of something (Academia das Ciências de Lisboa, 2001).

16.2 SEA (Strategic Environmental Assessment)

16.2.1 Definition of SEA

Strategic Environmental Assessment (SEA) is an impact assessment tool that is strategic in nature and has the objective of facilitating environmental integration and the assessment of the opportunities and risks of strategic actions in a sustainable development framework. The strategic actions are strongly linked to the formulation of policies, and they are developed in a context of planning and programming procedures.

SEA is gaining widespread recognition as a tool for supporting the sustainable development of the environment through policy, plan and program decision-making processes.

SEA helps decision-makers to achieve a number of important environmental objectives and sustainable development aims. These are summarised as follows.

SEA helps decision makers

- to incorporate environmental and other sustainability objectives in the formulation of policies, plans and programmes,
- to gather and analyse the information necessary for sound decision-making, including input from relevant stakeholders,
- to evaluate likely significant environmental and health effects of strategic options and proposed actions,
- to set conditions for environmentally sound implementation of strategic decisions, analysis and report preparation and review.

16.2.2 Importance of SEA

- Offers a cross-cutting perspective
- Promotes a strategic and integrated approach
- Discusses alternatives while keeping all options open
- Supports strategic decision-making
- Incorporates environmental issues and principles of sustainability in policy- making and planning processes.

16.2.3 Objectives of SEA

- To contribute to an environmental and sustainable decision;
- To improve conditions for doing project like EIA, in particular cumulative impacts assessment;
- To promote integrated decisions and new forms of decision-making

16.2.4 Basic principles of SEA

- *Fit for purpose*: the process should be customised to the characteristics of policy and plan-making
- *Objective-led*: the process should be undertaken with Reference to environmental goals and priorities
- *Sustainability-oriented*: the process should facilitate identification of development options and proposals that are environmentally sustainable
- *Integrated*: the process should be related to parallel economic and social appraisals and tiered to project EIA where appropriate
- *Transparent*: the process should have clear, easily understood information requirements including provision for public reporting
- *Cost-effective*: the process should achieve its objectives within limits of available information, time and issues
- *Relevant*: the process should be focus on issues that matter
- *Practical*: the process should provide information that is required for decision-making

16.2.5 Benefits of SEA

SEA can help decision makers:

- to achieve environmentally sound and sustainable development,
- to strengthen policy, plan and programme making processes,
- to save time and money by avoiding costly mistakes,
- to improve good governance and build public trust and confidence in decision-making.

16.3 SEA IN DEVELOPING COUNTRIES

Needs and possible applications

- **Capacity**
- **Funding**
- **Tools**
- **Data**
- **Policy, Legal and Institutional Frameworks for SEA**
- **Implementation difficulties**
- **Public Participation**
- **Political will**

16.4 SEA challenges

- However, integrating landscape ecology into SEA application may face some technical challenges that should be carefully considered in practice, especially when making comparison between different data sources.
- Moreover, due to limited information on the relationship between landscape metrics and landscape function, it is still difficult to characterize the functional changes caused by landscape changes.
- The usefulness of landscape metrics lies on the ability to evaluate and compare planning alternatives, which would greatly improve the quantitative prediction in SEA process.

16.4.1 Conclusion

- The tools enhance participatory approaches in policy formulation
- They are largely qualitative but can be enhanced by quantitative analysis, where possible

The Pune Municipal corporation has intented to revised the 1987 Development Plan .As part of the DP it has undertaken to introduce the SEA concept in planning stage itself.

16.4.2 Main procedural steps of SEA

1) Initiation (determine the need and type of SEA)
2) Scoping (identify alternatives and impacts to be assessed)
3) Policy Appraisal / Impacts Assessment
4) Quality Review (seek input or advice from external institutions / experts)
5) Public Participation
6) Documentation (report on SEA conclusions)
7) Decision-making (take SEA conclusions into account)
8) Post-decision (identify follow-up measures of overall impact of projects, and measures resulting from policies, plans or programmes

Although the SEA is not mandatory in India, it has been introduced right at the planning stage by Pune Municipal Corporation.

Strategic Environmental Assessment (SEA) has been undertaken in the proposed Development Plan (2007-2027) with a view to incorporate environmental, social and economic issues in the planning process. The SEA process has been carried out in two steps. The first step is the Scoping Study, which has resulted in a Scoping Report, describing the outline and methods to be used in the second step, which is the SEA study.

Strategic Environmental Assessment (SEA) is not mandatory in India even after revision in environmental clearance process in September, 2006 by Ministry of Environment and Forests, Government of India. However, there

are isolated examples of SEA studies in India, majority of them have been done as per the directives of donor agencies such as the World Bank. SEA processes help planning authorities to fulfil the objective of contributing to the achievement of sustainable development in preparing their plans through a structured assessment of the objectives and core strategies against key sustainability issues.

Although the requirement to carry out SEA is NOT mandatory, internationally available guidance documents particularly from European Commission have been used to prepare scoping report. Scoping report is prepared to identify key issues to be incorporated in SEA report for the Development Plan of Pune.

16.5 Environmental Impact Assessment in India

EIA was introduced in India in 1978-79 initially for river valley projects extending later to industrial projects. The Ministry of Environment and Forests (MoEF) was assigned the responsibility for appraisal of projects with regard to their environmental implications and granting environmental clearance even before EIA Notification in 1994.

MoEF under the Environmental (Protection) Act 1986, promulgated a notification on 27th January, 1994 (as amended in May, 1994) making environmental clearance mandatory for expansion or modernization of any activity or for setting up new projects listed in Schedule 1 of the notification. Environmental impact assessment process was modified in India in September, 2006 with more objective screening, scoping, decentralization of power to state government and public consultation process. Environmental clearance based on EIA is required for developmental projects which can be broadly categorized under different sectors of economy viz., mining, thermal power plants, river valley, ports, harbours and airports, communication, atomic energy, transport (rail, road, highway), tourism (including hotels and beach resorts) and infrastructure projects including township and industrial estates. However, SEA was not included in EIA Notification of September, 2006 (MoEF, 2006).

16.6 SEA for Sustainable City Planning for Pune

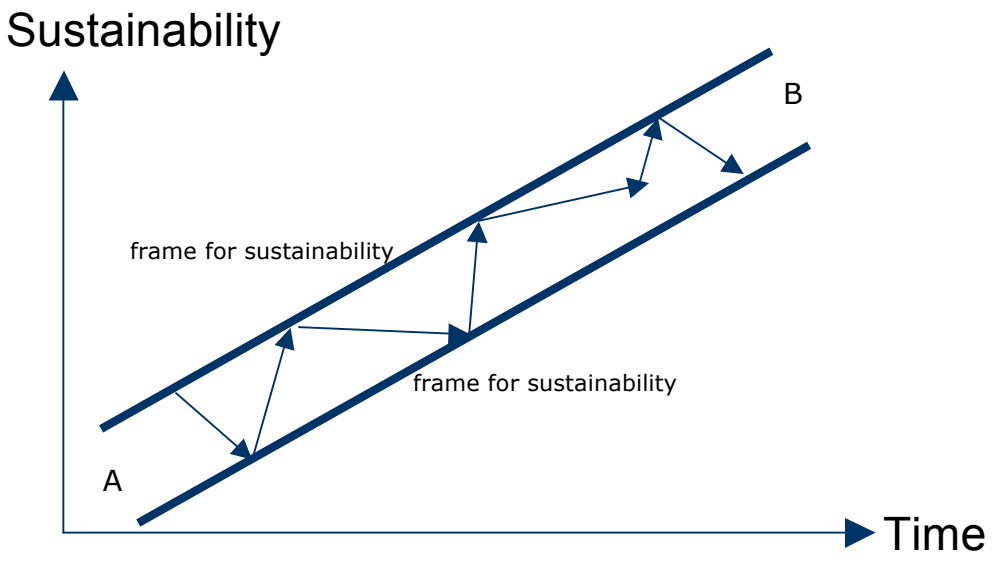
16.6.1 The vision for the city of Pune is:

"An economically vibrant city, of its citizens, of diverse opportunities with a rich culture in which all the citizens enjoy a safe, livable environment with good connectivity."

The overall objective of SEA is to provide better and more sustainable plans, programmes or policies. This is achieved by ensuring that environmental issues are addressed at all stages in the development of the plan, programme or policy and also during the implementation processes. The SEA has focused on both optimizing positive contributions to environmentally sustainable development and on minimizing negative environmental impacts.

16.6.2 City Action Plan, through:

- Integration of environmental, social and economic issues in the decision-making and implementation process; the focus should be on both optimising positive contributions to environmentally sustainable development and on minimizing negative environmental impacts.
- Clarification of the links between environmental, social and economic issues.



16.6.3 Sustainability Frame for objectives during implementation

The expected results from the SEA are described below.

The SEA is composed of two main parts: a Scoping Study and an SEA Study. The Scoping Study has defined the issues that need to be addressed in the SEA Study, considering the specific context in which the Sustainable City Action Plan is being developed and is recommended for implementation.

16.6.4 Sustainability City Plan for Pune

16.6.4.1 Definition of Sustainability

It is the development that satisfies the needs of the present generation, without compromising the capacity of future generations to satisfy their own needs.

16.6.4.2 Introduction

In November 2008, the Pune Municipal Corporation embarked on the SEA process as an input into the revision of the 1987 DP, under the overall project titled Sustainable City Plan for Pune. Strategic Environmental Assessment is not mandatory in India, however under a cooperation agreement between the Govt of India and the Swedish Government, support for an SEA in Pune was accessed by the PMC with the expectation of improving the planning process.

Strategic Environmental Assessment (SEA) is an impact assessment tool that is strategic in nature and has the objective of facilitating environmental integration and the assessment of the opportunities and risks of strategic actions in a sustainable development framework. The strategic actions are expected to be strongly linked to the formulation of policies, and they are developed in a context of planning and programming procedures. The assessment process was expected to be integrated into the planning process, undertaking the following activities:

- Identification of the significant social, economic and environmental impacts (both positive and negative) of the plan;
- Identification and consideration of strategic alternatives;
- Comparison of the significant effects of the alternatives;
- Choosing the most appropriate options, keeping sustainability aspects in mind and having clarity of why other alternatives were rejected;
- Propose measures for mitigating negative effects and for enhancing positive effects of the choices made

The SEA process ran parallel to the planning process from November 2008 to December 2010.

16.6.4.3 Scoping Phase

The first step was a Scoping Study carried out between November 2008 and July 2009. A Scoping Report was produced in this phase (available on the PMC website). The Scoping Report was made available to stakeholders and it was published so as to obtain comments from various stakeholders prior to preparation of SEA report. The Scoping Report also helped in identifying major environmental, social and economic issues to be considered in detail during the SEA process. Activities done were:

- Training, interviews and workshop
- Identification of objectives and indicators for the SEA
- Development of the draft Scoping Report
- Consultations with NGOs and the public; Agreement on Scoping Report
- Decision/Approval of Scoping Report
- Preparation of SEA report and incorporating findings in SEA report

Table No. 16-1 : Core Areas and Objectives Identified in Scoping Report			
Sr. No.	**Core areas**	**Draft SEA Objectives**	**Indicators/targets**
1	Degraded river, nalla and lake water quality	Improved river, nalla & lake water quality	• DO increased from 0 (baseline) to > 3 mg/l (CPCB standard) • BOD reduced from > 30 mg/l (baseline) to < 30 mg/l (CPCB standard) • No sewage discharge and solid waste disposal into river and water bodies • Increase in the percentage of population connected to sewage by 20-30% • Flow in river and nallas maintained. • Reduction in water distribution losses from 30-35% to 10-15% • Water metering aimed at 100% households • 100% sewage is recycled and reused
2	Air pollution	Improved air quality	• Ambient air quality in terms of particulates (SPM, PM10), SO_2 and NOx are within the stipulated standards of CPCB • Emission of air pollutants increased not more than 20% over 2007 baseline • Greenhouse gas emissions (GHGs emissions) increased not more than 20% from 2007 baseline
3	Municipal solid waste	Solid waste management	• Collection of solid waste increased from 80-90% to 100% • Segregation of solid waste from 40% to 80% • Increased solid waste reuse and recycle from 2-5% to 20% • Increased composting/bio-methanisation to 60-80% from 20-40% • Emissions of methane per ton of solid waste generated is reduced by 20-40%
4	Degraded hill environment	Regenerated, forested for bio-diversity and protected hill environment	• Hill and protected area maintained at 2007 level • Biodiversity in protected area maintained/improved from 2007 level • Vegetated area on hill and hill slope increased by 20% • Green cover in city increased by 20-30%

5	Poor traffic condition	Improved traffic condition	• Increasing use of public transport to 50- 60% • Reduction in vehicle accidents by 20% • Reduction of pedestrians injured or killed in traffic
6	Unaffordable and congested housing	Affordable and liveable housing	• Number of low-cost houses increased by 20% • Tenement density at 1200 persons/ha. • Average FSI variation between 1 to 3
7	Growing slums	Slum free Pune	• Slum area reduced from 6-8% (baseline) to 1-2% • Population living in slum area reduced from 40% of total population to (baseline) to 0-10% • Provision of services in slums comparable to those in other parts of the city e.g. increasing number of households having water taps increased from 58-60% to 100% • 100% slum dwellers have *pakka* (permanent) houses
8	Insufficient & inequitable social infrastructure & services	Improved & equitable social infrastructure & services	• Number and area of gardens increased from 625 acre (baseline) to 750-800 acre • Number of educational, recreational,health institutions increased as per planning norms. • Status of protected/heritage buildings to be maintained at 2007 (baseline) level • Number of tourists to be increased.
9	Unintegrated Land-use	Integrated land-use for old city limit & newly merged village area.	• Proposed landuse plan as per the planning standards Compatible land use planning for old city with new city limits i.e.23 villages.
10	Governance	Improved governance	• Improved PMC and public partnership • Annual monitoring of implementation of development plan • Targeted revenue generation • Linking development plan to annual budgetary allocation. • Annual monitoring of the indicators and inclusion in ESR. • Improved coordination among various departments.

The findings from the Scoping Phase were consolidated into a presentation for the SEA phase. The draft Scoping Report had identified ten core areas. However, after consultations, it was decided to club 'Affordable Housing' and 'Slums', thus giving 9 core areas, as listed in Table 16-2.

Table No. 16-2 : Issues/problems/opportunities in Pune (Revised Scoping Report)

Issues/problems/opportunities	How this could be addressed in the SEA/Development Plan
1. Water quality and quantity in river, nalla and lake	
• Physico-chemical and microbiological water quality deteriorated over the years • Untreated sewage discharge into river • Slum along the river • Very low natural water flow quantity in river	• Improve river quality by e.g. using sustainable drainage schemes • Reduce contaminated run off into water courses • Restrict unsustainable water abstraction • Maintaining minimum natural water flow quantity in river • Maintain encroachment free HFL
2. Air pollution	
• High number of private vehicles on road • Traffic congestion in the city is leading to poor air quality • More development could lead to more traffic and worse parking conditions • High concentrations of particulates due to poor condition of road • Waste burning and unsustainable dumpsite management • Indoor air pollution	• Improve public transport system • Implement traffic management plan • Improve road condition to minimize particulate emissions • Provide cleaner fuel like CNG for the vehicles • Use of cleaner fuel in stationary combustion source • Resort to bio-gas generation, recycle and reuse to minimize methane emissions

3. Municipal solid waste	
• More scope for Household waste recycling • Segregation of municipal waste is low • Land-fill is principal mode of municipal solid waste management • Absence of leachate collection and treatment, prone to fire hazards, increased air pollution at landfill site • Methane emission is substantial due to land-fill and inefficient segregation and collection • Lack of appropriate system for construction and demolition waste management	• Promote the reduction, reuse and recycling of waste • Require/promote the use of locally sourced, secondary and recycled materials • Promote sustainable construction methods • Well designed land-fill site with arrangements for leachate collection, prevention of fire hazards and improved air quality • Switch over from land fill to composting/ bio-methanisation with due objectives of use of biogas and reduction in GHG emission • Creation of systems to maintain segregated waste streams • Identify sites at neighbourhood level for preliminary sorting and aggregation of dry recyclables, neighborhood composting • Identify sites for bulk scrap market (specially after SRA) • Identification of appropriate sites for construction and demolition waste
4. Hill environment and bio-diversity	
• Being a mainly urban region, areas of high biodiversity are fragmented and scattered in Pune • Hill environment is subject to intense pressure due to development and encroachment	• Existing designated areas and open spaces should be clearly demarcated, maintained and enhanced • Green belt land should be protected from development pressures, including all kinds of construction. • Use of previously developed land with low biodiversity value should be encouraged • Opportunities for extending wildlife corridors should be explored • Map and conserve heritage (old) trees/ rare trees as well as 'hot-specks' of biodiversity • Develop and implement a Biodiversity Management Plan • Identify and map wetlands and grasslands

5. Traffic	
• Traffic congestion in the city • More development could lead to more traffic and worse parking conditions • Insufficient public transport	• Make sure new developments are well served by public transport • Integrate land use and transport planning • Improved public transport • Traffic demand management systems in place including through parking policy that treats parking as a commodity
6. Housing (Affordable Housing and Slums)	
• House (land) prices are high • Lack of affordable housing • Unabated and accelerated growth of slums • Almost 40% population of Pune live in slums • Lack of slum rehabilitation	• Proposed housing growth would require transport and other investment • Promotion of higher housing densities without compromising design or quality of life • Introduction of eco-housing • Control of slum growth • Alternative housing and services to slum dwellers • Improved services in slums
7. Social infrastructure and services	
Cultural Heritage • Concern that these heritage buildings may be damaged by poorly designed development • New development could lead to erosion of cultural heritage(Traditions etc) • Built and cultural heritage **Human Health** • Pune has hospitals with beds. • Environmental disease burden is high particularly in slum • Malnutrition is seen mainly among children under five • Inequity in access & distribution of medical services **Garden and landscape** • 103 Gardens in the city with 25 proposed Total area 359.35 Acres existing 714.35 Acres proposed • Pune is constrained with space for development of gardens • The small area available is subject to many competing demands	• Incentive for preservation of heritage site. • To preserve the character of the city by measures such as declaring conservation area design guide should be considered • Careful planning to consider preservation of heritage structure while promoting new development • Improve facilities and access in government and municipal hospitals • Improve and monitor environmental disease burden, particularly in slums • Identify, treat and monitor malnourished children • Enrich the garden/landscapes having low bio-diversity • Maximize the use of previously developed land having low biodiversity value • Ensure developments keeping in view the local character & enhance local biodiversity. • Encourage greening of open spaces for greenbelt/garden/plantation • Do not divert land available for garden

Water Supply & Sewerage • Old service lines	and bio-diversity park to other uses • Encourage roof-top and terrace gardens for permaculture (urban agriculture) • Water Demand Management System
8. Land-use	
• Congested core area with limited scope of land reservation • Population density in the core areas is very high • Narrow road width and insufficient land availability leading to traffic congestion • Unequal distribution of social infrastructure and land allocation • Illegal subdivisions & uncleared title of properties • Dilapidated structures • Large number of informal commercial activities	• Developing compatible and integrated land use plan with 23 merged villages • Variable FSI in city limits average upto 3FSI • Equitable social infrastructure • Redevelopment/renewal of core city by framework of impact analysis and reporting when applying for building or redevelopment permission. • Providing zones & policies for informal sector commercial activities
9. Governance	
• Developing PMC and public partnership • Mechanism for monitoring of implementation of development plan is not in place • ESR is prepared for compliance • Scope for improvement in coordination among various departments of PMC	• Good co-ordination between PMC and public partnership • Developing mechanism for monitoring implementation of development plan • Linking development plan to bugetory allocation • ESR linked to implementation of development plan • Improved coordination among various departments

16.6.4.4 Findings and Recommendations

The Scoping Report was used for further discussions with various stakeholders on the issues identified in the scoping phase, in order to develop alternatives. Suggestions emerging from these discussions for future actions, including for the Development Plan as well as for policy and implementation, have been consolidated into sector-wise documents, which are presented below.

It was expected that the final output of the process would be a combined Sustainability Appraisal/ Environmental Report to be published alongside the plan. The suggestions that came in through the various meetings and consultations were organized sector-wise and then each suggestion was discussed by the DP Cell of PMC. The suggestions that have been incorporated into the draft DP, are presented below. The full SEA report and analysis of suggestions is separately available with the DP Cell of PMC.

16.6.5 Recommendations from SEA which have been incorporated into Draft DP

A) Waste Management

1. Amenity space user may include space for decentralized SWM facilities, including sorting area, pre-processing, composting etc, as locally appropriate. Identify sites at neighborhood level for preliminary sorting and aggregation of dry recyclables, neighborhood composting.
2. Building bye-laws include provision of space for storage of segregated waste generated from the premises, while it awaits collection. This space is not to be included in FSI calculation.
3. All units should have facilities to segregate waste while it awaits collection.
4. All 2 star and above hotels / restaurants should have wet waste processing units in their own premises.
5. Provisions made in dc rules for providing garbage processing units in neighborhood /layouts.
6. Appropriate sites / methods for sustainable disposal of construction and demolition wastes (which do not disturb wetlands, quarries or

other important eco-systems, wildlife habitats) to be identified outside PMC limits in consultation with Collector.

7. Provision of Eco-housing
8. Land Parcels needed for bio-gas Plants.

A) Local level policy for solid waste management should be evolved, aiming at:

- Achieve 100% door step collection of wastes
- Ensure segregation of waste at source and maintain segregated waste streams
- Reduce per capita solid waste generation e.g. by introducing recyclable packing materials – provide incentives on recyclables
- Introduce waste management systems requiring less space, power, operation and maintenance – cost recovery from waste producers
- Create centralized as well as decentralized waste treatment systems for different waste streams as well as residues, as appropriate, keeping in mind the goals of optimal recovery of recyclables and overall reduction in energy requirements for solid waste management
- Increase reuse/recycle at collection centres

B) Rivers, Streams and Lakes

9. Reservations provided for STP
10. Demarcation of the existing streams clearly shown in the DP with their widths.
11. Provision made in the DC rules regarding reuse of gray water for non potable purpose with dual connection. Such reuse of gray water may be added to the property tax incentives with annual monitoring.
12. DC Rules specify that streams should be shown in site-plans, since in the past there have been discrepancies in the mapping of small streams and nallas. Map to be part of DP
13. Implementation and regulation must be improved related to the existing provision of waste water treatment for complexes with more than 80 tenements.

14. River Regulatory Zone (RRZ)(i.e. Blue line & Red line) will marked on DP, after the maps are received from the irrigation department.
15. An encroachment in the submersible green belts of rivers and nallas is the main cause of this huge risk of flooding and they have to be removed immediately. Additionally, de-silting must be done periodically.
16. No development in the river beds is allowed. Only users such as circus volleyball and basket ball courts etc have been made permissible without only type of permanent construction.
17. Total Station Survey of all streams, rivers has already been carried out by PMC;

C) Building Code

Energy conservation measures and eco-housing criteria has been made mandatory in the new DC Rules / building code. New building code mandates solar panels, recycling gray water, RWH, composting/ SWM, orientation, STP, greening (garden or tree), paving using C&D debris for all construction. A strong monitoring mechanism needs to be set up in the PMC

D) Water Supply

18. Water supply arrangements need to be made for the projected increase of 20 lakh population in the future, and to meet unmet current demand. Alternatives considered in DP:

- Development of surface water sources
- Ground water exploitation and development – Study to be commissioned for sites to be identification in DP for abstraction and setting up WTPs; as well as for declaring recharge zones
- Rainwater harvesting (in DC Rule)
- Wastewater/ grey-water reuse (in DC Rule)

19. Dual water supply system should be explored so as to encourage re-use; recommended for new developments and re-development above 2000 sq m:

- All new properties to install separate systems for potable and non-potable uses
- Design of dual water system to be certified by agency / plumbing consultant licensed by PMC for this purpose
- For non-potable uses the users are expected to use ground water or recycled water using systems they are expected to set up themselves

E) Housing and Affordable Housing

20. Policies have been framed in D.C. rules for affordable housing

F) Urban Community Development

21. Sites have been designated in some sectors in slums for vocational training centres and community halls.
22. The DC Rules, have made it mandatory for all public buildings and spaces to incorporate facilities for people with disability.

G) Heritage Conservation

23. The system for heritage conservation is made more flexible and permits, change and revitalization where it is deemed necessary, and also allows for conservation of valuable elements, including tangible as well as intangible elements
24. An incentive in the form of Heritage TDR is to be provided to owners, the rate of which will be determined depending on statement of significance
25. Heritage listed properties and precincts are shown on the DP so that the information is known to all relevant departments (including building permission, roads etc)

CHAPTER NO. 17

APPROACH PAPER

17.1. PREPARATION OF DEVELOPMENT PLAN OF OLD LIMIT OF PUNE CITY

The first statutory city plan for Pune was prepared between the years 1958-64 by the Pune Municipal Corporation under the provision of Bombay Town Planning Act 1954. This plan was sanctioned by Government in July 1966. As per the then provisions of section 38 of MR&TP Act, 1966, Planning Authority could revise the Development Plan at least once, within 10 years from its sanction and coming into operation. The Development Plan of Pune was sanctioned to take effect from 15/8/1966. Therefore, it became due for revision on 15/8/1976. As per the provisions of MR&TP Act1966, the Pune Municipal Corporation declared its intention on 15/3/1976 to prepare a revised Plan.

Some small pockets of area were added to the municipal jurisdiction after the declaration of intention was made in 1958. Declaration of intention for the revised Development Plan was made for the entire jurisdiction of the Pune Municipal Corporation as it existed in 1976, including the new areas added.

As per the provisions of Section 38 of the amended Maharashtra Regional Town Planning Act, a Development Plan may be revised at least once in 20 years after its sanction and coming into operation. As per Section 23 of MRTP Act a notification to this effect was published in official Gazette on 13/12/2007, for revision of Development Plan, 1987.

As per section 24 of MR & TP Act, 1966 Mr. Prashant M Waghmare, City Engineer, PMC is declared as Town Planning Officer for the revision of Development Plan (1987) and as per Section 25 of MR & TP Act, 1966, PMC has to carry out survey and prepare Existing Land Use map. PMC has awarded this work to Government College of Engineering, Pune.

For other surveys like Demographic projection, Socio-Economic Survey, Housing Survey, Traffic & transportation study, PMC has appointed expert agencies.

The Pune Municipal Corporation started this work of preparation of a revised Development Plan under the guidance of a Committee (Steering Committee) chaired by the Municipal commissioner PMC and comprising of Experts in the fields of Town Planning, Economics, Education, Environment, Social fields, NGO's, Industry, etc. Following approach has been adopted in formulating the proposals of this revised Development Plan.

17.2. Plans to be prepared:

17.2.1. Base Map Preparation: -

Base map for the development plan was prepared by taking advantage of modern survey techniques such as Total station machines, Differential Global Positioning System (DGPS), etc. Ground features were collected and geo-referenced. In this survey, all the street furniture, buildings/ structures along roads, but falling under specified buffer and reservation areas were picked up with DGPS points, previously established all over the city. They were then projected to UTM co ordinates for working purpose. For Geo referencing, WGS1984 (World geodetic survey) the latest datum level and UTM43North (universal transverse Mercator) the projection system, was decided to be adopted for Pune. City survey sheets of entire city, village maps, 1987 DP maps of different scales were used. Also TP Scheme maps were scanned and digitized and the output of all layers was exported in GIS format with necessary attribute data. Base map with geographic co-ordinates was introduced in development planning process and approximate revenue boundaries (survey boundaries) were also shown based on TIPAN of each survey number, made available by Land Records Department. This map was provided to College of Engineering, Pune (COEP) for carrying out Existing Land Use (ELU) survey.

17.2.2. Development Plan Submission: -

Thus, in so far as plans to be submitted to Govt. are concerned, they will consist of 1) map to a scale of 1:10000 for entire area within old Pune Municipal Corporation limits; and 2) map to a scale of 1:2000 as in-set map for Pune City Gaothan (Sector-I). Designated reservation site maps at the scale of 1:1000 would be available for inspection by the Public and for day to day working.

The following is the vision that has been framed by the stakeholders and finalized by the General Body while preparing the City Development Plan (CDP) of Pune city :

17.2.3. Vision for Pune city:

a. Economically vibrant city with diverse opportunities;

b. Safe and livable environment

c. Good connectivity and mobility

d. Rich culture

e. Efficient city

f. Well-governed city

g. Affordable city

h. Access to services for urban poor

17.2.4. Objectives of the Plan: -

The broad objectives of the revised Development Plan are as follows:

1. To accommodate Pune's growth within its boundaries without encroaching on open spaces
2. To make Pune a better city for people to live in
3. To make Pune a more prosperous city with strong and diverse economic growth
4. To promote social inclusion and tackle deprivation and discrimination
5. To improve Pune's accessibility
6. To make Pune a more attractive, well-designed and green city.

7. To improve the traffic condition and encourage various modes of public transport.

17.2.5 Various ways to achieve visions

- Land use pattern
- Economic sustenance of city
- Housing and slums conditions to live
- Social infrastructure and services for the citizens
- Educational facilities
- Health and medical facilities
- Water quality in river, nalla and lake
- Solid waste management system
- Hill environment and bio-diversity
- Employment opportunities
- Traffic and transportation system
- Scope for development of tourism industry
- Scope for development of industrial, IT, BT technologies
- Holistic planning and implementation

17.2.6 Issues requiring consideration:

- Evaluation of sanctioned Development Plan (1987) with particular reference to its implementation and the reasons for unsatisfactory implementation. Critical analysis of Plan to formulate effective workable and implementable Plan.
- Driving forces such as economic activities, guiding and controlling future development of the city.
- Slum redevelopment and relocation/rehabilitation of slums on natural features like nalas, riverbed, hill top hill slope zone, on reservation sites for vital public purposes and ecologically sensitive areas etc.
- Identification of potential areas for undertaking urban redevelopment projects.
- Dovetailing of traffic and transportation plan with the land use zoning and social facility plan.

- Coordinated and comprehensive development of Pune Municipal Corporation area and two cantonment areas viz. i) Pune and ii) Khadki Cantonments aided by effective governance.
- Proposals for Aesthetic, heritage and tourism, etc.
- Proposals for safety, education, hygiene, health care, culture, recreation, etc
- Proposals for environmental protection and improvement of scenic and physical condition of natural features like river, hills, nalla, lakes, etc, in the city.
- Proposals for providing affordable housing for all sectors of economy.

17.3 Surveys and studies undertaken during the preparation of Development Plan

Following surveys were carried out for the purpose of preparation of Development Plan:_

1. Demographic survey
2. Socio-economic survey
3. Housing survey
4. Existing land use (ELU) survey
5. Traffic and transportation survey

Following studies were undertaken for the purpose of preparation of Development Plan:

Sustainable environmental assessment (SEA)

17.3.1. Data/ Information Collection

Following Data was collected

- Educational facilities
- Health facilities
- Recreational facilities
- Shopping facilities
- Industries
- Utility Services (water supply, drainage, solid waste management, etc)
- Climatology

- Government Lands
- Slums

17.3.2 Surveys for preparation of Development Plan

17.3.2.1 Existing Land Use(ELU): - The work of carrying out the ELU survey was allotted to COEP. They have carried out physical survey of properties in the PMC old limit and submitted the details.

17.3.2.2 Demographic Projections: –PMC had allotted the work to Gokhale Institute of Politics and Economics, Pune (GIPE). They have studied the past trends of population growth from Census, compared the pace of growth of Pune city with other cities and submitted the demographic projections for the years 2017 and 2027.

17.3.2.3 Socio-Economic Survey: - PMC had awarded the work to carry out Socio-Economic survey in old PMC limit to Karve Inst. of Social Service (KINSS). A sample survey from selected slum and non-slum housing areas from all planning sectors in the old PMC limit has been carried out by KINSS. KINSS has given recommendations on the basis of finding of survey.

17.3.2.4 Housing Survey: - The work of carrying out Housing survey in old PMC limit was allotted to MASHAL. They have submitted the housing demand for year 2027, which states that 40% of city's population is living in slum and it is a big challenge to provide affordable housing to future population and slum dwellers.

17.3.2.5. Traffic and Transportation Study: - Various studies have been carried out by traffic department, namely comprehensive mobility plan (CMP) by ILFS, detailed metro project by DMRC, …… Taking into consideration the previous studies and considering the various scenarios of the development plan, a cube model for future traffic and transportation scenario has been developed by IIT, Powai.

17.3.2. 6. Storm Water Drainage Master Plan : This work was entrusted to M/s. Primove, Pune. They identified 23 drainage basins within the city and defined the width of nallas based on runoff and catchment of basin.

17.3.2.7. Delineation of Hill Top Hill Slope boundaries : This work was entrusted to M/s. Monarch Surveyors Pvt. Ltd. Pune. They have submitted their georeferenced plan.

17.3.2.8. Total Station Survey for roads and reservations in 1987 DP: This work was entrusted to M/s. S S Surveyors Pvt. Ltd. Pune. They have submitted their georeferenced plan.

17.3.3. Data/ Information Collection

17.3.3.1. Education: - Pune is Cultural and Educational capital of Maharashtra and has many professional and other educational institutes. Education is very important and a basic amenity. For Primary education, the base year 2007 information (secondary data) has been collected from Sarva Shiksh Abhiyan office and concerned PMC department and analyzed. For secondary education, the source of information is Education department, Zilla Parishad, Pune and Education Dept, PMC. Locations for Primary and Secondary schools have been finalized suitably as per requirement.

17.3.3.2. Health: - This information has been collected from Indian Medical Association & Health Department, PMC. Also Existing Land Use survey gives us existing health facilities present in the city.

17.3.3.3. Recreational: - No separate survey for this aspect was carried out. Details have been obtained from existing land use survey.

17.3.3.4. Flood Control :- Mula and Mutha are the two rivers flowing through the city. The State Government has issued directives to control development along the river banks vide circular no FDW 1089/243/89/CV(works) dt. 2/9/1989 The concept of blue line (Line representing highest flood level occurred in last 25 years) and red line (Line representing highest flood level occurred in last 100 years) is defined in the said GR. The task of demarcating blue line and red line was entrusted to Irrigation Department and their map is awaited.

17.3.3.5. Shopping facilities: - No separate survey for this aspect was carried out. Details have been obtained from existing land use survey.

17.3.3.6. Industrial: - No separate survey for this aspect was carried out. The information regarding industries in and aroud Pune was collected from Mahrattha Chamber of Commerce and Industries, Pune and industrial directory 2010.

17.3.3.7. Utility Services:- The important services are water supply, drainage, garbage disposal, disposal of industrial effluents, medical wastes, Information Technology waste, Power and Electrical Energy etc. The current services need to be examined and upgraded as per future needs. The data of these utility services have been collected from the respective department of PMC and various government agencies.

17.3.3.8. Climatology: - This data has been obtained from Metrological Department. it will be analyzed and policies for eco-friendly housing have been framed.

17.3.3.9. Government lands: - Information regarding various government lands such as forest, defence, irrigation, air force, has been collected from the respective departments.

17.3.3.10. Slums: - The data of existing slums within city has been collected from Existing Land Use Survey and the detailed survey carried our by M/s Mashal.

17.4. Evaluation of sanctioned Development Plan (1987)

- Before formulating proposals for the revised Development Plan, it would be necessary to evaluate the sanctioned Development Plan of 1987, and to ponder on the reasons attributed to its non-implementation, or implementation to a degree lower than that expected. The work of evaluation has been carried out under two different heads viz. a) acquisition development in designated sites and b) implementation of road proposals.
- For evaluation of Development Plan, a separate total station survey of all the reservation sites and total station survey of all the existing roads was carried out by Pune Municipal Corporation.

- During the last 20 years, the sites earmarked in the 1987 DP have passed through various stages, such as modifications under Section 37, deletions under Section 50 of MR&TP Act 1966, acquisition with or without purchase notices, encumbrances due to slums etc.
- Factors responsible for non-implementation or implementation to lesser degree are seen generally to be an inadequacy of financial resources, non-linkage of development plan with municipal budget and somewhat idealistic and over ambitious plan proposals. Care has been taken in formulating the revised plan.
- Before 1997, the implementation of Development Plan was not up to the expected level. But after the introduction of concepts like TDR, accommodation reservation in the DCR, the pace of implementation of development plan has increased.

17.5 Projection of Demographic Characteristics.

- Work of preparing revised Development Plan started in 2007. While framing the planning proposals, it was necessary to project the demographic characteristics of the city for two decades i.e. 2017 and 2027. The characteristics included estimation of total future population, the age-sex composition, etc. The revised Development Plan proposals in respect of land use zoning and traffic circulation pattern was made for two future decades i.e. upto year 2027. Proposals in respect of social facilities to be provided have been worked out based on the projected population for the year 2017.
- The component method was adopted with components such as migration, mortality, fertility and territorial expansion considered for demographic projections. Considering the probable impact of migration, two alternatives of Demographic projections suggested by GIPE for entire PMC limit, have been worked out.
- In the first alternative, the total projected population is 62.01 lacs and the realistic projected population is 57.14 lacs for the total PMC limit. For the old limit area the population projections are as follows:

Table No 17-1 . Projection of Population for 2027			
Year	**Total**	**Male**	**Female**
2002	1,901,834	986,546	915,288
2007	2,138,243	1,109,662	1,028,581
2012	2,371,663	1,232,642	1,139,023
2017	2,650,482	1,381,233	1,269,242
2022	2,975,720	1,555,795	1,419,922
2027	3,356,121	1,760,873	1,595,246

- Revised Development Plan proposals in respect of land use zoning, provision of social facilities such as education, health, marketing, recreation etc. are based on the demographic figures, that have been projected for the year 2017 and 2027.

17.6. Sub-Division of Planning Area: -

The 1987 DP was divided into six sectors and these sectors were further subdivided into Traffic zones. In the current DP also, the planning area has been divided into six sectors with some modifications due to merging of Pashan - Sutarwadi and deletion of Dapodi area from PMC limit.

17.7 Planning Standards :-

Government has already laid down the minimum essential standards for different social amenities including the educational, health, recreational and shopping facilities in terms of the capacity standards i.e. the capacity of the facility in proportion to the population to be catered for and the accessibility standards i.e. the reasonable distance from the houses within which the facility should be made available to the residents.

Development plan is generally expected to be implemented fully within 10 years from its coming into operation. Contrary to this expectation,

implementation of sanctioned Development Plans of Pune has not been satisfactory. After carefully studying the norms prescribed in various publications, such as National Building Code, UDPFI guidelines, Govt. GR issued in 1976 etc., the planning norms to be adopted in this development plan have been finalized, considering the current scenario.

It is expected that, if these revised rationalized standards are adopted, the objective of preparation of an implementable Plan rather than an idealistic non-implementable Plan can be achieved. A detailed note on the the Planning standards has been annexed.

17.8 Self-Reliant Plan: -

One of the main hurdles in implementing development plans has been the paucity of funds available with the planning authority. As a planning authority, Pune Municipal Corporation has very limited sources of income. Major income comes from Octroi, Property Tax and Development Charges. There is a limitation on increasing the rates of the same, in order to increase the revenue. Pune Municipal Corporation has to search for alternative income sources as well as new techniques to implement development plan.

TDR is one such effective tool to implement the development plan. In addition to this, amenities and infrastructure development projects can be taken up through public-private partnership, Accommodation Reservation, Developmental TDR, paid FSI, area development approach through incentive FSI, Town Planning Schemes etc. without any extra burden on Pune Municipal Corporation treasury.

17.9. Alternative Approaches for Traffic and Transportation: -

Before finalizing the traffic and transportation plan, various scenarios like do-nothing, densification along the BRT and Metro corridors, landuse and work participation ratio etc. were generated. Alternative CUBE models for these scenarios were studied and best alternative among those was selected for finalizing traffic and transportation plan.

17.10 General nature of proposals to be included in the Plan

17.10.1. Land use zoning and social facility proposals: - The Existing Land Use map was taken as a basis for this purpose. Since 1987, policy of reduction in Industrial acreage in city limits has been adopted. No additional industrial acreage has been therefore proposed and industrial zones therefore largely remain stable except for marginal changes. Promotional policies for non polluting industries such as IT, BT, R & D Activities etc have been introduced. Also the trend shows that, the industrial pockets are getting conversed to converting in residential area; due to housing demand. It may, be necessary to examine and decide as to whether substantial area would be needed to be zoned for ITandBT, Software park, hardware park, animation park, Knowledge Processing, Out sourcing, R&D activities and Genetics.

Sites reserved for public purposes which are vacant and not acquired, will be continued or re-designated under this Development Plan. Some of these sites are reserved since 1966, and due to this, land owners have unnecessarily suffered. So in order to acquire reservations speedily in future, incentive policies have been introduced.

There are agriculture pockets shown in earlier development plan and many of them are vacant and surrounded by residential developments. A policy decision is needed to be taken with regards to the development of these areas considering the need of housing sector and other social and recreational amenities.

17.10.2. Slum redevelopment, rehabilitation: -

Housing for slum dwellers has always posed serious problems before authorities. Separate Slum Rehabilitation Authority (SRA) has been formed by the government for PMC and PCMC area in 2005. It is supposed to plan for slum redevelopment and rehabilitation. Policies have been framed for redevelopment and rehabilitation of slums located on reserved sites, either in-situ or in the nearby vicinity. Proposals regarding this have been included in the Revised Development Plan. Such projects have been undertaken at some locations under the Basic services to urban poor (BSUP), funded by JNNURM.

Also, policies will have to be framed to rehabilitate slums through public private partnership, with along SRA, RAY etc.

17.10.3. Hill Top Hill Slope Area: -

In the sanctioned Development Plan of 1987, hill tops and hill slopes zones are shown. According to the present development regulations in old limit area, 4% construction is allowed for particular uses. The same policy has been continued in this D.P with some additional users.

17.10.4 Area Development Approach:-

Some PMC lands have been allotted for rehabilitation of slum dwellers, project affected peoples on lease basis. Also some lands have been allotted by the Government to flood affected people. The dilapidated wadas, gunthewari type development on EWS and other reservations sites, etc are the other high density pockets seen in the city. The social amenity and recreational facility within these pockets is not up to the mark. Policies need to be framed for proper planning of these areas with a view to provide better housing, quality of life and for creation of affordable public housing stock.

17.10.5 Manner of dealing with encumbrances on designated sites: -

During the exercise of evaluation of sanctioned Development Plan in respect of designated sites, it was observed that many designated sites are encumbered either with hutments or otherwise. It was also observed that sites are not always fully encumbered; and that in some cases. It would be possible to obtain area required for the public purposes, if the occupants of encumbered area are re-habilitated in one corner of the designated site, leaving the remaining area which could be used for the public purpose for which the site has been designated. If the occupants of the encumbered area could be re-habilitated on the same site or site adjacent to the designated site, it is expected that opposition which is normally met with in case of such operation, would not be encountered.

17.10.6. Integrated plan proposals for PMC, PCMC and 3 Cantonments: -

The development plan for the 23 fringe villages for the year 2011-21 has been prepared and submitted to the State government for sanction. Pune Cantonment and Khadki Cantonments form pockets within the PMC area. Obviously, there is a direct co-relation between the activities in cantonment areas and PMC limits. For example, the High Explosives Factory in Khadki has many of its employees residing in PMC area, thereby causing problems of commutation and congestion. Similarly, residents of Pune Cantonment also depend to a considerable extent on the social facilities available within the PMC area. There does not seem to be any development control rules as such operating in the cantonment areas; and therefore there is great imbalance in the building development between the cantonments and PMC area. For all these reasons, it is necessary to plan for the entire urban mass, consisting of the PMC and the two cantonments, in a comprehensive and integrated manner. Co-ordination in respect of the following issues is essential:

1. Traffic and Transportation.
2. Integrated land use.
3. Full and proper use of urban land.
4. Services and Social facilities.
5. Regulation for controlling developments.

17.10.7. Proposals for Aesthetics, tourism, maintenance of Heritage structures etc.: -

Pune is a city of historic importance and a number of sites need to be preserved. Proposals for establishing Zoos, bird sanctuaries, amusement parks, river front development, etc. have been included in the revised Development Plan with a view to promote tourism in the City. Such sites are not only tourist attractions, but they will serve as important recreational spaces within the otherwise drab and dull jungle of concrete buildings. Special efforts to make proposals in this respect have been considered. To promote architecturally marvelous building designs, incentive schemes will be designed by PMC. Conservation policies for heritage buildings and precincts have been framed.

17.10.8. Rationalized and Standardized Development Control Rules and Regulations: -

Municipal Bye-Laws are framed under the provision of the B.P.M.C. Act; while the Development Control Rules are under the M. R. and T.P. Act. Since 1987, many modifications have been approved and several directives have been issued at the Government level, which have been incorporated in the revised Plan. Some minor changes to suit local conditions of Pune have been made in the standard rules and bye-laws.

17.10.9 Phasing, programming, financial implications and resources:-

The implementation of the development plan includes two actions viz. 1) Development control and 2) Development plan for the social Amenities and Facilities and the proposed circulation pattern.

Land is the governing factor in the physical planning process. The rising land-values in the cities and the resulting heavy compensation liabilities pose severe constraints to the Planning Authority's efforts relating to town improvement and town development. Implementation of the Development Plan proposals requires procurement of land either by private negotiations or through Land Acquisition Acts.

Land procurement through such means, naturally requires huge investment. Due to lack of adequate financial support, acquisition of sites for public purposes is normally not achieved satisfactorily and the plan, more or less, remains a paper plan.

17.10.10. Financial Implications and different modes of effective implementation of plan



Sites have been designated for various purposes in the sanctioned Development Plan. However, the circumstances have since then changed; and it is likely that the purpose for which a site was designated originally is required to be changed under the revised Development Plan.

Decision about possibility to inter-change purposes in the above circumstances is proposed to be taken; and inter change of proposals made under the revised Development Plan accordingly. The proposals would be categorized as long term and short term as per their needs of development of city.

17.11. Public Participation in the Preparation of Revised Development Plan

The Maharashtra Regional and Town Planning Act 1966, contemplates participation of general public at different stages of Development Plan preparation. Objections and suggestions are sought from the public within a stipulated period after a notice declaring the intention of preparation of Development Plan under section 23 is published in the official Gazette.

Objections and suggestions are also sought from the citizens after the draft Development Plan is published under section 26 of the said Act. The planning committee which is constituted, gives hearings to the citizens and submits its recommendations to the planning Authority. The citizens are also allowed to voice their opinions in case the plan is republished under section 29 of the said act, at the corporation level and under section 31, at the state government level.

It is thus clear that the said Act contemplates statutory participation of general public at various stages only for registering their objections and suggestions. It does not expressly state about their participation in the actual plan preparation stage.

Planning for a city is a dynamic process. A planner cannot sit in isolation and plan on his own. The results of his planning can be definitely enhanced if there is an interaction among various sections of the society. The citizens of the society need to have their say in the planning process. The ideas about their expectations, their vision for their city, their opinions will surely increase the horizon of ideas in a planner's mind. In short, the plan that eventually comes out should reflect the aspirations of the people. The people should feel that it is their plan i.e. they should feel the ownership of the plan

Taking this into consideration while preparing the revised DP, public participation was sought in the planning process right from the inception. The exercise of Sustainable Environmental Assessment (SEA) was undertaken with precisely this view in mind. SEA has been described in detail, elsewhere in this report. The exercise of preparation of City Development Plan (CDP)

was carried out by PMC earlier, the outputs of which were important in the D.P. preparation process.

The exercise of socio-economic survey also involved discussions with eminent personalities of Pune City, regarding their expectations from the plan. These were also considered during plan preparation. Also a steering committee was constituted consisting of experts from different fields. Several meetings were convened in which presentations regarding various issues involved with D.P, surveys carried out, etc were made. The recommendations and views of the committee members were taken into consideration.

Several sub groups were constituted on various topics such as Development Control Regulations, Traffic and Transportation, Environmental, Finance and Resource mobilization, etc. The recommendations, observations, etc were made by the sub group members during various meetings. They were suitably addressed in the D.P. Process.

In addition, meetings were also arranged with the Developers, The Architect Association and their views regarding their expectations from the plan was sought.

In a nutshell, an honest attempt has been made to ensure that the Development Plan which has been prepared, carries a vision of a large cross section of the society, and not just the planners who have prepared this plan.

CHAPTER 18

THE STRUCTURE PLAN

Preparation of a structure plan is an important step in the overall planning process and is necessary to serve as a broad guiding framework for formulating detailed proposals of the Draft Development Plan. A conceptual diagram serving as a framework for future development in the City is the Structure Plan. This principle suggests that development in existing urbanized areas and new extensions must be "structured" spatially and functionally to avoid unmanaged urban sprawl. Existing urban patterns must be strengthened through urban renewal and proposed development must be "continued" by selective extension of already developed areas. This will avoid new developments in distant outskirts that are not serviced by infrastructure and transportation.

This plan includes broad land use zoning and major traffic-transportation network, connecting the various parts of the area to be planned. The broad road network includes important traffic corridors mainly highways, arterial and sub-arterial roads. In addition to the land use zoning and broad circulation pattern, the structure plan also envisages the direction in which sites will be reserved for public purposes.

The proposals of the structure plan for the present study are framed on the following lines:

- Determination of the extent and physical form of future urbanisable area on the basis of the population projection, trend of development (as observed in the ELU survey).
- Determination of proposed broad land-use zoning of the said urbanisable area.
- Framing proposals with due considerations of the circulation pattern and other traffic-transportation requirements.
- Establishment of planning standards/ norms for framing proposals in-respect of designation of sites for public amenities and in-respect of various other problems faced by the area.

The determination of future urbanisable area and its physical form, for the purpose of Structure Plan is mainly based on the parameters of projected population of the study (planning) area for the year 2027, planning constraints and guidelines.

In identifying the future urbanisable area on the basis of the projected population of 2027, the following constraints / guidelines have been considered.

- Existing and committed major work centre
- Physiography of the planning area.
- Availability of water supply.
- Availability of transportation facilities.
- Availability of land for non-agricultural use and desirability /practicability of conversion of agricultural lands into non-agricultural lands.
- Zoning of the sanctioned Regional Plan and the relevant guidelines spelt out therein.
- Compactness of development so as to ensure maximum possible utilization of infrastructural facilities.

Structure Plan being a policy plan does not take into account detailed micro-level considerations. The land-use zoning in respect of residential, industrial, commercial, public and semi-public, green-belts; no development zones have been delineated and broad policies have been framed in latter chapters. Considering all these points, the proposed land use has been prepared.

CHAPTER NO. 19

BROAD POLICIES OF THE DEVELOPMENT PLAN

19.1 Education

a) Primary & High School

Pune was termed as **"The Oxford of the East"** by Jawaharlal Nehru, India's first Prime Minister due to the well-known academic and research institutions in the city. Pune attracts students from all over the world. Pune is fast developing as a Special Education Hub. With a view to boost this potential further, the following policies have been framed in the development control regulations.

- Additional 1.5 FSI may be granted.
- 15% seats reserved for EWS and backward class students.

b) Hostel

As there are many educational institutes in Pune, a lot of students come into the city, from various parts of the country and even from abroad. Accommodation facilities for students in the education campus are inadequate, also students are not allowed to stay in some residential colonies. As a result an acute accommodation shortage is always felt in the city.

To overcome this crisis, any landowner has been allowed to develop his property wholly for hostel purpose, with an additional FSI of one in lieu of premium paid, provided, his property lies within 500m radius from the boundary of educational institute.

Due to lack of space students from slums, LIG, EWS are facing problems of space for studies. To overcome these problems construction of reading/study hall in amenity space is permitted.

Provision of development of hostel for working women is made with additional FSI in dc rules.

19.2 Health

Pune is also considered as one of the cities having an excellent medical facilities and system. To cater the requirement of society and to promote medical tourism in the city, policies have been framed to facilitate the development of appropriate and good quality health service.

- Maximum upto 4 FSI has been made available to Hospitals.
- Additional 1.5 FSI has been proposed for Maternity home & Dispensary.
- Free medical treatment to the extent of at least 20% of the total number of beds shall be given to persons from Economically Weaker Sections (EWS)of society or to persons below the Poverty Line (BPL).
- 10% of the total number of patients in OPD shall be provided treatment at concessional rates to persons from E.W.S & society or to persons below the poverty line (BPL).

19.3 Transport

19.3.1 Parking

Policies have been introduced for development of multi-storied parking lots on any plot abutting the roads and/or stretches of road, and within the area of 200 m. from the Metro station, HCMTR, Railway Stations, S.T. Bus Depots, and existing Govt. Semi Govt. and Corporation offices etc and also along the periphery of congested area.

- FSI will be given to owner after handing over the built up parking to PMC, free of Cost. The owner/developer will get maximum utilization FSI for Congested = 4.00 &Non Congested = 3.00
- Owner of the unreserved and unencumbered plot having access of minimum 9 m width within the above location will get compensation in terms of TDR or in any other form.

19.3.2 PMPML - Commercial use of lands in possession of the Pune Mahanagar Parivahan Mahamandal Limited (PMPML)

Sites reserved for PMT, PMT depot, PMT parking & PMT, allied purposes may be developed on the **Public Private Partnership basis** or by PMPML or by PMC.

- Maximum FSI permissible shall be 2.5. Out of the proposed FSI ,40% of the FSI will be used for reserved / designated purpose such as bus stand, bus parking, bus terminus, bus depot, office of P.M.P.M.L. workshop, cabins etc. and balance FSI shall be permissible for commercial use. PMT parking and bus depot shall be allowed to be developed on ground floor only and immediate 3 to 4 floors shall be developed for parking purpose and the commercial uses shall be allowed on the above such parking floors.

19.4 Social Aspect :

19.4.1 Old age home

- Old Age home can be developed on unreserved land in residential or commercial zone.
- Construction of old-age home exclusively for Senior Citizen's above 60 years may be permitted.
- 25 % of that land can be used for development of old-age home
- Remaining 75% land the FSI of entire plot area / FSI without area utilised for construction of old-age home may be permitted.
- TDR potential of the entire plot shall be permissible on the remaining 75% plot.
- Ancillary user for the residents of old age home may be permitted.

19.4.2 Night Shelter

It is the fact that many people traveling from one city to another many, at times need to take a halt in Pune and then proceed to the desired destination, the next morning. Accomodation facilities are needed in such cases and night shelters have been proposed for the same.

19.4.3 Affordable Work spaces.

The city is facing the problems of informal sector mainly hawkers encroaching the road spaces, footpath etc. To overcome this problems, provision of 1% affordable work spaces in the layouts of area more than 0.4 ha. and 2% in layouts of area more than 2 ha. each having an area of 5sqm, has been made in the development control regulations.

19.5 HOUSING

19.5.1 Affordable Housing And Housing Policy

Housing implies not only construction of bricks and mortar; it includes the supporting infrastructure, access to transport and employment opportunities. Housing in urban areas assumes much greater significance, as it relates not only to basic shelter needs but also provides a facility to the citizens to access services and be a part of the development process.

19.5.2 EWS/ LIG

Urban land is a limited resource with competing demands.The objectives of such a policy will achieve:

i) An appropriate supply of urban land for productive as well as community purposes

ii) Greater equity including access by low income families to adequate shelter

iii) Spatial distribution of population and activities consistent with State priorities and

iv) Optimum utilization of land

- EWS reservations shall be acquired and developed by PMC.
- Construction of tenements for EWS/LIG/MIG is made mandatory in every layout above area of 2000 sqm.
- Policies for the housing of the backward class socities and project affected persons are introduced.

19.5.3 MHADA Colonies

a) Redevelopment of MHADA Colonies

The Redevelopment of existing MHADA colonies in the city has become an important issue because in several colonies, optimal utilisation of land has not been done. It is proposed to allow redevelopment of such existing colonies by providing higher FSI (upto 2.5) and to revise the ceiling of 25 sq. mtrs for LIG tenements, also for MIG and HIG groups.

b) Housing for MHADA on Privately owned Vacant land

- Developing Authority – MHADA & Owner / Developer.
- Minimum Plot area – 0.2 Ha with maximum Permissible FSI – 2.5
- Share in addl. FSI of MHADA & Owner/ Developer- 50 : 50
- 0.75 FSI used for EWS / LIG houses handed over to MHADA, remaining 0.75 FSI for LIG , MIG for sale in open market by Developer in which additional FSI will be given against premium paid @ 50% of Ready Reckoner.

c) Flood Affected Resettlement Colonies

Policy for regularization of unauthorised existing structures has been proposed with a maximum 2.5 F.S.I. in flood affected redevelopment colony/chawl and flood affected colonies developed by MHADA. Regularisation can only be done after demolition of illegal construction. The existing structures already built without any valid permission can be regularized as per the rules, on payment of premium, depending on the built up area.

19.5.4 Rental Housing

Due to industrialisation in Pune City, lots of people migrate to the city from rural areas for good job opportunities. Most of them live in Chawls on rental basis. Due to lack of housing stock, housing need of the working population. Rental policy has therefore been introduced in the regulations.

- FSI of 4.0 shall be permissible for construction of Rental Houses on unencumbered land by land owner or any other agency approved by PMC, within the limits of Pune municipal Corporation.

- Incentivising Low Income Group (LIG) rental housing through higher Floor Space Index (FSI) and fiscal incentives in Property Tax, cess and duties.
- Development and maintenance of transit shelters on Government lands at concessional rates, with an higher Floor Space Index (FSI) and supporting infrastructure. Can be achieved through Public Private Partnership.

19.5.5 Slum Improvement

- With a view to provide adequate facilities and improve the living conditions of slum dwellers, policies have been framed in the development control regulations with regards to slum rehabilitation.
- Sites reserved are to be changed in to zoning for same purpose and allowed to be developed as per Maharashtra Slum Areas (Improvement and redevelopment) Act 1971 and / or the Maharashtra Housing and area development Act 1976 / or as per special regulations of SRA.

19.5.6 Housing For Sanitary Workers

- With a view to provide dwellings **free of cost** to Health/ Sanitary workers, Dr. Babasaheb Ambedkar Awas Yojana has been deviced by the state government and the same has been incorporated in the development control regulations..
- The Maximum FSI permissible shall be 4.0.
- TDR against land & constructed built-up area will be permissible to developer/ owner. Tenements which are in possession of Pune Municipal Corporation under EWS, SRA & BSUP schemes can be allotted to health/ sanitary workers.

19.6 Redevelopment of congested area.

As per existing 1987 dc rules for redevelopment of congested area, maximum additional 0.375 FSI is granted for rehabilitation of existing tenents. As per this policy, the number of existing tenents cannot be accomodated in

the permissible FSI. As a result, such properties cannot be developed on account of inadequate rehabilitation FSI component. To overcome this lacuna, cluster development policy for congested area has been introduced in DC rules, which will take care of 100% rehabilitation of tenents. This policy will help in achieving more green spaces as well as parking places in congested area.

19.7 Densification along Metro influence zone.

The detailed project report for metro has been prepared by DMRC Delhi in consultation with IIT Powai. On the basis of this report a detailed evaluation is done by IIT Powai and a travel model is also submitted considering the densification along the metro corridor. This will result in an increase in the ridership on the metro corridor. Premium collected from grant of additional FSI can be used for development of Metro and part of that amount can be utilized for infrastructure development in that area.

19.8 Premium FSI

Policy of granting FSI with premium charged is introduced, which will be helpful for generation of more housing stock in the city. This can serve as an additional option for TDR and also will contribute for resource mobilization for implementation of development plan.

19.9 Environmental Aspect

19.9.1. Energy Conservation building code (ECBC)

- Rain Water Harvesting has been made mandatory for all plots having an area more than 300 sq.m.
- A 5 % rebate on the property tax for residential property and 2 % for non- residential buildings for 5 years, has been suggested.
- Solar water heating is made mandatory for all types of buildings.

19.10. Recreational

19.10.1. Creation of more Open Spaces.

With a view to create more open spaces, area under open spaces has been proposed to be increased, with increase in plot size.

19.10.2 Stadium

The PMC may acquire the land reserved for stadium & develop it for stadium, or owner is also allowed to develop for the reserved purpose. Stadium reservation site shall be allowed to be developed for specific playing activities like cricket, hockey, foot ball, boxing ring, etc. If area is more than 4 ha, uses permissible in Civic & Cultural Centre may be allowed.

19.11 Heritage

19.11.1. Policy For Development Of Area Around Shaniwarwada

With a view to preserve and conserve the Ancient monument of Shaniwarwada and also to promote the prohibited area around Shaniwarwada for tourism, have been framed in this regard subject to condition, of approval from Archeology Survey of India.

For attracting tourists visiting the Shaniwarwada and for enlightening Pune's culture, the acquired area can be developed in consultation with Archeological Survey of India.

Guidelines for Development

- A Heritage committee should be set up to regulate the quality of repair and conservation work.
- All conservation work should be carried out by experts and qualified conservation architects.
- The construction material should be of good quality, durable, easy to clean and reflect traditional local usage. The use of traditional material such as timber is recommended for the signage. Modern materials such as brushed stainless steel, laminated glass, etc may be allowed if the design matches the quality and character of the buildings. The use of plastic, perplex, aluminum and aluco-bond cladding etc. generally shall not be allowed in the streetscape.
- The structures in this area shall be restored to its traditional forms, including timber and cast iron railings, traditional doors and windows, etc.

- Presence of self standing hoardings, advertisements put up during temporary occasions, obstruct the views of the historical buildings. These hoarding not only cause a distraction due to the scale of the buildings, but are also hazardous due to their sheer size. The hoardings obstructing the historic buildings in this area shall not be permitted.
- Self standing arches, decorations and lighting along the streetscapes in this area shall not be permitted.
- No Parking shall allowed along the road sides in this area.
- Pedestrian movement facilities shall be improved.
- Heritage structures within this area have to be conserved as per directions of the Heritage Conservation Committee, PMC.

19.11.2 Heritage, Conservation And Preservation

There are many heritage properties all over the city of Pune. They are differentiated in three category, mainly Grade I, II, III. Rules are made for the development of heritage structure and properties having heritage buildings.

1. In case the heritage structure listed in Grade-I is affected due to vandalism by occupier/ owner, the municipal commissioner shall have the right to acquire such property, and preserve the same.
2. Heritage Conservation fund is generated through PMC budget, DPDC, grants from Government and also from donations. Also 2% of the total development charges collected shall be transferred to Heritage Conservation fund.
3. If the owner preserves and conserves the Heritage property indentified in heritage at his own cost he shall be incentivised by 100% general property tax exemption. Consultatany shall be provided free of cost to the owner by PMC for maintainence of heritage structure.
4. If the proposal for development of heritage property is rejected by HCC (heritage conservation committee) then TDR for unutilized FSI will be granted in consultation with HCC.

CHAPTER NO. 20

PROPOSED LAND USE

20.1 INTRODUCTION

The Proposed Land Use Plan is a significant component of the Development Plan. Land represents an important resource for the economic life of a majority of people in the world. A proper plan of the land use entails the social and economic development of the city. With a view, that human requirements are met in a sustainable manner in the future, it is essential to move towards more effective and efficient use of land and natural resources. Integrated physical land-use planning and management is an eminently practical way to achieve this.

20.2. MAJOR GOALS FOR PROPOSED LAND USE.

The Land Use Plan – 2027 has been prepared based on the following major goals:-

1) Determination of the extent and physical form of future urbanisable area on the basis of the population projection, trend of development (as observed in the ELU survey) and suitability of land for non-agriculture purposes.

2) Determination of proposed broad land-use zoning of the said urbanisable area.

3) Framing of proposals with due considerations to the circulation pattern and other traffic-transportation requirements

4) Establishment of standards or guidelines for framing proposals in-respect of designation of sites for public amenities and in-respect of various other problems faced by the area.

5) In identifying the future urbanisable area on the basis of the projected population of 2017, the following constraints / guidelines have been considered.

- Existing and committed major work centres
- Physiography of the planning area
- Availability of water supply planning proposals.
- Availability of transportation facilities
- Availability of land for non-agricultural use and desirability
- practicability of converting agricultural lands into non-agricultural lands.

6) Restructuring of land uses along MRTS and BRT corridors based on the studies and considering the inter relationships between the urban activities, environment and the image of the city .

20.3. PROPOSED LAND USE OF FUTURE PUNE 2027

The total area within the Municipal Corporation old limits has been divided into six sectors. Demographic projection were done for the year 2017 and 2027 for the entire city as well as the six sectors. The population projection for the year 2017 was used to work out the amenities required where as the projected population for the year 2027 was used to finalizing the zoning proposals.

The land requirement for residential purposes has been worked out for each sector on the basis of the projected population of the year 2027.The following points have been considered while working out the land requirement for residential purposes.

- Capacity of the existing residential areas to absorb additional population.
- Identification of the extent and form of new residential areas on the basis of zoning of the sanctioned Regional Plan and various attributes of the land such as quality of soil, flood hazard area, slope of terrain, compactness of future development and availability of civic infrastructure within a reasonable period of time.

20.3.1. PROPOSED LAND USE ZONES – 1

A) RESIDENTIAL ZONE

The total residential area in 1987 Development plan was 5070.58 ha. About 1140 ha is available as future urbanizable zone from conversion of agriculture zone to residential zone. This area consists mainly of Sangamwadi, Lohegoan , Pashan and Mundhawa villages.

The projected population in 2017 and 2027 has been worked out. The areas necessary for accommodating the projected population in each sector were worked out and the boundaries of the residential zone in the Sector were finalized. The total area included under this zone in each sector has been shown in Statement No.20-1 to 20-7.

Residential Zone (R-1) is the normal residential area where only residential and allied uses as permissible under the development control rules are allowed. In addition to the uses under R-1 zone, shopping and other commercial activities as prescribed under the development control rules, would be permissible on the lands in R2 zone i.e. the lands fronting on roads of 9 m. and wider in the gaothan areas and 12m and wider in the remaining areas. Lands included in R1 and R2 zones have been washed yellow on the development plan. The residential land-use zone requirement proposed is on the higher side as compared to the requirement based on the projected population of the year 2027 and the expected gross residential density of 250 tenements / hectare. This is considering the fact that all the suitable land in each sector is most likely to come under development due to the existing trend of development, the transport linkages and their potential for development. Due to urbanization and decrease in the primary sector in the city the agriculture zone can be utilised as the future area to be developed for the projected population. The land that was zoned for agricultural use in the 1987 development plan and which has been now designated under residential zone in the Development Plan. Thereby it is possible to avoid occurrence of illegal/unplanned urban development.

Public transport systems such as metro and BRT have been proposed along major routes.It is suggested to densify the area of 500m along the both sides of the metro with the expected gross residential density of 5000 persons / hectare, for the public transport to be efficient and sustainable.

The core area of the city, that is the sector I, is the oldest part of the city. Many old structures are in a dilapidated state. Hence there is a great need of redevelopment of the old area. Considering this serious issues, areas policies have been framed for the redevelopment of such areas.

1) EWS-

This is an additional type of Residential Zone proposed in the Revised Draft Development Plan. The areas in this zone will be developed for public housing or sites and services for the economically weaker section population. Sites have been reserved for EWS for this reservation Pune Municipal Corporation (PMC) is the Acquiring Authority. A higher density of about 360 tenements /hectare, on the basis of FSI 1 and may be increased proportionately upto 1060 tenements /hectare on the basis of 2.5 FSI, shall be permissible in this reservation. A provision that PMC will acquire the entire land and develop it for EWS, has been made in the DC Regulations.

2) Slum Improvement Zone

It is a fact that more than 40% of population of city is staying in slums. In order to achieve the vision of slum free city, detail survey has been carried out by PMC and these slums have been demarcated slum improvement zone has been proposed which is an additional type of Residential Zone in the Revised Draft Development Plan. The sites which have been proposed as Slum Improvement shall result in the rehabilitation of, slums insitu.Slums on ecological sensitive areas like river banks, nallas, hill top hill slopes and located on sities required for vital public purpose can be rehabilitated on other sites.

4) Brick Kiln Zones

Brick kilns in the old city area have been shifted at different location away from the city. The Brick kiln zone in the old DP area have been shown in

Industrial zone with a provision of permitting residential use after payment of conversion charges.

20.3.2. PROPOSED LAND USE ZONE- 2

A) COMMERCIAL ZONE

In the sanctioned Developed Plan, the Commercial Zone comprised of the areas on which shop lines along roads were proposed, areas which were already functioning as markets and areas which were proposed for acquisition of the Agricultural Produce Market Yard, Timber Market etc. C-2 zone would now comprise of areas where the whole-sale establishments and office complexes in Government and private sectors would be permissible.

Under the Development Control Rules, the commercial zone has been considered under two types, C-1 and C-2. It has been already mentioned earlier that convenience shopping and other allied commercial activities would be permissible in R-1 zone and shops would be permissible in properties on wider roads in R-2 zone, C-1 zone or the local commercial area would comprise of the area in which, in addition to the activities permissible in R-2 zone, higher order commercial activities would also be permissible. In the Revised Draft Development Plan, the C-1 zone has been proposed only for the area in Bhavani Peth where whole- sale and retail trade in grains etc, and godowns for storage of goods are existing. Commercial zone has been newly proposed along Laxmi road on both sides as shown in Plan . The area under C-1 zone has been shown in blue colour on the Revised Draft Development Plan.

C-2 zone has been proposed in Hadapsar and Kothrud. Business hub with good road network has been proposed near Hadapsar Industrial estate as shown in development plan.

All these zones (C1, C2 and commercial) have been proposed in different parts of the City with a view to create job potential in the different sectors thereby resulting in the reduction in the average work trip length in the city.

These zones have been shown washed in blue colour on the Revised Draft Development Plan.

B) Cinemas & Drama Theatres

Cinema and drama theatres are users allowed in the residential zones R-1, R-2 as well as in the commercial zones C-1 and C-2, on roads having width above 15m. As per the development control regulations, the sites of the existing cinemas and drama theatres have been shown as spot zones in order to ensure the retention of the existing amenity on all such sites even in future.

C) Industrial Zone:

With an intertion of creating more industrial jobs, some areas have been included in industrial zones since 1966 DP. Major industrial zones were located on Nagar road, Solapur road, Satara road, Sinhagad road and Mundhawa village.

The regional plan states that the policy of the Government is to allow only non-polluting industries in the cities. This has also been a policy of the PMC.The permission for residential user in industrial zones is a step in that direction. PMC is also widely promoting the proposals of IT&ITES and BT users in this zone. Also for promotion of tourism and service industries an additional FSI upto 3 has been proposed.

In conformity with the broad policies and directives laid down by the State Govt. residential use in addition to IT & ITES users has been made permissible subject to the payment of conversion charges to P.M.C.

D) Zones for the Timber Industries

This zone is located in the central congested parts of the city. There are are number of timber industries and wholesale business in steel. Such activities have to deal with heavy and bulky materials, usually transported by means of heavy trucks, railway goods wagons, bullock carts etc. The lack of adequate space results into accidents, low speeds, reduced road capacities due to vehicles waiting for loading and unloading, thereby resulting in frequent traffic jams, longer detention periods of the vehicles etc.

To overcome these problems, land has been reserved for timber industries in Bibvewadi. The acquiring authority for this reservation is Pune Municipal Corporation PMC.The area has been included in the industrial zone in Sector II and has been shown in violet colour and verged in red lines on the Revised Draft Development Plan.

20.3.3. HILL TOPS AND HILL SLOPES

As per the 1987 DP, contour survey was carried out and lands which had gradients of 1 in 5 or steeper were considered as hill slopes and the lands which had enclosed by such slopes as hill tops. This zone was earmarked by fixing up this gradient on the basis of the available contour maps and nomenclature, as Hill top hill slope zone. Shown washed in olive green colour on the revised draft development Plan.

Ensuring the preparation of the Draft Development Plan detailed control surveys were carried out by PMC from Private surveys and the boundary of Hill Top and Hill slopes was finalized. The lands owned by Forest Department has been shown washed in bottle green colour on the Revised Draft Development Plan and included under " Recreational Zone".

20.3.4. RECREATIONAL ZONE

Pune is considered to be among the most polluted cities in India. With a view to address this situation, sites have been reserved in sufficient numbers for Children's Play-Ground, Play- Ground, Parks, Gardens etc.

Children's Playgrounds have been provided extensively in all the sectors. The Playgrounds have been distributed suitably to enable the residents to access them easily.

These Playgrounds would provide the facility for all the residents and would be restricted only to the school going children as in the case of playgrounds which have been attached to schools.

Parks have been provided to include such areas which have a potential of being developed as places of scenic beauty, As a result some of the sites are extensive in area. Gardens have been distributed in different localities, for balancing the environment and the green cover.

With a view to enhance the environmental value by conservation and development of the natural features like rivers and nallas, a buffer zone is proposed as Green belt, river front development and nala garden reservation. They can be developed as gardens or jogging tracks etc.

This city enjoys a very favorable location with a natural sky—line due to the hills surrounding it in almost all directions. With a view to preserve the natural surroundings and developing them to further enhance the scenic beauty and to improve the environment, Parks have been proposed on some of the hills in the city.

The standard for recreational purpose is prescribed at 0.1 hectare per 1000 population for the congested parts of the city in Sector I. The short- fall in Sector – I has been made good by providing additional areas in the outer sectors. Since large space would be available for reservation on the hill slopes and hill top areas, it has been decided to provide 40 % of the standard in the lower developable areas and the balance in such higher areas. Also sites have been reserved for Children's Playgrounds/ Playgrounds/ Parks on open spaces of sanctioned layout. Sites have been proposed as riverfront development, to be developed along the river front in Aundh and water sports at Swargate.

20.3.5. UTILITY SERVICES

1) Crematoriums and burial ground.

It has been observed that some of the existing cremation and burial grounds are not conveniently located from some of the developed areas or areas. Additional sites have been reserved in the draft Development Plan with a view to make this facility available within reasonable distance from all parts of the city.

Utility Services in Pune:

The vitality of any city depends largely on the availability of essential utility services and the potential for their expansion to meet the requirements of the projected population. Unless such potential is available, the services are

likely to pose constraints in the expansion of the city. The following services have been studied accordingly as described below:-

2) Water Supply

The Pune Municipal Corporation area is 243.84 sq.km. consisting of City, Pune and Khadki Cantonments respectively. The three areas will have to be considered not in isolation, but as one Urban Agglomeration for the purpose of ascertaining the water supply demand and planning for its provision.

The Major source of water supply is Khadakwasala dam. At present the water supply in Pune Municipal Corporation area is done by Pune Municipal Corporation, areas in the Pune and Khadkhi Cantonments are served by the Cantonment Board. Pune Municipal Corporation's water works are situated on Pune- Sinhgad Road near Parvati, Cantonment area,Khadki-Holkar, Wagholi WTP, Vadgoan near Sinhagad road , Warje Malwadi WTP, Warje WTP.

There are High level Reservoirs for water supply distribution in the city, on Parvati, SNDT. hill, Chaturshringi, Ramtekdi, Thackercy hill, Bibwewadi.

New sites have been reserved for Water works in the draft Development Plan,

2) Sewerage System

At present, there are sewage treatment plants located at Bhairoba,Tanajiwadi,Bopodi,Erandawane,Naidu,Vittalwadi,Mundhawa,Baner, Kharadi, Kalyaninagar,Vishrantwadi mental hospital.

New sites have been reserved for Sewage works in the draft Development Plan.

3) Supply of electricity

The Maharashtra State Electricity Board, a Government of Maharashtra Undertaking, provides electricity supply to the Pune Municipal Corporation area. As per the requirements of MSEB, land has been reserved for MSEB. The acquiring authority for sites reserved for MSEB is MSEB.

20.3.6. PUBLIC & SEMI PUBLIC USE (PSP)

Lands owned by Government or other public authority or Institution, educational institutions and under existing use for some or the other public purpose have been zoned as Public and Semi-public Zone. Users allowed in PSP Zone have been specified in development control regulations Such sites have been coloured in pink in the development plan.

Under this category, sites have also been reserved for public purposes and social amenities such as Primary schools, high schools, school for handicapped and spastic, Municipal Purposes, telephones, police chowki, library,community hall, planetorium,etc. such sites have been coloured in pink with red bound, in the development Plan.

20.3.7. FIRE BRIGADE

Adequate number of sites for Fire-Brigade stations have been provided in different parts of the city, at suitable locations to enable the firefighting squad to speed off from the stations in different directions within the shortest time. The facility has been provided, as required as per the standards, at 1 station for 2 lakh populations within 3 km radius. In addition to the existing sites, few more sites have been designated in the Proposed Land Use Plan.

20.3.8. TRAFFIC AND TRANSPORTATION

As per guidelines given by the National Urban Transport Policy (NUTP), the proposed development plan lays its focus on the mobility of people rather than vehicles and accordingly gives priority to pedestrians, Non-Motorized Transport (NMT), etc. The major objective of the development plan is to transform the current urban transport system into a safe, convenient and efficient transportation system.

The existing roads have been shown without any colour and the new proposed roads are shown in red verge colour in the development plan. HCMTR shown in 1987 DP has been continued as it is and shown in grey verge with red bound .This route would be developed to operate the rapid bus

transport system initially and converted progressively to operate the higher capacity systems, such as the trollys, trams, monorail and finally the rail based rapid transit system.

The detailed project report for the study was submitted by DMRC Delhi and IIT-Mumbai.

The study recommended a high capacity rapid transit system (Metro) on six alignments.

The following alignments have been finalized for the Metro:

Line 1 : Agricultural College to Nigdi via Pune Mumbai Rd elevated of 16 km length

Line 2 : Agricultural College to Warje Via JM and Karve Rd elevated of 8.7 km length

Line 3 : Agricultural College to Swargate and Katraj via Shivaji Rd elevated of 7 km and Underground of 5 km length

Line 4 : Agricultural College to Wagholi via Bund Garden Rd elevated of 16 km length

Line 5 : Agricultural College to Hinjewadi via Aundh elevated of 17.5 km length

Line 6 : Agricultural College to Hadapsar via Mhatre Bridge elevated of 16 km length

In addition, new routes for metro have been proposed as shown in proposed development plan.

New sites have been reserved for Transportation hub, parking, Bus terminus, PMPML Depot, parking, Vehicle depot, MRTC/ST bus stop, Interchange, Metro station. These sites are shown in grey verge bound in red on the development plan. New road links have been proposed. Also road widening has been proposed to existing roads as shown in plan. These roads have been shown in red colour. In such case the existing roads have been shown in black lines within the red verge of the indicating roads, their existing status. New tunnels have been also proposed as shown in the draft development plan.

20.3.9. COLOUR CODE

The sites for different amenities as described so far, have been shown on the Revised Development Plan bounded by red verge, to denote reservation. and washed in the following colours for the respective amenities:-

Purpose	Colour code
Educational facilities	**Pink**
Health facilities.	**Pink**
Recreational facilities.	**Green**
Commercial Zone ,Vegetable Market	**Blue**
Fire Brigade	**Burnt Sienna**
Civic & Cultural Centres	**Pink**
Public & Semi Public.	**Pink**
Traffic and Transportation	**Grey**
Public utilities.	**Burnt Sienna**
Economical weaker Section, Housing for dishoused,Slum Improvement .	**Yellow-ochre**
Forest	**Bottle green.**
Industrial	**Voilet**

STATEMENT NO 20 -1		
DETAILS OF PROPOSED LAND USE-SECTOR I		
LANDUSE	Area in ha.	**% w.r.t. Sector**
AGRICULTURE	**0.00**	**0.00**
C-1	**7.55**	**1.39**
COMMERCIAL	**37.75**	**6.94**
DEFENCE	**0.00**	**0.00**
EWS/SI	**7.90**	**1.45**
FOREST	**0.00**	**0.00**
HILL TOP HILL SLOPE	**0.00**	**0.00**
INDUSTRIAL	**0.00**	**0.00**
PSP	**61.70**	**11.34**
RECREATIONAL	**12.70**	**2.33**
RESIDENTIAL	**248.30**	**45.63**
SERVICES	**7.02**	**1.29**
TANDT	**2.44**	**0.45**
WATERBODY	**4.62**	**0.85**
ROAD	**154.20**	**28.34**
Total	544.17	100.00

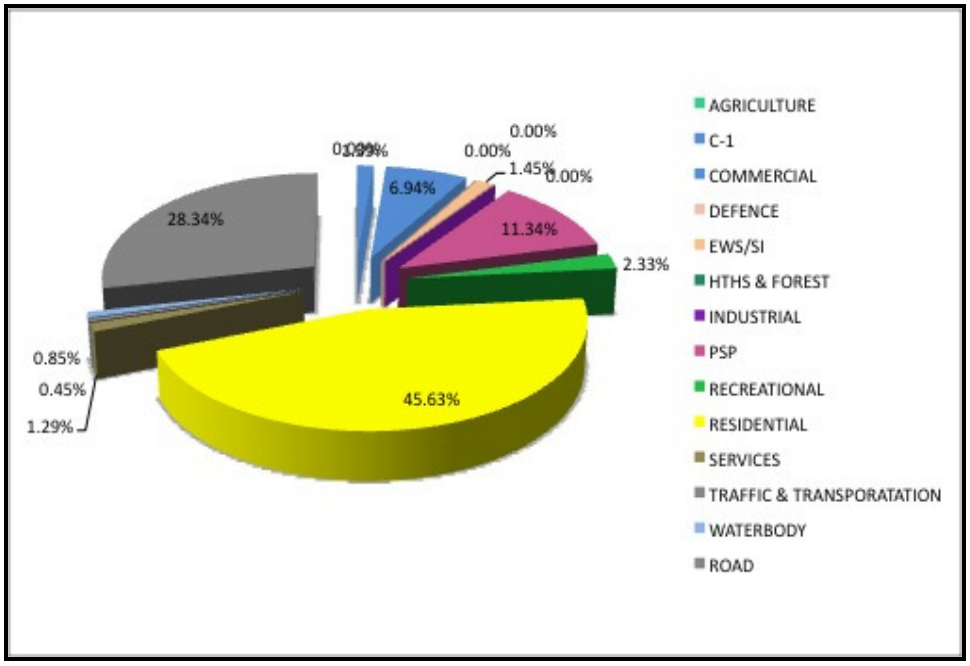


Figure No. 20.1. Pie chart for Proposed land use Sector-I

STATEMENT NO 20-2		
DETAILS OF PROPOSED LAND USE SECTOR II		
LANDUSE	Area in ha	**% w.r.t. Sector**
AGRICULTURE	**0.00**	**0.00**
C-1	**0.00**	**0.00**
COMMERCIAL	**66.40**	**3.25**
DEFENCE	**0.00**	**0.00**
EWS/SI	**116.17**	**5.68**
FOREST	**7.96**	**0.39**
HILL	**83.90**	**4.11**
INDUSTRIAL	**43.88**	**2.15**
PSP	**159.62**	**7.81**
RECREATIONAL	**219.91**	**10.76**
RESIDENTIAL	**826.92**	**40.46**
SERVICES	**45.86**	**2.24**
TANDT	**27.29**	**1.34**
WATERBODY	**77.95**	**3.81**
ROAD	**367.88**	**18.00**
Total	2043.74	100.00

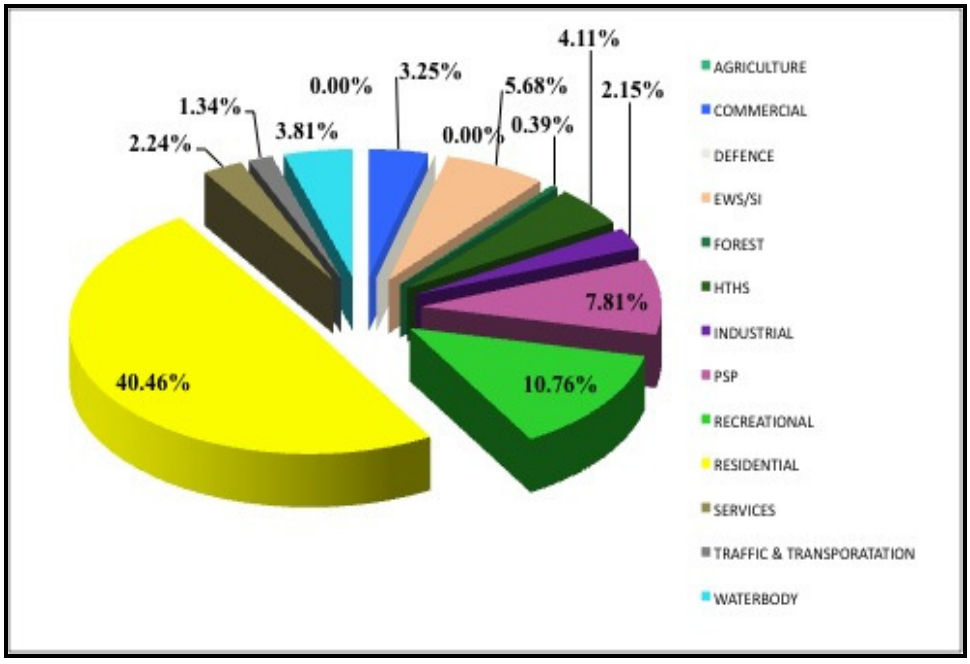


Figure No. 20.2 Pie chart for Proposed land use Sector-II

STATEMENT NO 20-3		
DETAILS OF PROPOSED LAND USE SECTOR-III		
LANDUSE	Area in ha	**% w.r.t. Sector**
AGRICULTURE	**1.77**	**0.08**
C-1	**4.88**	**0.21**
COMMERCIAL	**27.20**	**1.20**
DEFENCE	**56.63**	**2.49**
EWS/SI	**105.55**	**4.65**
FOREST	**155.50**	**6.85**
HILL	**183.19**	**8.07**
INDUSTRIAL	**29.52**	**1.30**
PSP	**248.30**	**10.94**
RECREATIONAL	**116.97**	**5.15**
RESIDENTIAL	**843.12**	**37.14**
SERVICES	**19.33**	**0.85**
TANDT	**7.65**	**0.34**
WATERBODY	**104.01**	**4.58**
ROAD	**366.69**	**16.15**
TOTAL	2270.30	100.00

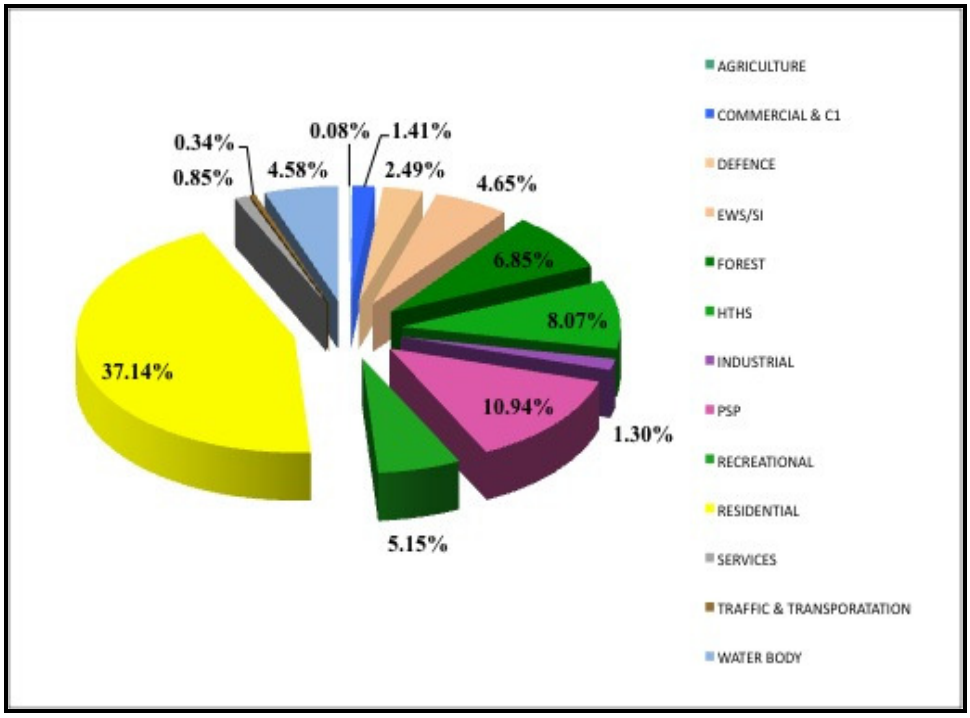


Figure No. 20.3 Pie chart for Proposed land use Sector-III

STATEMENT NO 20-4		
DETAILS OF PROPOSED LAND USE SECTOR-IV		
LANDUSE	Area in ha.	**% w.r.t. Sector**
AGRICULTURE	**0.00**	**0.00**
C-1	**0.00**	**0.00**
COMMERCIAL	**11.67**	**0.37**
DEFENCE	**520.98**	**16.40**
EWS/SI	**69.24**	**2.18**
FOREST	**80.91**	**2.55**
HILL	**470.05**	**14.80**
INDUSTRIAL	**32.48**	**1.02**
PSP	**745.88**	**23.48**
RECREATIONAL	**193.12**	**6.08**
RESIDENTIAL	**561.78**	**17.69**
SERVICES	**15.80**	**0.50**
TANDT	**47.28**	**1.49**
WATERBODY	**119.58**	**3.76**
ROAD	**307.50**	**9.68**
TOTAL	3176.28	100.00

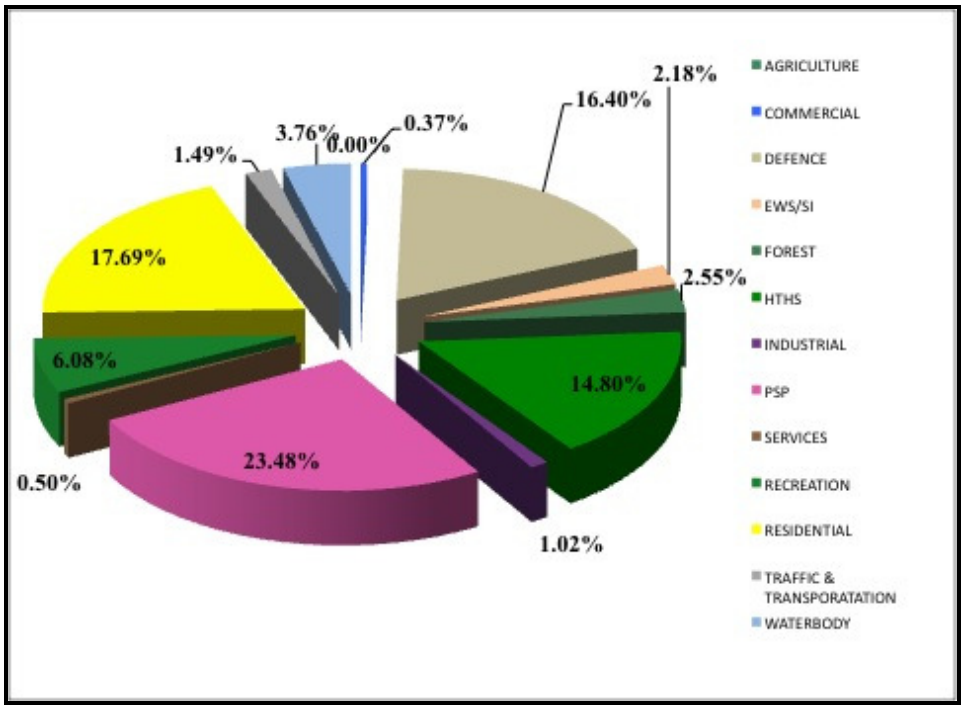


Figure No. 20.4 Pie chart for Proposed land use Sector-IV

STATEMENT NO 20-5		
DETAILS OF PROPOSED LAND USE SECTOR-V		
LANDUSE	Area in ha.	**% w.r.t. Sector**
AGRICULTURE	**180.57**	**5.72**
C-1	**0.00**	**0.00**
COMMERCIAL	**12.32**	**0.39**
DEFENCE	**961.68**	**30.49**
EWS/SI	**89.17**	**2.83**
FOREST	**0.00**	**0.00**
HILL	**9.72**	**0.31**
INDUSTRIAL	**18.47**	**0.59**
PSP	**399.87**	**12.68**
RECREATIONAL	**162.74**	**5.16**
RESIDENTIAL	**918.11**	**29.11**
SERVICES	**16.78**	**0.53**
TANDT	**9.55**	**0.30**
WATERBODY	**51.84**	**1.64**
ROAD	**323.43**	**10.25**
TOTAL	3154.26	100.00

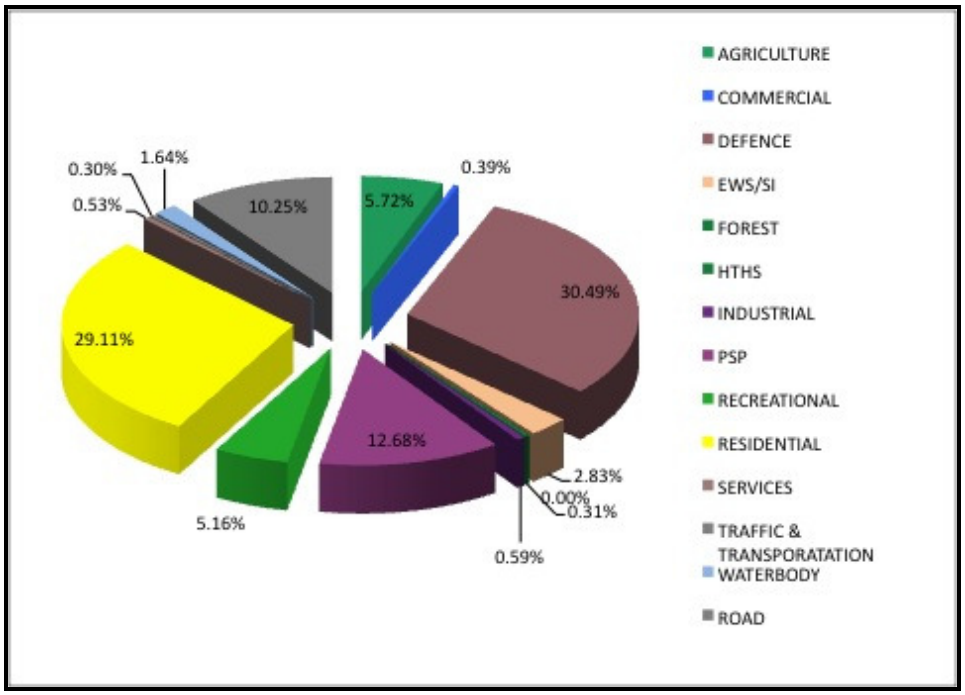


Figure No. 20.5 Pie chart for Proposed land use Sector-V

STATEMENT NO 20-6		
DETAILS OF PROPOSED LAND USE SECTOR VI		
LANDUSE	Area in ha.	**% w.r.t. Sector**
AGRICULTURE	**0.00**	**0.00**
C-1	**0.00**	**0.00**
COMMERCIAL	**36.46**	**1.02**
DEFENCE	**98.08**	**2.75**
EWS/SI	**103.13**	**2.89**
FOREST	**59.73**	**1.67**
HILL	**95.96**	**2.69**
INDUSTRIAL	**154.43**	**4.33**
PSP	**338.21**	**9.47**
RECREATIONAL	**311.40**	**8.72**
RESIDENTIAL	**1340.82**	**37.56**
SERVICES	**55.67**	**1.56**
TANDT	**140.72**	**3.94**
WATERBODY	**338.06**	**9.47**
ROAD	**496.92**	**13.92**
TOTAL	3569.60	100.00

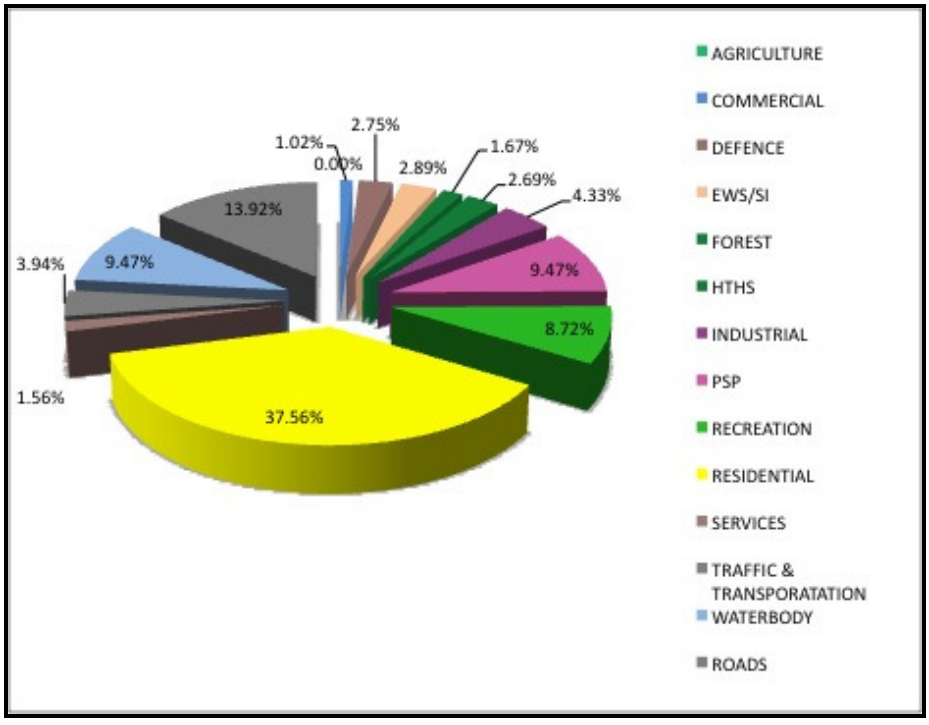


Figure No. 20.6 Pie chart for Proposed land use Sector-VI.

STATEMENT NO 20-7		
DETAILS OF PROPOSED LAND USE SECTOR I to VI		
LANDUSE	TOTAL	**% wrt PMC LIMIT**
AGRICULTURE	**182.34**	**1.24**
C-1	**12.43**	**0.08**
COMMERCIAL	**191.80**	**1.30**
DEFENCE	**1637.38**	**11.09**
EWS/SI	**491.15**	**3.33**
FOREST	**304.11**	**2.06**
HILL	**842.82**	**5.71**
INDUSTRIAL	**278.77**	**1.89**
PSP	**1953.58**	**13.24**
RECREATIONAL	**1016.83**	**6.89**
RESIDENTIAL	**4739.04**	**32.11**
SERVICES	**160.46**	**1.09**
TANDT	**234.94**	**1.59**
WATERBODY	**696.07**	**4.72**
ROAD	**2016.63**	**13.66**
TOTAL	14758.35	100.00

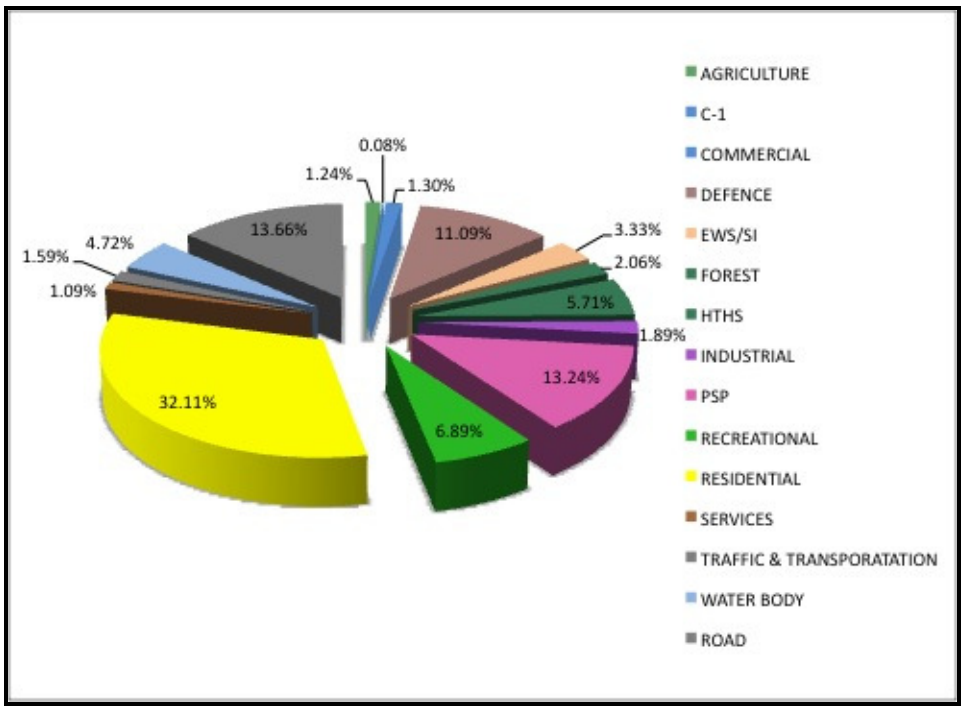


Figure No. 20.6 Pie chart for Proposed land use Sector I to VI.

CHAPTER NO. 21

IMPLEMENTATION OF DEVELOPMENT PLAN

21.1. INTRODUCTION

Development Plan of a city is a plan of spatial-economic development of the urban centre. Taking in to consideration its nature, it is difficult to implement the Plan in totality in the plan period of twenty years. The Development Plan for the town prepared under the provisions of the Maharashtra Regional & Town Planning Act 1966 is a long term physical plan indicating the manner in which future land use is to be regulated.

Land is the governing factor in the physical process. The rising land-values in the cities and the resulting heavy compensation liabilities pose severe constraints to the Planning Authority's efforts relating to town improvement and development. Implementation of the development plan proposals, requires procurements of lands either by private negotiations or through Land Acquisition Acts. Land procurement through such means naturally, requires huge investment. Due to lack of adequate financial support, acquisition of sites for public purposes is normally not achieved satisfactorily and the plan, more or less, remains a paper plan.

It is observed that in case of the earlier sanctioned development plans of Pune, the progress of implementation is far from satisfactory. The sanctioned development plans contained 597 reservations out of which only 134 reservations have been developed which amounts to only 16.01 % implementation. Out of these reservations, the Municipal Corporation was the Appropriate Authority for 342 reservations. The Corporation has so far implemented only 100 reservations. The reasons for poor implementation can be broadly stated as lack of funds, programming and effective efforts. As a matter of fact, Pune is a unique example among the cities in having eight Town Planning Schemes prepared. These town planning schemes have taken from 8 to

17 years from intention to finalisation of the schemes. To enable speedy implementation of TP Schemes, the Government of Maharashtra has recently undertaken modification in MR&TP Act.

A Development Plan contemplates changes and alterations to accommodate growth and this implies in turn that the plan should contain a carefully defined program for timely implementation in parts, capable of being financed in the first period of the growth period.

21.1.1. Realization of Goals:

Plan Monitoring is essential to evaluate the changes required to improve the quality of life in a city. The benefits of all types of social facilities have been considered with a view to improve the quality of life in the city Properly phased monitoring makes the plan responsive to the emerging socio- economic forces. Implementation of the plan can be effective only when monitored and reviewed at appropriate intervals.

Pune has a long and proud historical past. This city has always been on the forefront in every field of life. Extensive efforts have been taken by the Planning Authority to seek participation of other authorities, organizations and individual residents by constant interaction to ensure that the Development Plan so prepared, fulfils the aspirations of the citizens at large. Also, no stone has been left unturned to ensure that the Development Plan becomes realistic and does not remain a mere paper Plan.

All proposals in the Development Plan need, therefore, to be implemented within a reasonable period which, under the Maharashtra Regional and Town Planning Act, 1966 has been considered as 10 years from the date of coming into force of the Development Plan.

To study the effect of implementation of these projects, monitoring is required from time to time for every aspects of the master plan.

A scientific monitoring framework is essential for:

1) Effective implementation of plan within the plan period, thereby achieving the intended targets.

2) Respond to the changing socio- economic needs of the people in the city.

3) To check unintended growth within the city.

4) Time lags between various implementation schemes and emerging needs of the people.

5) Review the appropriateness of the plan policies.

This Draft Development Plan has been prepared for the horizon year of 2027 and contains zoning proposals for the projected population of 33.56 lakhs. It also contains sites for various public purposes, for an estimated population of 26.50 lakhs for the year 2017.(Population of old limit considered as projected by Gokhale Institute)

Traffic and transportation proposals, being long term plans, are however not expected to be completed, to the fullest extent, within the said 10 year period. Transportation Plans being long term ones, even going beyond the planning period, their implementation can be phased over a longer period of time.

Total Cost of the Plan

A Development Plan is supposed to entail all proposals of reservations and roads which need to be provided to cater to the needs of citizens. It has been already mentioned before that the reservation have been woked out based on the projected population of 2017 and the land use and Zoning proposals have been worked out based on the projected population of 2027. It is important to note that mere designations of the proposals on Plan is not sufficient. Acquiring the sites under proposed reservations and roads and development of the same for the designated purpose is essential so as to benefit the end user, that is the citizens. The first step in this process, is working out the total cost of the plan which includes the cost required to be borne

for the acquisition of sites and the cost of development required for the development of the sites for the designated purposes.

Statement No. 21.1 shows the total cost of the Plan. The Cost required for acquisition has been worked out by referring to the values of land that is land cost, as mentioned in the Ready Reckoner 2011. The Cost of development is worked out by taking into consideration the cost that is incurred on developing site eg- Road, Building, Bridge, Tunnel, Garden, Play Ground etc. as in the year 2010-2011. Those proposals which have been earmarked on Government lands would require no cost to acquire but only certain cost to develop. For the proposals which have been earmarked specifically for different Authorities on their demand, both the cost of acquisition and development will be borne by the concerned Authority and as a result there will be absolutely no load on the PMC.

21.2. Financial Implications and different modes of effective implementation of plan

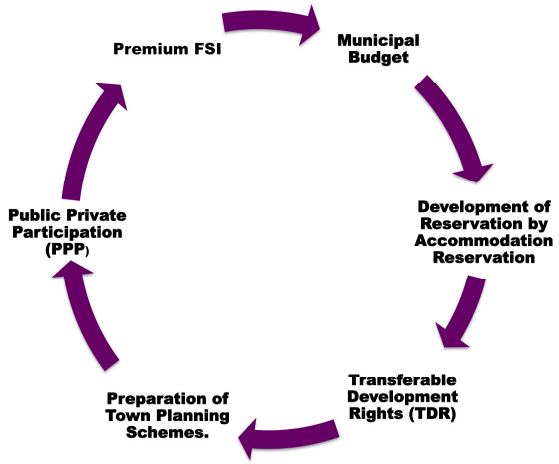


Figure No 21-1. Modes of effective implementation of Plan

One of the major aims of planning in Pune city is to support economic growth, which is crucial for its long-term survival. The Development Plan consists of proposals in respect of various social amenities, sites for public purposes and for Government and semi government departments, etc. Due to constraints of funds, the development of infrastructure at each site cannot be the sole responsible of the Planning Authority. The various government departments for whom sites have been reserved as per section 26 of the MRTP Act, 1966 are primarily responsible and have to bear the cost of acquisition and development of those sites. Further, with the help of different provisions of the MRTP Act, 1966 and as per the directives given by government from time to time and by making utmost efforts for resource mobilization where ever possible, the net cost of implementation of Development Plan to the Planning Authority reduces considerably. Efforts have been made to access the generation of funds from all directions.

21.2.1 Different modes for effective implementation of plan

The urban land needs to be considered as an asset and should be utilized for generating the required resources for its development. The planning commission is also of the view that the plans for the development of cities must be on a self-financing basis.

As seen from the earlier paragraphs, Govt. has made various enabling provisions in the Town Planning Act for implementation of various proposals in Development Plan. Besides, there are various schemes introduced by the Govt. to help the municipal corporation to take initiative in implementing the Dev. Plan proposals. Following are the details of such provisions / schemes.

There are different ways of implementation of the Development Plan by Resource Mobilisation. They are as follows:

A) Municipal Finance

As per the latest budget of the Pune Municipal Corporation, for the financial year 2010-2011, the annual income is about Rs.2031.64 crores while the amount of expenditure is Rs. 2190.85 crores.

Following are the observations after an analytical study of the income and expenditure figures:

Octroi and property tax are observed to be the main sources of receipts. The income from octroi has increased from Rs. 646.17 crores in 2009-2010 to about Rs.912 crores in 2010-2011 during the last seven years which indicates an increase of 41.14 %. This is indicative of the increasing turnover in trade and commerce. The income from property tax was Rs 469.75 crores in 2010-11.

B) Levy of Development Charges as per MR&TP Act 1966

Since August 1992, the Corporation is empowered to collect the development charge and premium against various development

permissions given under the provisions of the Maharashtra Regional and Town Planning Act, 1966. Development charge is leviable in respect of the sub-divisions, layout of the land and the construction of residential, commercial and industrial buildings in the city. These development charges are collected under an independent head of account viz. "Development fund". This fund is expected to be utilized for providing public amenities and maintenance and improvement of the area under the jurisdiction of the planning authority. This fund can be applied for the implementation of Development Plan proposals.

The receipts on account of the development fund, has increased from Rs. 50.69 crores in 2002-2003 to Rs. 335.2 crores in 2010-2011. With reference to the Government notification dt. 27 Dec 2010, an amendment is made in the MR&TP Act 1966 clause no 124B section 3 Second schedule says that the development charges shall be paid at 2% of the rates of developed land mentioned in the Stamp Duty Ready Recknor and land development shall be paid at 0.5 % of the rates of developed land mentioned in the Stamp Duty Ready Recknor.

On the "Expenditure" side, one of the major items is the execution of obligatory functions of the Municipal Corporation and other is repayment of loans taken for various development works.

It is observed that, so far, Corporation has not made any specific provision in the budget for implementation of the proposals of the development plan, which is implicitly contemplated in the provision of section 42 of MRTP Act 1966. Moreover the provisions in the Maharashtra Regional & Town Planning Act regarding "Development Charge" and creation and utilization of "Development Fund" makes it imperative on the part of the Corporation to make separate provision annually for this purpose,in the budget.

The increase on the income side is observed to be gradual. The Corporation will have to make special efforts for the same as described in subsequent paragraphs

C) Funding under Government Grants and JNNURM Projects

The central government as well as the state government have special projects budget allocated to various cities in the country for infrastructure upgradation under the JNNURM. All the cities are set to experience a complete over-haul in its infrastructural facilities. As far as Pune city is concerned, funding under JnNurm has been approved by the central government for projects related to roads, water supply, sewage, river improvement, etc.

D) Development of reservation under Accommodation Reservation

The burden of acquisition would be considerably reduced, if the Corporation succeeds in encouraging participation of the public and the semi-government / public institutions in the implementation process through the concept of Accommodation Reservation, provision to allow F.S.I. in lieu of compensation etc. as incorporated in the development control regulations.

This concept has been included in the development control regulations, that would enable the Corporation to have public participation in the implementation process, whereby the financial burden on the Corporation can be reduced.

E) Transferable Development Rights (TDR)

With rising land-values, especially in Metropolitan Towns and big cities, it has not been possible for the Planning Authority to keep up the pace \ of implementation at the desired level. To overcome this problem of paying monetary compensation to the concerned landowners, the Maharashtra\Government has formulated the concept of TDR, which has been included in the Development Control Rules of the Pune Municipal Corporation. Section 126 of the M.R. & T.P Act, 1966 has also been amended for enabling compulsory acquisition of lands, reserved for public purposes, by granting TDR, in lieu of monetary compensation.

Chapter No. VII of the Maharashtra Regional and Town Planning Act, 1966 contains provisions regarding land acquisition in respect of the lands reserved in the development plan. The provisions regarding compensation in section 126(1) enable the Corporation to acquire the lands in lieu of / Transferable Development Rights. This provision is supplementary to the above mentioned provisions of the development control regulations.

Under this concept, the owner whose land is reserved in the development plan, is awarded a Transferrable Development right in the form of Development Right Certificate, in lieu of the land under the reservation. The development right certificate holder can utilize the FSI in respect of the reserved land up to the prescribed limit and in the prescribed manner, after handing over the land under the reservations, free of cost to the municipal corporation. Alternatively, he can sell this right to any other person with the permission of the Commissioner. This concept has been incorporated in the development control regulations. The effective implementation of this provision will reduce the financial burden on the Corporation. Also to implement the development Plan more efficiently and speedly a new concept has been introduced whereby if any person/landowner hands over this reserved land within 1 to 5 years from the sanction of the development plan, he will be entitled for additional 50% to 10% incentive TDR in addition to the basic TDR.

F) Developmental TDR

It is essential that the corporation should get reserved sites developed in a cost effective and time bound manner. Over a period of time, it was realized that due to financial inability, the corporation was unable to do so. Hence a provision was made in the development control rules which permits the owners of lands, to hand over the developed site to the corporation. In consideration of this, developmental TDR would be made available to such land owners.

G) Levy of premium for additional benefit as per dc rules

The development control regulations of this development plan contains a provision to empower the Commissioner to charge a premium in respect of the cases, in which additional benefit is accruable to the land owner, due to the newly introduced provisions in the development control regulations e.g. Additional FSI for schools, hospitals, starred category hotels, Stair-case, passage free of FSI etc. This would help in increasing the income of the Corporation.

G-1) Premium FSI

To achieve the vision of an efficient and sustainable public transport it is proposed to densify the public transport corridor to a distance of about 500m on both sides of the metro corridor. This can be achived by availing an additional FSI above the basic FSI in lieu of premium. The charges collected can be used for augumentation of the infrastructure required in future.

H) Preparation of Town Planning Schemes

Another effective tool for implementation of the development plan is the preparation of town planning schemes for developing areas. In a town planning scheme, burden of acquisition cost is recouped by way of betterment contribution from the residents of the scheme area. The municipal corporation has good experience in implementing eight town planning schemes in the past. Some of the proposals of the development plan can be implemented by undertaking few schemes in the areas having development potential. A well thought out phasing programme for implementation is essential.

Town Planning Scheme is rightly called "land acquisition without tears". Town Planning schemes if proposed, especially in the areas which were earlier in agricultural Zone; can relieve a big burden of PMC as regards acquisition of reservation and roads earmarked in these areas. .

I) Public private participation in implementation (PPP)

Urban planning is the main function and duty of the local government. For any urban planning effort to be successful, partnership between the planning function of the government and the local community is a must. The collective wisdom of the planning agency must converge to produce a desirable city. In Democratic sense,"*Planning is for the people and by the people."*

Public private participation in implementation of DP is meant to be self financing, so as to reduce the burden of payment of compensation by the Planning Authority, for land acquisition etc. The main aim is to secure land by incurring minimum expenditure on the cost of acquisition. Public participation is necessary in both plan formulation and implementation stage. PPP can be initiated at different levels, starting with public hearing and encouraging individual citizens, civic clubs, neighbourhood associations, business professionals to participate in planning committees and advisory committees.

PPP can be achieved by development of buildable and even non-buildable reservations earmarked in development plan, like primary and secondary schools, parking spaces, gardens, parks playgrounds, community halls, shopping center, flyovers, major district roads on Build operate and Transfer (BOT) and Build, Operate, Transfer and Maintain basis.

J) Development of Road by Private Parties in lieu of Credit Notes :-

It is necessary to device policies to ensure that the load on the Municipal corporation exchequer is minimized. The introduction of the policy of issue of credit notes in lieu of the development of roads needs consideration. If a developer takes the work of execution of a stretch of a DP road of considerable length (as decided by the Municipal Commissioner) and as per the specifications decided earlier he may be issued a credit note stating the total cost incurred in the development of the road. Such amount may be adjusted against the premium charged to

the developers against his construction project any where within PMC limits. The amount may also be adjusted against the premium to be paid by any other developer in any of his projects in the city if the original developer authorises the other developer.

21.3. APPORTIONMENT OF RESPONSIBILITIES:

The revised development plan is expected to include all the social amenities required for the population residing in the city. However, the implementation of each and every facility cannot be the responsibility of the Planning Authority alone, since different facilities will be provided in the Plan on the demand of various governments and semi-government departments. The responsibility for acquiring the sites and making the facilities available to the residents, have been entrusted to the respective concerned authorities. The total cost of the Revised Draft Development Plan has been apportioned accordingly between the Pune Municipal Corporation and other authorities as shown in the latter sections.

1) OBLIGATORY DUTIES:-

As has been already explained, these are the duties that a Corporation has to perform mandatorily. Section 63 of BPMC Act 1949 stipulates this acquisition and development of reservation such as Primary School, Dispensaries, Maternity Home, Hospitals etc. thereby becomes on obligatory duty of the PMC. The development of such reservations is the primary responsibility of corporation & the corporation cannot shrug from this responsibility. But if other institutions come forward & show their willingness to develop such reservations, then they may be allowed to do so, bearing in mind, the huge monitory costs involved in this. In working out the total cost of the Plan, this responsibility has been apportioned to a great extent on PMC & only a very small part has been apportioned to other institutes.

2) **DISCRETIONARY DUTIES :-**

Section 66 of BPMC Act 1949, stipulates the Discretionary Duties of Corporations. This includes development of Play Ground, Parks, Shopping Centers etc. The corporation can entrust the development of most of the reservation which fall under this category to institutes which show their willingness to develop such reservation. While working out the total cost of the plan, a larger share of development of such reservation has been apportioned to the institutes and a smaller share to PMC.

21.4. MONITORING THE IMPLEMENTATION DEVELOPMENT PLAN

With the help of a proper land management policy, supported by adequate financial provisions, the implementation process would definitely be a smooth one. It would then go a long way in averting the possible crisis. It is imperative to have a special cell, responsible for monitoring the implementation of the Development Plan and to keep a watch on resource mobilisation.

Presently, the corporation has different wings engaged in various aspects of the implementation process. The Building development plan department looks after the general control of the development activities, on the basis of the Development Plan Proposals and Development Control Rules. This department also deals with matters relating to modifications in the Development Plan, initiating land acquisition proposals for Development Plan sites / road land etc. The Land Acquisition department deals with the actual land acquisition work. The Engineering department looks after the construction works of amenities designated in the Development Plan, as and when possession of land there-under is received and funds are made available. The Account section of the Corporation allocates funds for various activities.

Thus, it is not possible to get a comprehensive picture at any single time regarding the stage of implementation of Development Plan,the scenario regarding availability of funds, the manner in which they are to be channelised, the sequence of operation etc. A monitoring cell is therefore absolutely necessary to exclusively look after all the aspects (physical and financial) of the implementation process, so that effective results with possible solutions to the problems, if any, could be achieved. A recommendation to that effect is hereby made.

21.5. PHASING PROGRAMME

A phased programme regarding the implementation of the reservations designated in the Development Plan, has been given in Statement No 21.2. This programme has been prepared after taking into consideration the urgency of the amenity and the possible availability of funds to meet the expenditure. Since the Plan is expected to be implemented within ten years from its sanction, the phasing of the proposals has to be done considering this period. The phases considered in this Plan are-

1) First phase of four years followed by two phases of three years each. Acquisition & Development of reservation has been done by categorizing them into these Phases. The priority has been decided by the Planners, but this cannot be rigid. It is a guideline and the identification of amenities for acquisition & development can be made with time depending on the urgency of development.

21.6 FINANCIAL FEASIBILITY ANALYSIS OF THE IMPLEMENTATION OF THE DRAFT DEVELOPMENT PLAN.

As is seen from the statements, the total cost of the Draft Development Plan is Rs. 25,806 Crores. It is necessary to carry out an exercise which will ensure the implementation of this plan by meeting the huge cost involved. A detailed cost of acquisition & development of reservations, roads, tunnels, flyovers, buildings etc. has been worked out. Adequate deductions were then made for provisions made in the Development

Control Regulation, such as Accommodation Reservation, TDR, Amenity Spaces use of FSI of reservation & Development TDR, mechanism of PPP and BOT etc.

The present sources of income of PMC and the once suggested newly were considered. This includes, Development charges and Premium charges, Premium FSI, Central Government finding and other grants for projects, funding under DPDC. The same were considered for a period of Ten Years. The total provision in PMC Annual Budget was worked out as Rs. 3570.96 crores over a period of ten years. This implies that every year a provision of Rs.357.96 crores has to be made in the PMC budget to meet the cost of acquisition and development of amenities proposed in the Development Plan. The detailed analysis can be seen in Statement No 21.1 to 21.2.

21.7. RESOURCE AUGMENTATION

Plan preparation and implementation should go hand in hand. In order to achieve effective implementation of development plan, following are the important sources considered, where the planning authority need to get its appropriate share, it being the agency responsible for providing the infrastructure in the city.

21.7.1. OTHER FISCAL PROPOSALS:

With a view to augment the financial resources of the Corporation, in order to execute the Development Plan more efficiently, the Planning Authority would take actions as under:-

1) Land Revenues

a) N. A. Tax

This tax has great bearing on the land values which are directly related to infrastructure maintained by urban local bodies and their contribution in this regard is high. As per the recommendations made by the First Finance Commission, 75% share of the N. A. Tax should

be passed on to the local bodies/authority. A recommendation to that effect is needed to be made by the PMC to the Government.

b) Stamp Duty

Stamp duty is based on value of urban properties, value of which is related to development carried by the urban local bodies. As per the State Finance Commission Recommendations, at least 1% share has to be passed towards local bodies/authority. It is recommended in that the state Government should be moved in this regard.

2) Profession Tax

As per the State Finance Commission Recommendations, at least 40% of the total professional tax has to be passed on to the local bodies/authority. The State Government may be moved on this issue with a view to augment the resources of PMC.

3) Entertainment Tax

As per the State Finance Commission Recommendations, at least 25% of the total entertainment tax collected has to be passed on to the local bodies/authority. A request to this effect can be made to the State Government.

4) Road Tax

Rapid urbanization needs efficient and effective road network. Road widening, increasing length of road, improving quality of road surfaces, providing bridges, flyovers, bypass, effective signaling systems aid in the smooth and safe movement of traffic. State government as per law, collects the cess and fees, but looking at the gravity of challenges faced by the local authorities, the State Government should be moved to pass a share of about 25% to PMC, out of the total revenue collected from road tax, as per the recommendations of the State Finance Commission.

5) Petrol Cess

Motorised vehicles consume lot of petrol, diesel and other fuels, oils, lubricants etc. They are responsible for the wear and tear of the major road network. Cess on petrol, diesel etc. can generate certain amount of revenue. Some share of this revenue can be passed on to the local bodies/authority. Since the PMC is responsible for developing & maintaining roads in the city, a request may be made to the State Government in this regard.

6) Road User Charges

Charges can be levied on the motor vehicles while entering the congested part of the city. The aim of this is to minimize congestion and encourage people to use more public transport. A detailed study for deciding the boundaries of the road user charges has to be carried out in future & Road user charges or congestion Tax can be collected by PMC.

7) General Tax:

General Tax could be increased in future years subject to the limits mentioned in the Bombay Provincial Municipal Corporation Act, 1949.

8) Grant for Central / State Government for major projects in the City:-

In most of the countries in the world, the central Government funds 70 to be 100% of the major projects undertaken by the local corporation, prominent examples being England, South, Africa, Sweden etc. A request should be placed before the Central / State Government for funding all the major projects conceived in Pune City, in future.

9) FINANCIAL ASSISTANCE FROM THE GOVERNMENT FOR OTHER PROJECTS:

Projects will also be framed and submitted to the Government for financial assistance.

1) The Nalla Channelisation Schemes;

2) The River Improvement Schemes for development of water bodies, water–sports and water based transportation system; Environmental Improvement Schemes for the river bank areas; Construction of the exclusive network and light bridges for the pedestrians and cyclists; Construction of under-pass bridges and over-bridges.

10) PARTICIPATION OF SOCIAL ORGANIZATIONS & INDIVIDUALS

The social organizations such as the Rotary Club, the Lion's Club and such other organizations, the industrial sector and individuals with philanthropic inclinations would certainly be willing to extend their hand and full-co-operation in the implementation of some or other parts of the projects included in the Revised Draft Development Plan. The major proposals can be split up into smaller parts for securing assistance from such organizations or persons.

21.10. RECOMMENDATIONS FOR IMPLEMENTATION

1) With a view to ensure speedy implementation of development plan, it is thought to make an important recommendation on the lines of Maharashtra Housing and Area Development Act 1976. It is recommended to modify section 31 of the Maharashtra Regional and Town Planning Act 1966 by including " On the day of publication of notification indicating the sanction of development plan by the state

government, all the lands under roads and reservations shall vest absolutely with the planning Authority, free from all encumberances.

2) URBAN TRANSPORTATION DEVELOPMENT FUND

Infrastructure development for efficient functioning of transport system is a capital-intensive process and a substantial financial burden would have to be shouldered by the government. The state government or the local bodies do not have the required resources for financing such developments, thus resulting in an indefinite delaying the projects. The Central Government in the National Urban Transport Policy (NUTP) has recommended levy of direct taxes that would be credited to the account of the 'Urban Transport Fund' and used exclusively to meet the urban transportation needs.

NUTP has further specified that such direct taxes could be in the form of a supplement to the petrol and diesel taxes, betterment charges on landowners or even in the form of employment tax on employers. Such provisions will also result in making private vehicular transport more expensive and result in a shift towards use of public transport systems.

This will enable the implementation of proposals in the Revised Draft Development Plan. This will also ensure positive effects on the travel pattern, control on the use of private modes of transport, reduction in congestion and accidents on roads and making journeys of the common man more comfortable and enjoyable.

STATEMENT NO 21.1

FINANCIAL FEASIBILITY ANALYSIS OF IMPLEMENTATION OF DEVELOPMENT PLAN

(I) SCHEDULE OF EXPENDITURE

SR.NO.	DESCRIPTION	RS in Crores	REMARKS
1	RESERVATION SITE ACQUISITION	6739.08	
2	RESERVATION SITE DEVELOPMENT	8652.99	
3	ROAD ACQUISITION	6870.67	
4	ROAD DEVELOPMENT	2770.34	
5	DEVELOPMENT OF TUNNELS, BRIDGES & FLYOVERS	773.00	
	TOTAL COST	**25806.07**	
LESS	COST OF RESERVATIONS TO BE DEVELOPED **UNDER APPNDX. R** OF DC RULE.	2141	AS PER PROVISIONS IN DCR
LESS	COST OF ACQUISITION OF RESERVATIONS THROUGH **TDR, AMENITY SPACES & FSI**	4684.86	R7 COMPONENT EXCLUDED
LESS	COST OF DEVELOPMENT OF ROADS & RESERVATIONS THROUGH **DEVELOPMENTAL TDR**	1142.33	
LESS	COST OF ACQUISITION OF ROADS U/S **N2.3 AND TDR**	5496.53	
LESS	COST OF DEVELOPMENT OF RESERVATION THROUGH MECHANISM OF **PPP AND BOT** 5%	369.75	R7 COMPONENT EXCLUDED
	TOTAL COST SAVING	**13834.48**	
	NET EXPENDITURE	**11971.59**	

(II) SCHEDULE OF REVENUE

SR.NO.	DESCRIPTION	AV.PER YEAR RS.IN CR	PERIOD OF IMPLEMENTATION	TOTAL REVENUE RS. IN Crores
1	DEVELOPMENT CHARGES & PREMIUM CHARGES	285.71	10	2857.09
2	PREMIUM FSI	250.83	10	2508.30
3	CENTRAL GOVERNMENT FUNDING & OTHER GRANTS FOR PROJECTS	10.00	10	100.00
4	GRANT OF STATE GOVT. UNDER DPDC AT 23.33% OF THE TOTAL DEVELOPMENT COST & OTHER GRANTS			2935.24
5	PROVISION IN ANNUAL BUDGET OF PMC		10	3570.96
			TOTAL REVENUE	**11971.59**

STATEMENT NO 21.2

PHASEWISE COSTING OF RESERVATIONS IN PROPOSED DEVELOPMENT PLAN

PHASE I (FIRST 4 YEARS)				
LANDUSE	**NO**	**AREA (Hectare)**	**LAND COST (Rs. Crore)**	**DEV COST (Rs. Crore)**
Commercial	36	16.55	216.99	293.5
Education	48	29.53	216.53	575.47
Health	22	15.26	163.3	384.42
Other	31	44.98	168.62	418.6
PG,CPG,MPG etc	96	71.84	555.79	205.56
Public Housing	21	43.66	322.19	1155.18
Garden and Parks Etc.	35	110.18	491.32	205.93
Services	24	12.35	100.32	94.68
Traffic & transportation	47	27.95	149.45	218.22
Total	360	372.3	2384.51	3551.56

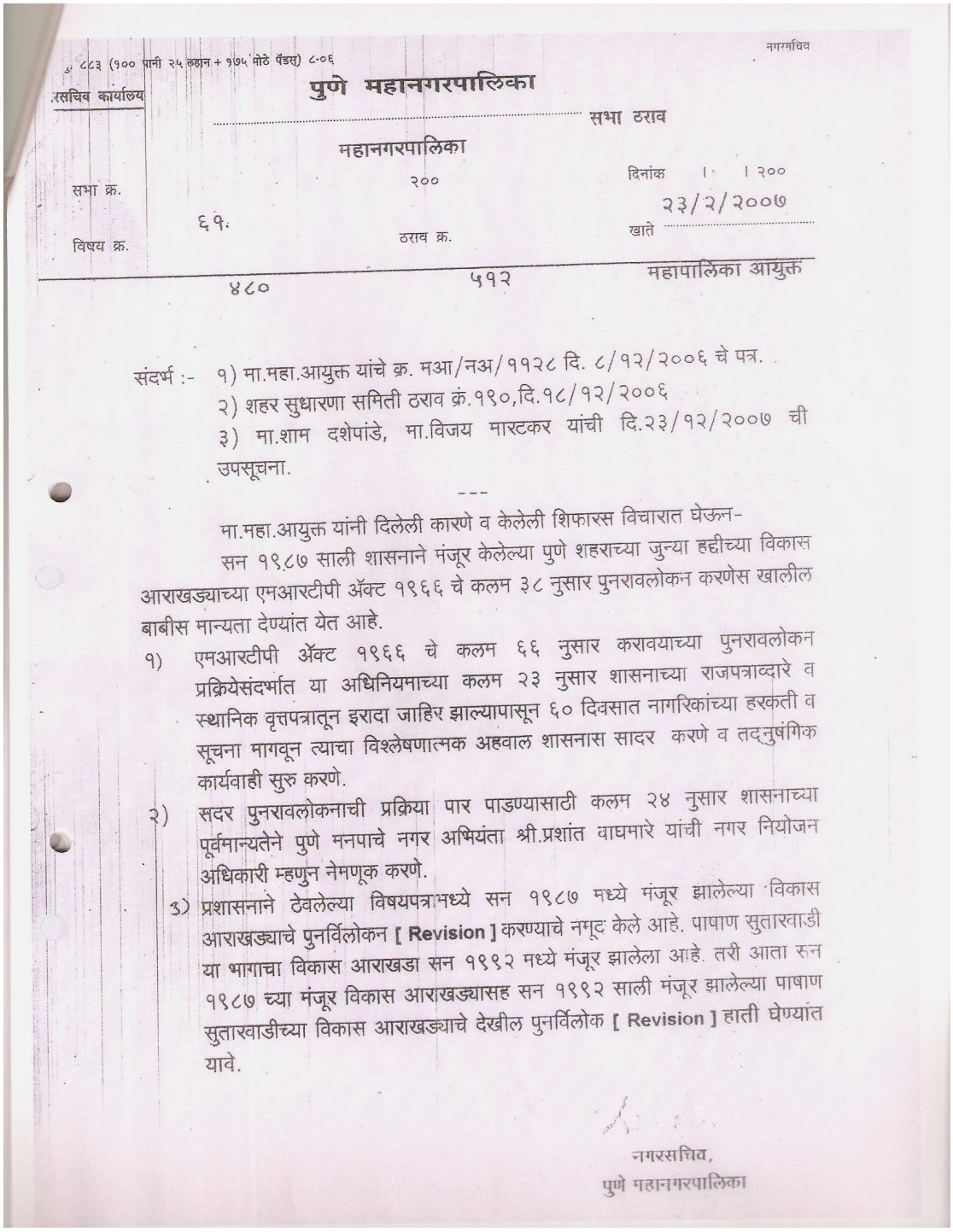
PHASE II (NEXT 3 YEARS)				
Landuse	**NO**	**AREA (Hectare)**	**LAND COST (Rs. Crore)**	**DEV COST (Rs. Crore)**
Commercial	28	11.13	118.1	198.72
Education	31.67	31.67	258.31	631.58
Health	10	3.2	32.28	74.84
Other	44	21.54	165.61	335
PG,CPG,MPG etc	65	62.12	386.84	111.95
Public Housing	19	56.02	240.54	1015.28
Garden and Parks Etc.	27	133.85	1045.01	180.61
Services	15	11.47	53.66	84.42
Traffic & transportation	55	30.95	194.13	201.01
Total	294.67	361.95	2494.48	2833.41

PHASE III (NEXT 3 YEARS)				
Landuse	**NO**	**AREA (Hectare)**	**LAND COST (Rs. Crore)**	**DEV COST (Rs. Crore)**
Commercial	26	13.62	59.55	183.69
Education	15	15	69.68	248.54
Health	8	4.78	42.65	99.28
Other	20	34.66	64.83	113.28
PG,CPG,MPG etc	58	68.21	541.79	118.37
Public Housing	20	71.53	540.1	1205.56
Garden and Parks Etc.	24	98.12	405.18	130.59
Services	12	5.63	57.95	76.8
Traffic & transportation	27	10.62	78.36	91.91
Total	**210**	**322.17**	**1860.09**	**2268.02**

PHASE (I+II+III) (TOTAL 10 YEARS)				
Landuse	**NO**	**AREA (Hectare)**	**LAND COST (Rs. Crore)**	**DEV COST (Rs. Crore)**
Commercial	90	41.3	394.64	675.91
Education	94.67	76.2	544.52	1455.59
Health	40	23.24	238.23	558.54
Other	95	101.18	399.06	866.88
PG,CPG,MPG etc	219	202.17	1484.42	435.88
Public Housing	60	171.21	1102.83	3376.02
Garden and Parks Etc.	86	342.15	1941.51	517.13
Services	51	29.45	211.93	255.9
Traffic & transportation	129	69.52	421.94	511.14
Total	**864.67**	**1056.42**	**6739.08**	**8652.99**

ANNEXURE -A

General Body Resolution No 512 dtd 23/2/2007



नगरसचिव

अ. ८८३ (१०० पानी २५ लहान + १७५ मोठे पॅडस) ८-०६

नगरसचिव कार्यालय

पुणे महानगरपालिका

सभा ठराव

महानगरपालिका

२००

सभा क्र. ६१.

दिनांक १ १ २००
२३/२/२००७

विषय क्र.

ठराव क्र.

खाते

४८० ५१२ महापालिका आयुक्त

संदर्भ :- १) मा.महा.आयुक्त यांचे क्र. मआ/नअ/११२८ दि. ८/१२/२००६ चे पत्र.
२) शहर सुधारणा समिती ठराव क्रं.१९०,दि.१८/१२/२००६
३) मा.शाम दशेपांडे, मा.विजय मारटकर यांची दि.२३/१२/२००७ ची उपसूचना.

मा.महा.आयुक्त यांनी दिलेली कारणे व केलेली शिफारस विचारात घेऊन-

सन १९८७ साली शासनाने मंजूर केलेल्या पुणे शहराच्या जुन्या हद्दीच्या विकास आराखड्याच्या एमआरटीपी ॲक्ट १९६६ चे कलम ३८ नुसार पुनरावलोकन करणेस खालील बाबीस मान्यता देण्यांत येत आहे.

१) एमआरटीपी ॲक्ट १९६६ चे कलम ६६ नुसार करावयाच्या पुनरावलोकन प्रक्रियेसंदर्भात या अधिनियमाच्या कलम २३ नुसार शासनाच्या राजपत्राव्दारे व स्थानिक वृत्तपत्रातून इरादा जाहिर झाल्यापासून ६० दिवसात नागरिकांच्या हरकती व सूचना मागवून त्याचा विश्लेषणात्मक अहवाल शासनास सादर करणे व तद्नुषंगिक कार्यवाही सुरु करणे.

२) सदर पुनरावलोकनाची प्रक्रिया पार पाडण्यासाठी कलम २४ नुसार शासनाच्या पूर्वमान्यतेने पुणे मनपाचे नगर अभियंता श्री.प्रशांत वाघमारे यांची नगर नियोजन अधिकारी म्हणुन नेमणूक करणे.

३) प्रशासनाने ठेवलेल्या विषयपत्रामध्ये सन १९८७ मध्ये मंजूर झालेल्या विकास आराखड्याचे पुनर्विलोकन **[Revision]** करण्याचे नमूद केले आहे. पाषाण सुतारवाडी या भागाचा विकास आराखडा सन १९९२ मध्ये मंजूर झालेला आहे. तरी आता सन १९८७ च्या मंजूर विकास आराखड्यासह सन १९९२ साली मंजूर झालेल्या पाषाण सुतारवाडीच्या विकास आराखड्याचे देखील पुनर्विलोक **[Revision]** हाती घेण्यांत यावे.

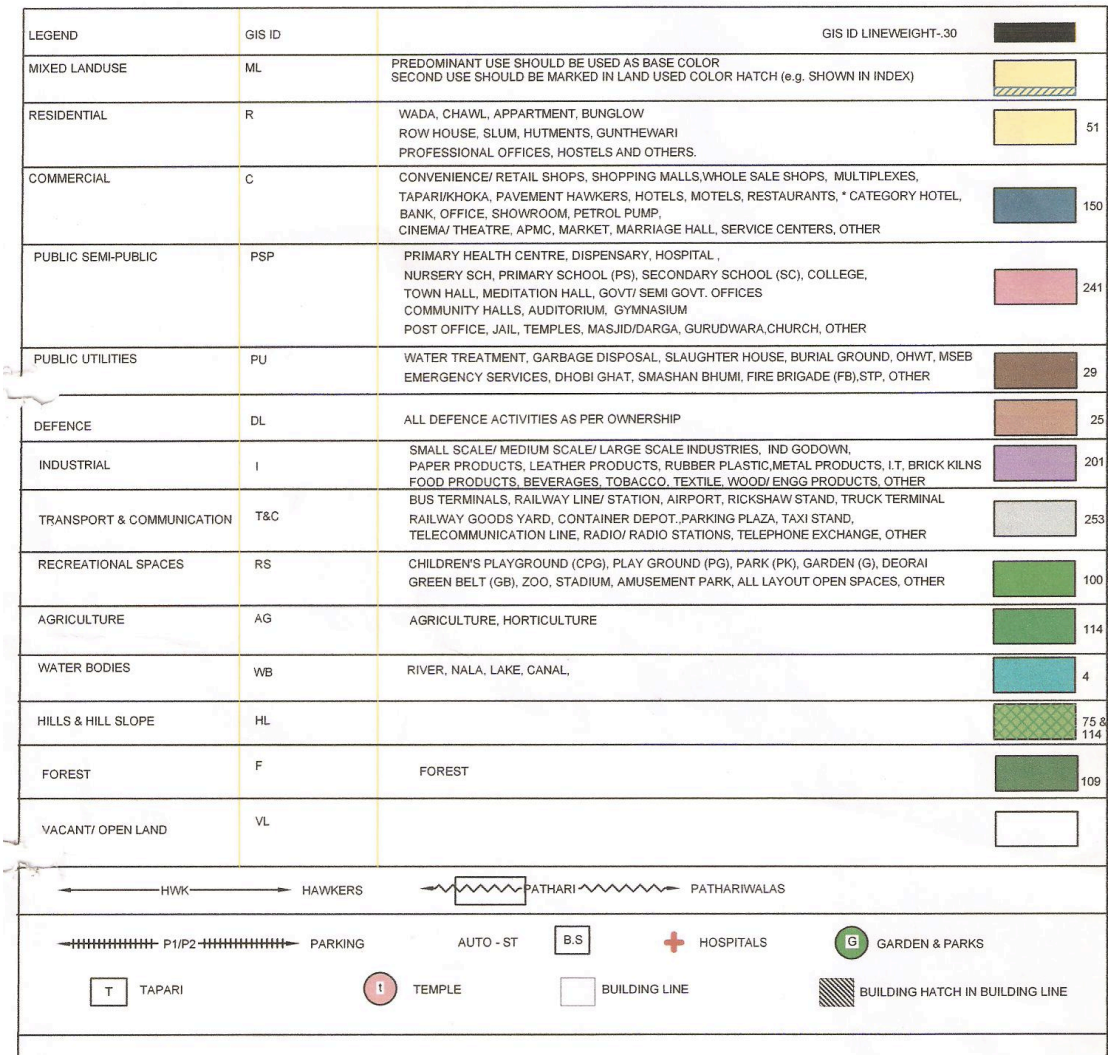
नगरसचिव,
पुणे महानगरपालिका

PUNE MUNICIPAL CORPORATION
EXISTING LANDUSE SURVEY (DATA ENTRY FORMAT) FOR REVISION OF DEVELOPMENT PLAN, 1987
2007-2008

Survey Book/Form No								**Sector No.**		
GIS ID								**GIS Land Use**		
Village/ Peth/Locality										
Property Details			Survey No/Hiss No		CTS No		FP No			
Approx Area of Property in Sqm.										
Ownership		Central Govt.	State Govt	Defence	PMC	Statu Undertakings	Pub. Trust	Reg Co-op Society	Other Institutions	Private
No of Blgs			Nos		Floors		Parking Within Property		(Yes/No)	
Type of Structure		Newly Constu-A	10-20 yrs - A	20 - 40 yrs - B	40 - 60 yrs(B+C)	Above 60 - C	Delapilated - D			
Physical Condition of Structure			Sound	Medium	Dilapi.ated					
Landuse	Mixed Landuse	Residential	Commercial	Public Semipublic	Transp& Communicati	Hill/ Hill Slope	Public Utilities			
	Industrial	Recreational Spaces	Forest	Water bodies	Defence	Agriculture	Vacant/ Open Lands			**% Area Related to Plot Area**
Details of Landuse	**Sub Landuse**	**Residential**	Wada Structure	CHAWL	Appartment	Bunglow	Row House			
			Slum	Hutments	Gunthewari	Professional Offices	Hostels	Others		
		Commercial	Convenience/ Retail shop	Shopping Mall	Whole sale Shops	Multiplexes	Tapri/ Khoka			
			Pavement Hawkers	Hotels	Motels	Restaurants	* Category Hotles			
			Office	Bank	Showroom	Cinema/ Theatre	APMC			
			Market	Marriage Hall	Service Centers	Petrol Pump	Other			
		Public Semi Pulbic	PHC	Dispensary	Hospital	Temples	Masjid/ Darga	Gurudwara	Govt/ Semi Govt Office	
			Church	Nursery School	Primary Sch	Secondary Sch	College	Town Hall		
			Meditation Hall		Community Halls	Audotorium	Post Office	Jail	Other	
		Public Utilities	Water Treatment	Garbage Disposal	STP	Slaughter House	Burial Ground	Emmergancy Services	Dhobi Ghat	
			OHWT	MSEB	Smashan Bhumi	Burial Ground	Emergency Services	Fire Brigade	Other	
		Defence	All Defence Activities as per Ownership							
		Industrial	Small scale	Medium Scale	House hold	Large Scale	Medium Scale	Paper Procucts		
			Service	Domestic	IT	Rubber/ Plastic	Metal	Brick Kiln	Ind Godown	
			Food Products	Beverages	Tobacco	Textile	Wood/ Engg Products	Leather Products	Other	
		Transport & Communication	Roads	Bus Terminal	Railway Line/ Station	Airport	Rikshaw Stand	Container Depot		
			Railway Goods yard	Parking Plaza	Truck Terminal	Taxi Stand	Bus Depot	Other		
			Telecomm Line	Radio/ Radio Stn	Telephone Exchan					
		Recreational Spaces	CPG	PG	Parks	Garden	Deorai	All Layout O/S		
			Green Belt	Zoo	Stadium	Amusment Park	Other			
		Agriculture	Agriculture	Horticulture						
		Water Bodies	River	Nalla	Canal	Lake				
		Forest	Forest							
		HILL & HL SLOPE	Hill Top/ Hill Slope							
		Vacant/ Open Land								
	B/up in Sqmtr							**DY. CITY ENGINEER (D.P.)**		
	Tenements	Units						**PUNE MUNICIPAL CORPORATION, PUNE**		
	Shop/ (Comm)	Units/ No		Area (Sqmtr)						
Services		Electricity	(Yes/No)	Water	(Yes/No)	Drainage	(Yes/No)			

ANNEXURE –B

ELU Colour code used for Survey.



LEGEND	GIS ID		
		GIS ID LINEWEIGHT-.30	
MIXED LANDUSE	ML	PREDOMINANT USE SHOULD BE USED AS BASE COLOR SECOND USE SHOULD BE MARKED IN LAND USED COLOR HATCH (e.g. SHOWN IN INDEX)	
RESIDENTIAL	R	WADA, CHAWL, APPARTMENT, BUNGLOW ROW HOUSE, SLUM, HUTMENTS, GUNTHEWARI PROFESSIONAL OFFICES, HOSTELS AND OTHERS.	51
COMMERCIAL	C	CONVENIENCE/ RETAIL SHOPS, SHOPPING MALLS,WHOLE SALE SHOPS, MULTIPLEXES, TAPARI/KHOKA, PAVEMENT HAWKERS, HOTELS, MOTELS, RESTAURANTS, * CATEGORY HOTEL, BANK, OFFICE, SHOWROOM, PETROL PUMP, CINEMA/ THEATRE, APMC, MARKET, MARRIAGE HALL, SERVICE CENTERS, OTHER	150
PUBLIC SEMI-PUBLIC	PSP	PRIMARY HEALTH CENTRE, DISPENSARY, HOSPITAL , NURSERY SCH, PRIMARY SCHOOL (PS), SECONDARY SCHOOL (SC), COLLEGE, TOWN HALL, MEDITATION HALL, GOVT/ SEMI GOVT. OFFICES COMMUNITY HALLS, AUDITORIUM, GYMNASIUM POST OFFICE, JAIL, TEMPLES, MASJID/DARGA, GURUDWARA,CHURCH, OTHER	241
PUBLIC UTILITIES	PU	WATER TREATMENT, GARBAGE DISPOSAL, SLAUGHTER HOUSE, BURIAL GROUND, OHWT, MSEB EMERGENCY SERVICES, DHOBI GHAT, SMASHAN BHUMI, FIRE BRIGADE (FB),STP, OTHER	29
DEFENCE	DL	ALL DEFENCE ACTIVITIES AS PER OWNERSHIP	25
INDUSTRIAL	I	SMALL SCALE/ MEDIUM SCALE/ LARGE SCALE INDUSTRIES, IND GODOWN, PAPER PRODUCTS, LEATHER PRODUCTS, RUBBER PLASTIC,METAL PRODUCTS, I.T, BRICK KILNS FOOD PRODUCTS, BEVERAGES, TOBACCO, TEXTILE, WOOD/ ENGG PRODUCTS, OTHER	201
TRANSPORT & COMMUNICATION	T&C	BUS TERMINALS, RAILWAY LINE/ STATION, AIRPORT, RICKSHAW STAND, TRUCK TERMINAL RAILWAY GOODS YARD, CONTAINER DEPOT.,PARKING PLAZA, TAXI STAND, TELECOMMUNICATION LINE, RADIO/ RADIO STATIONS, TELEPHONE EXCHANGE, OTHER	253
RECREATIONAL SPACES	RS	CHILDREN'S PLAYGROUND (CPG), PLAY GROUND (PG), PARK (PK), GARDEN (G), DEORAI GREEN BELT (GB), ZOO, STADIUM, AMUSEMENT PARK, ALL LAYOUT OPEN SPACES, OTHER	100
AGRICULTURE	AG	AGRICULTURE, HORTICULTURE	114
WATER BODIES	WB	RIVER, NALA, LAKE, CANAL,	4
HILLS & HILL SLOPE	HL		75 & 114
FOREST	F	FOREST	109
VACANT/ OPEN LAND	VL		

HWK — HAWKERS

PATHARI — PATHARIWALAS

P1/P2 — PARKING

AUTO - ST

B.S

HOSPITALS

G — GARDEN & PARKS

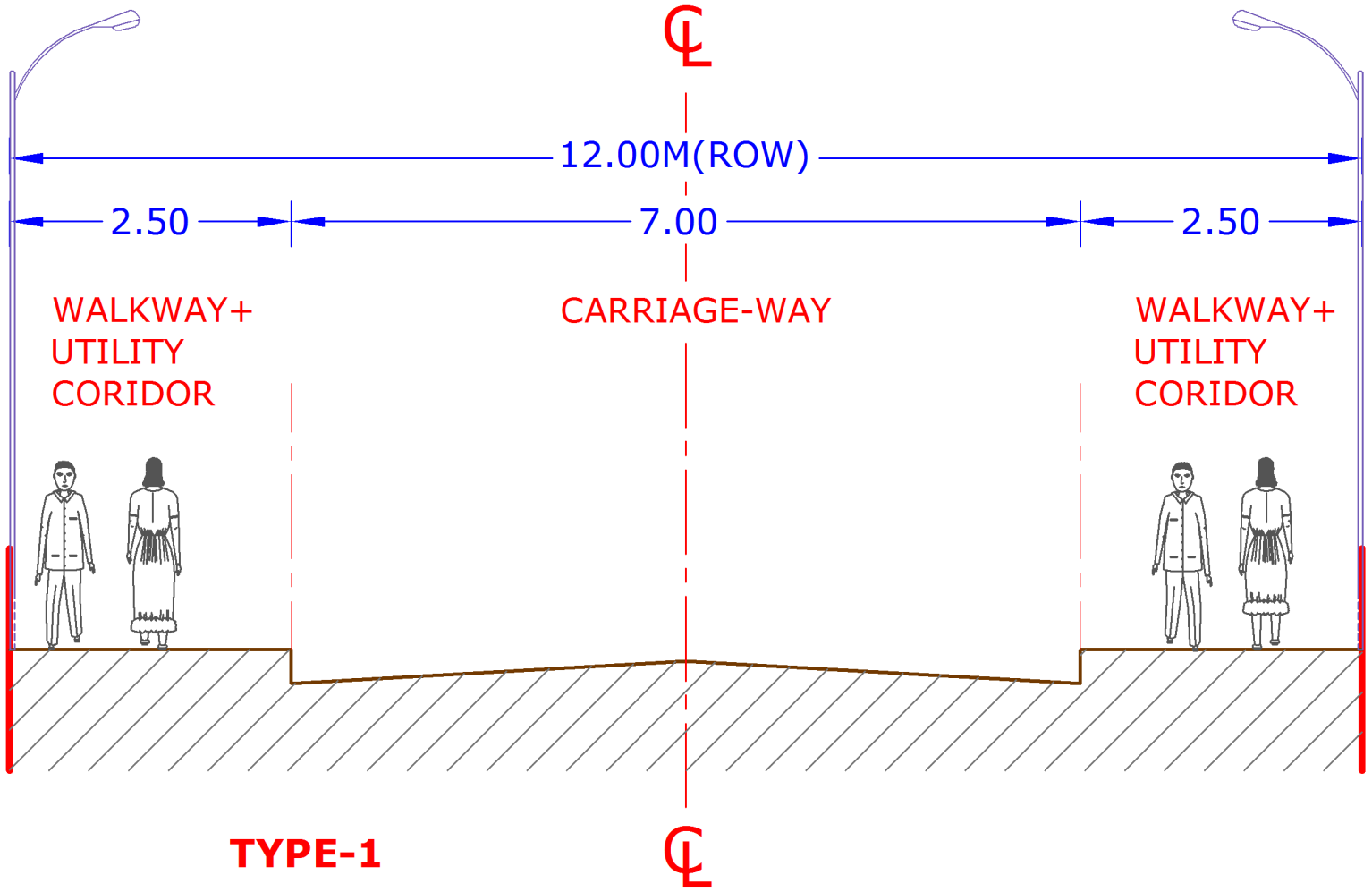
T — TAPARI

TEMPLE

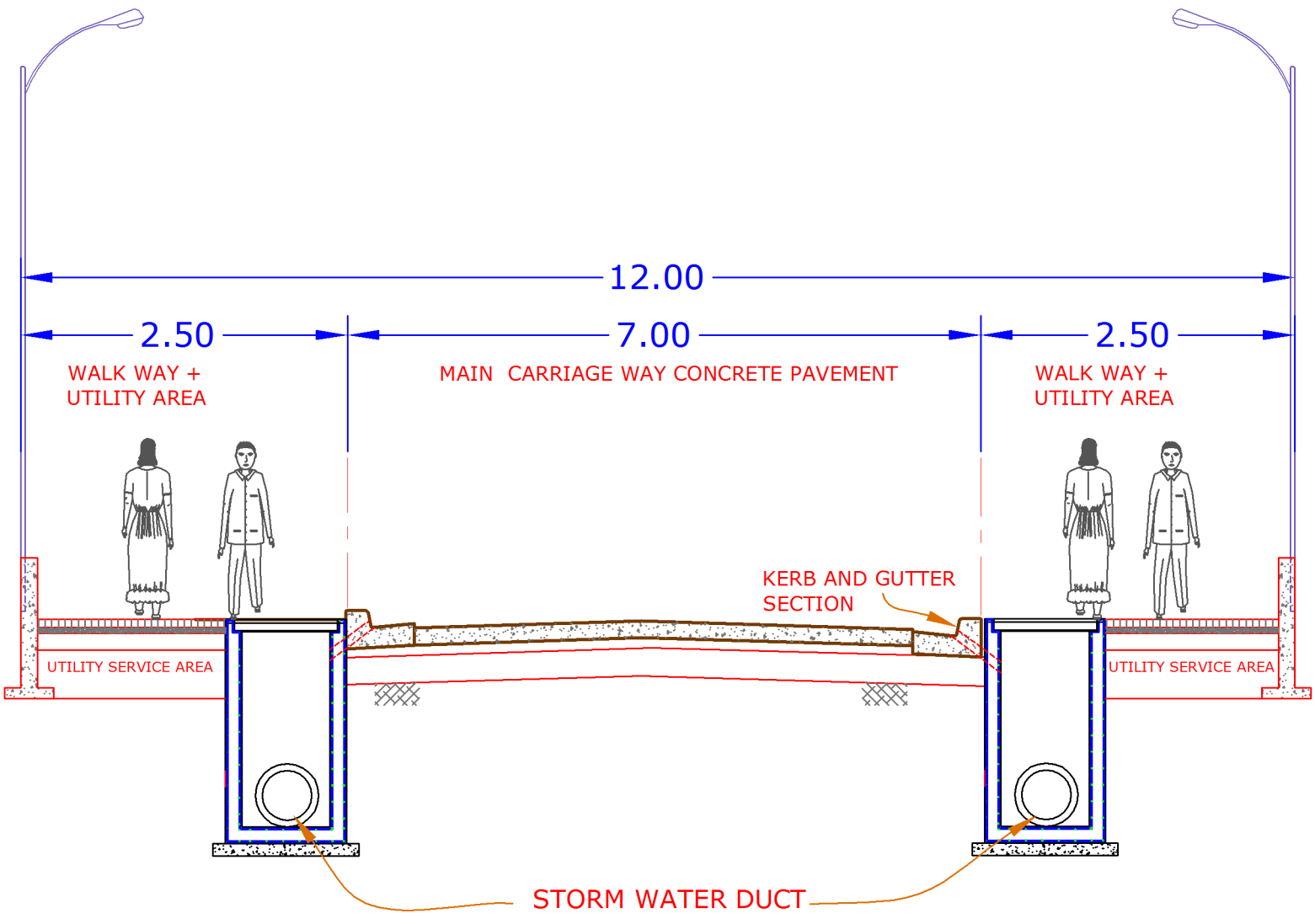
BUILDING LINE

BUILDING HATCH IN BUILDING LINE

TYPICAL CROSS SECTIONS FOR 12.0M WIDE ROAD



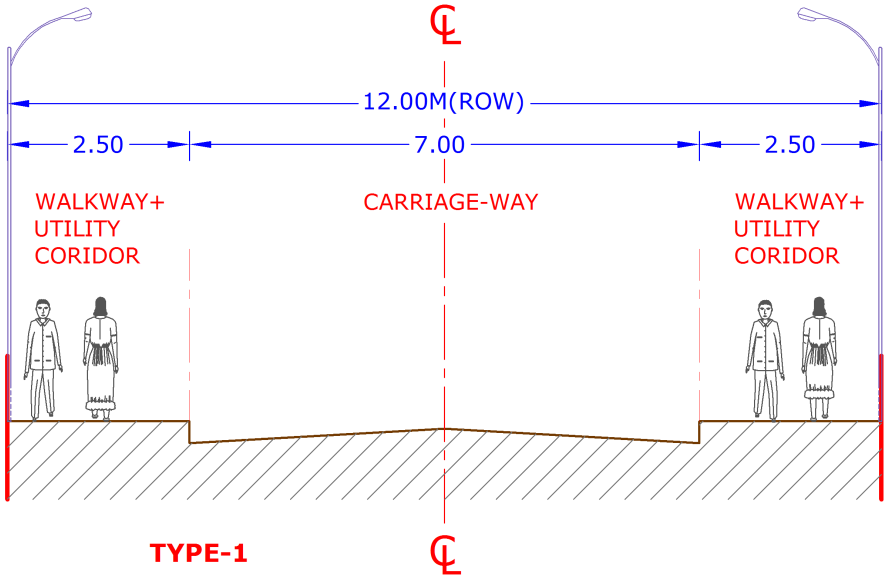
TYPE-1



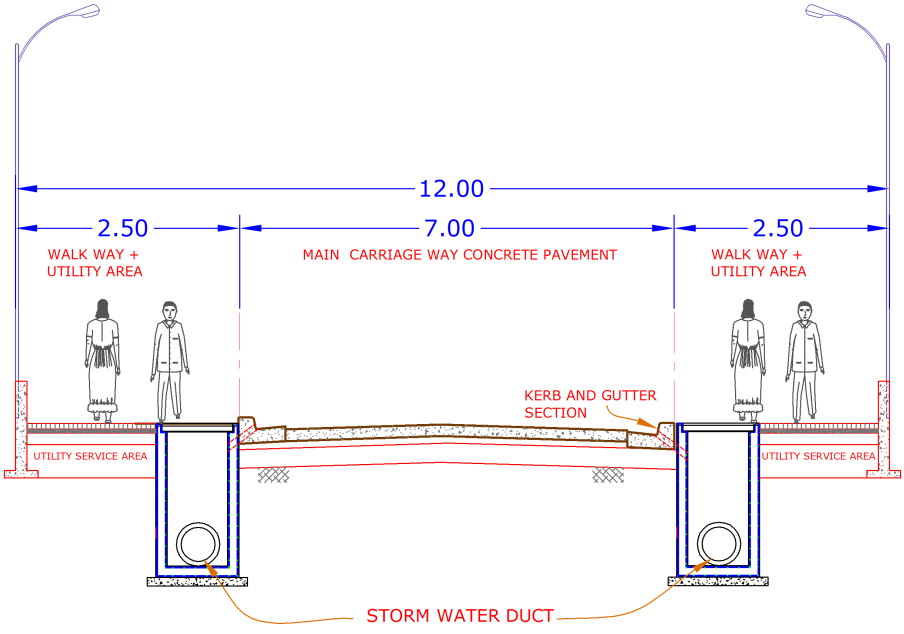
TYPE-2

ANNERURE D

TYPICAL CROSS SECTIONS FOR 12.0M WIDE ROAD

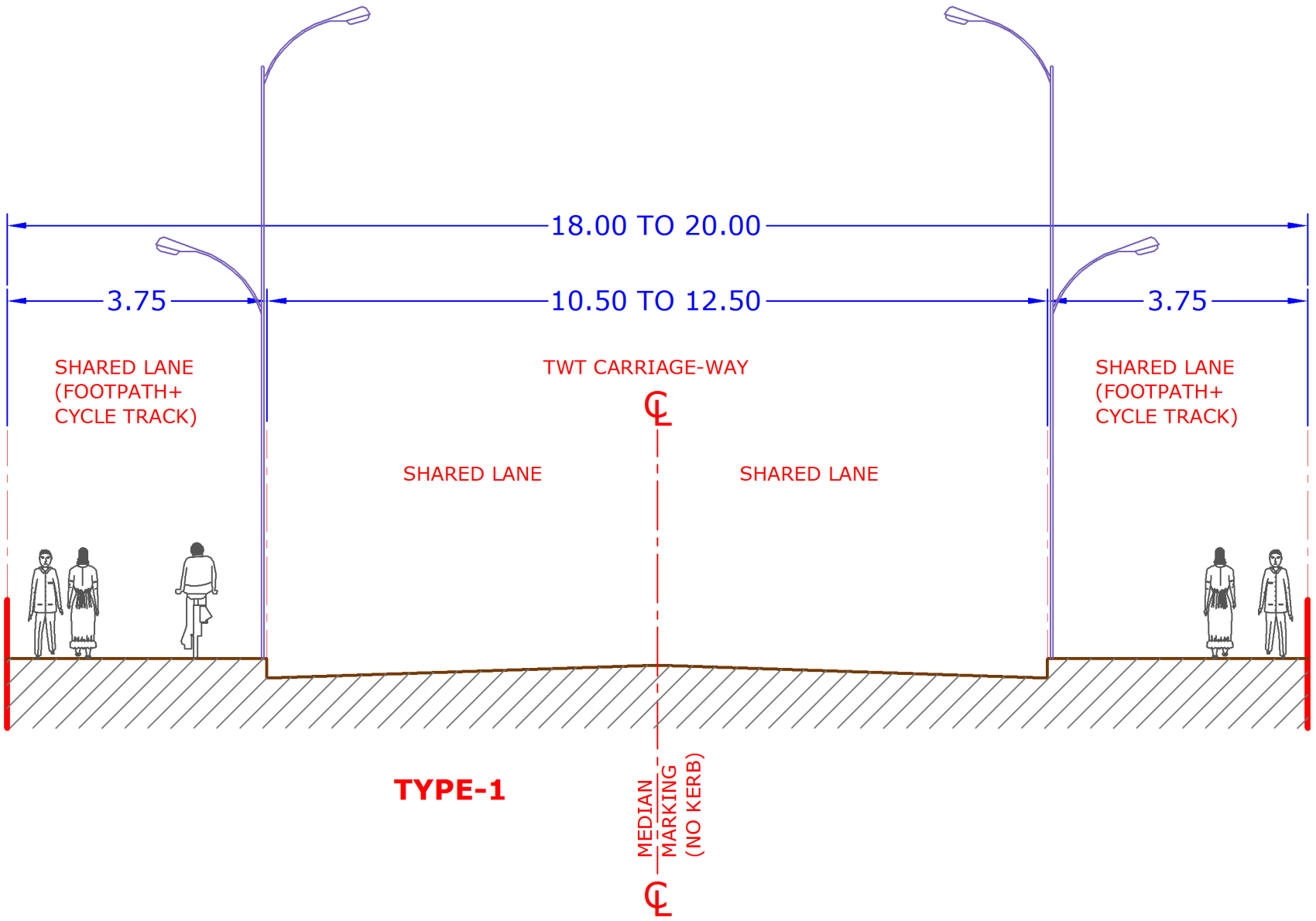


TYPE-1

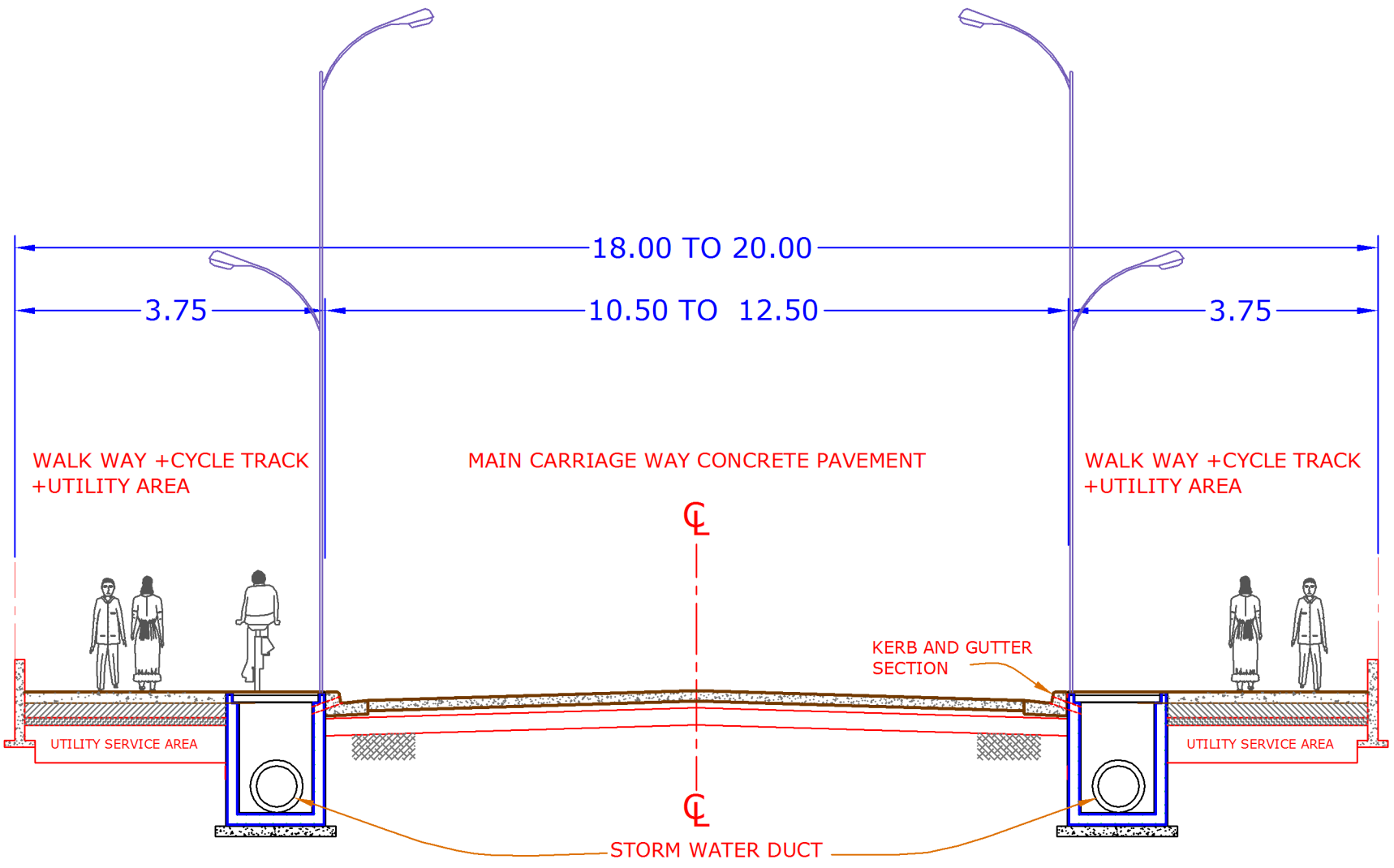


TYPE-2

TYPICAL CROSS-SECTIONS FOR 18.00M TO 20.00M ROAD

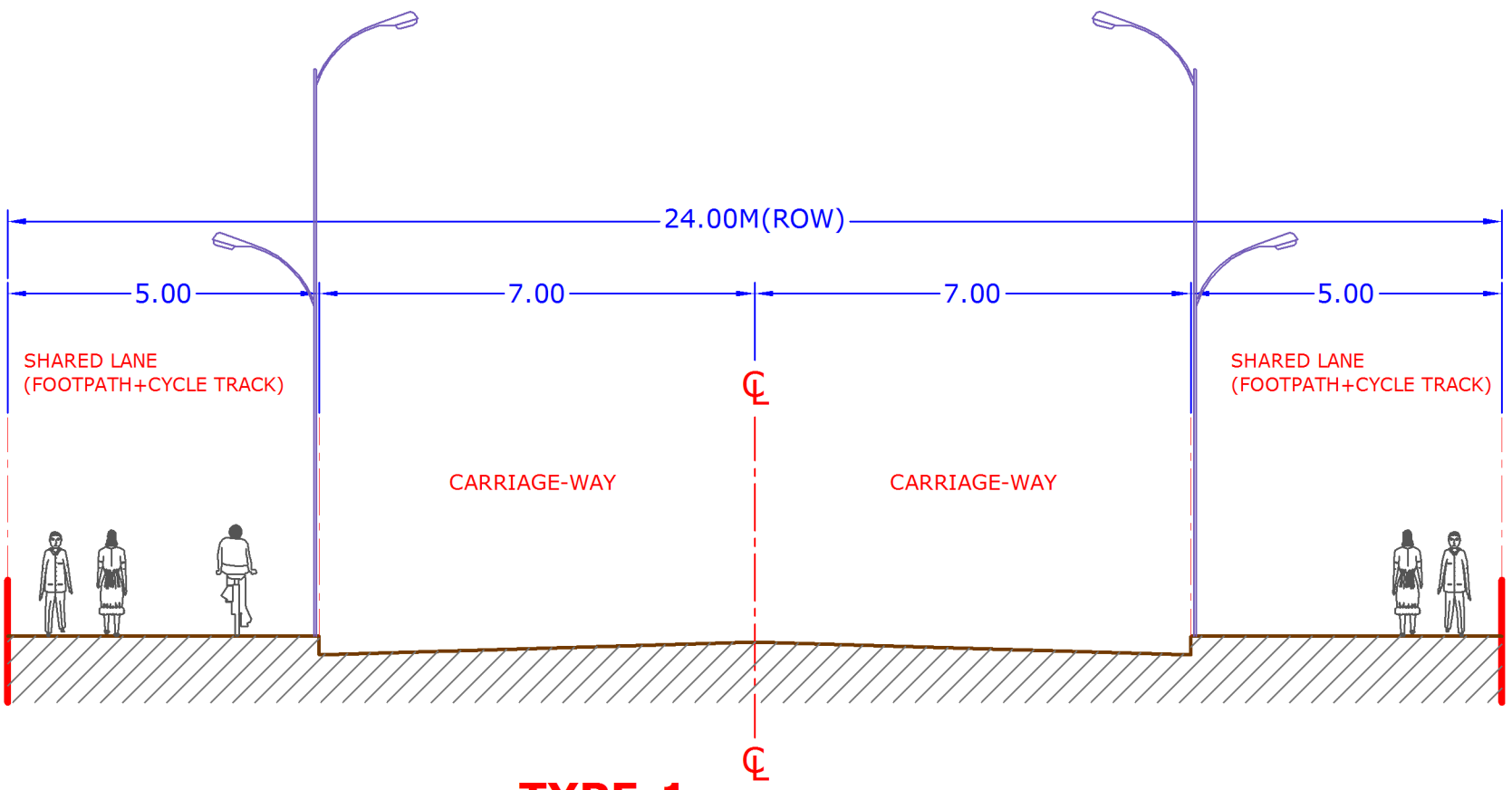


TYPE-1

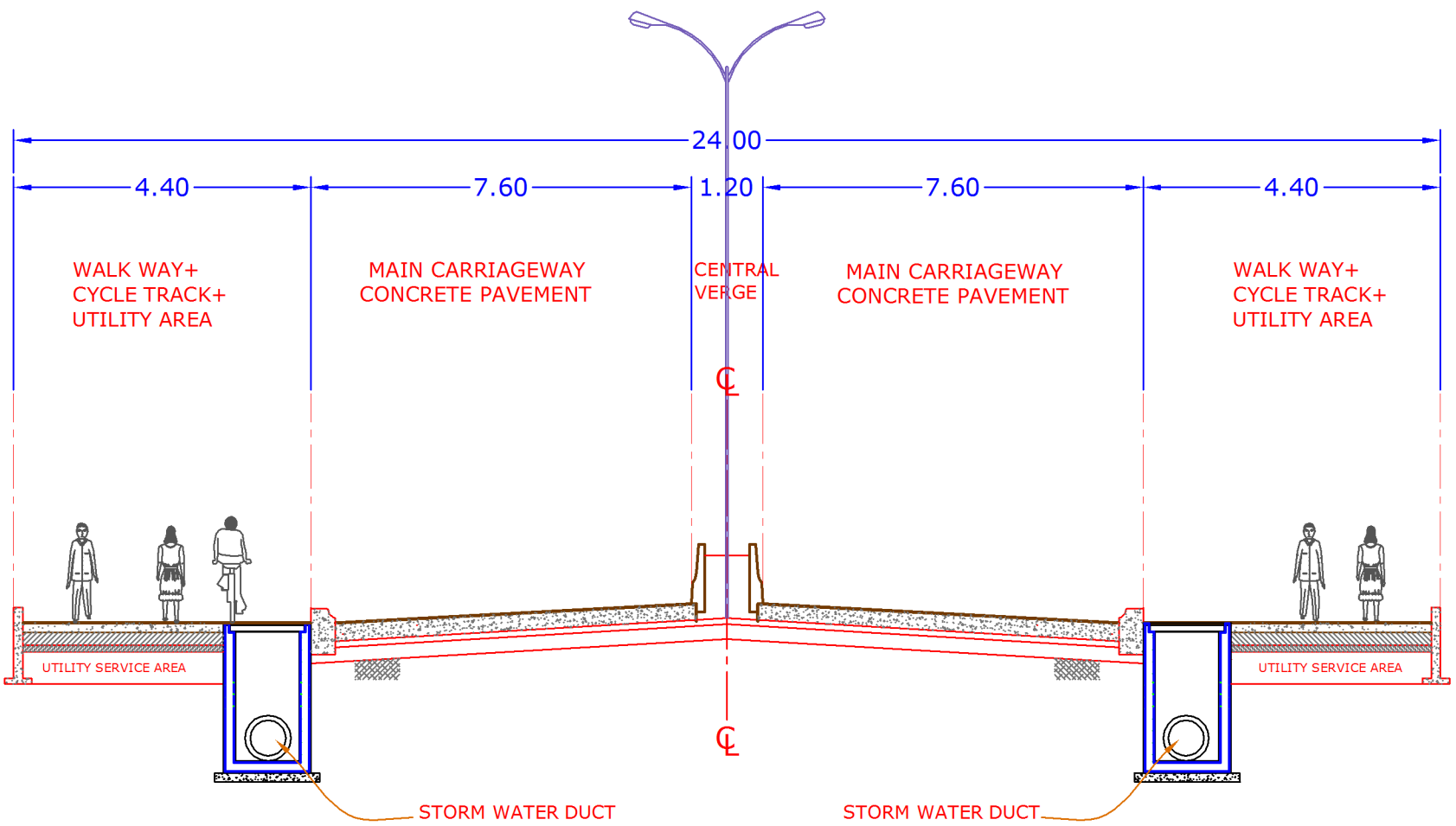


TYPE-2

TYPICAL CROSS-SECTIONS 24.00M ROAD

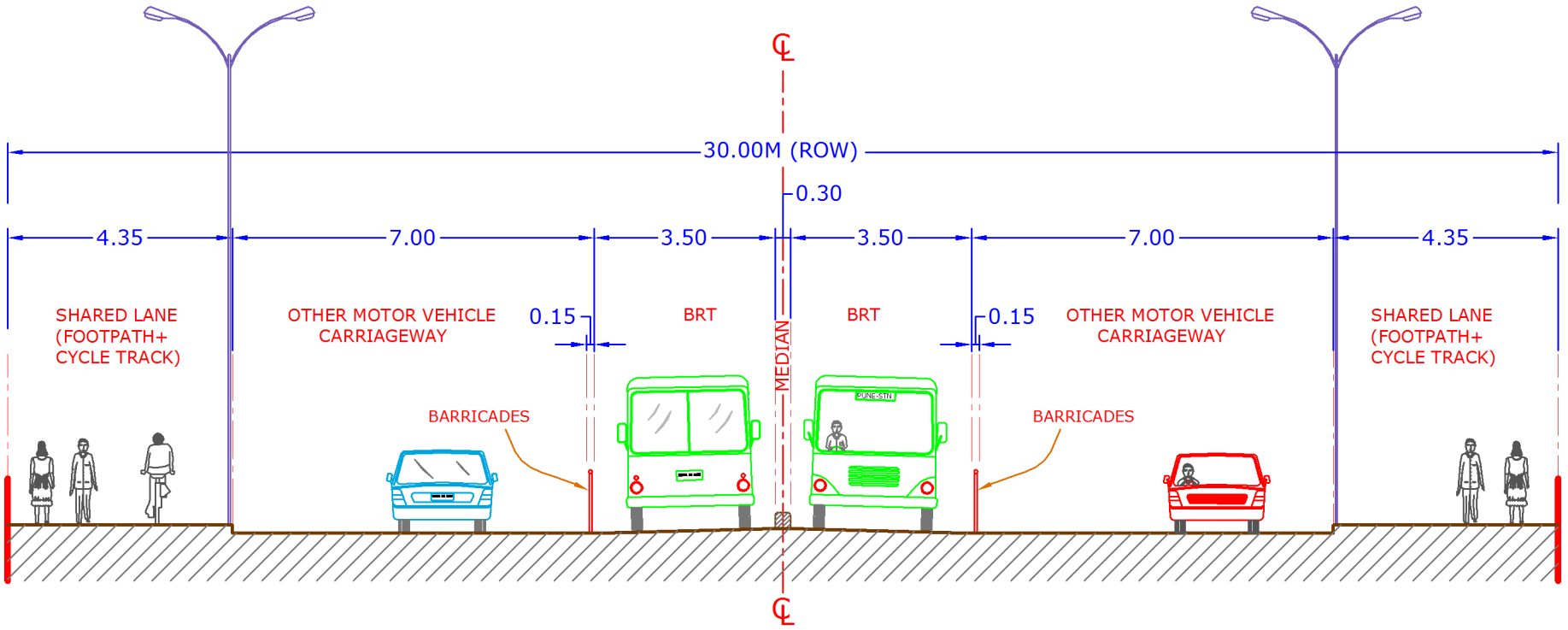


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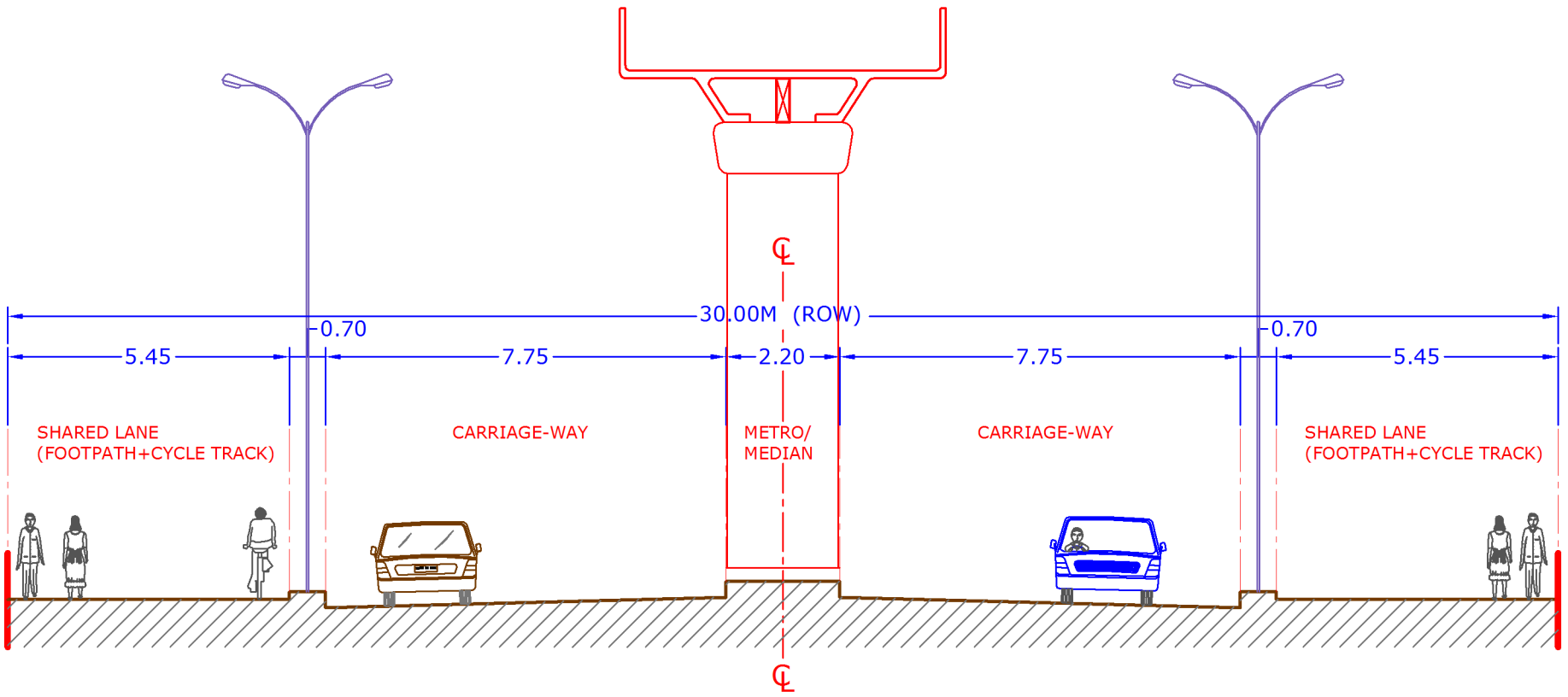


TYPE-2

TYPICAL CROSS-SECTIONS 30.00M ROAD

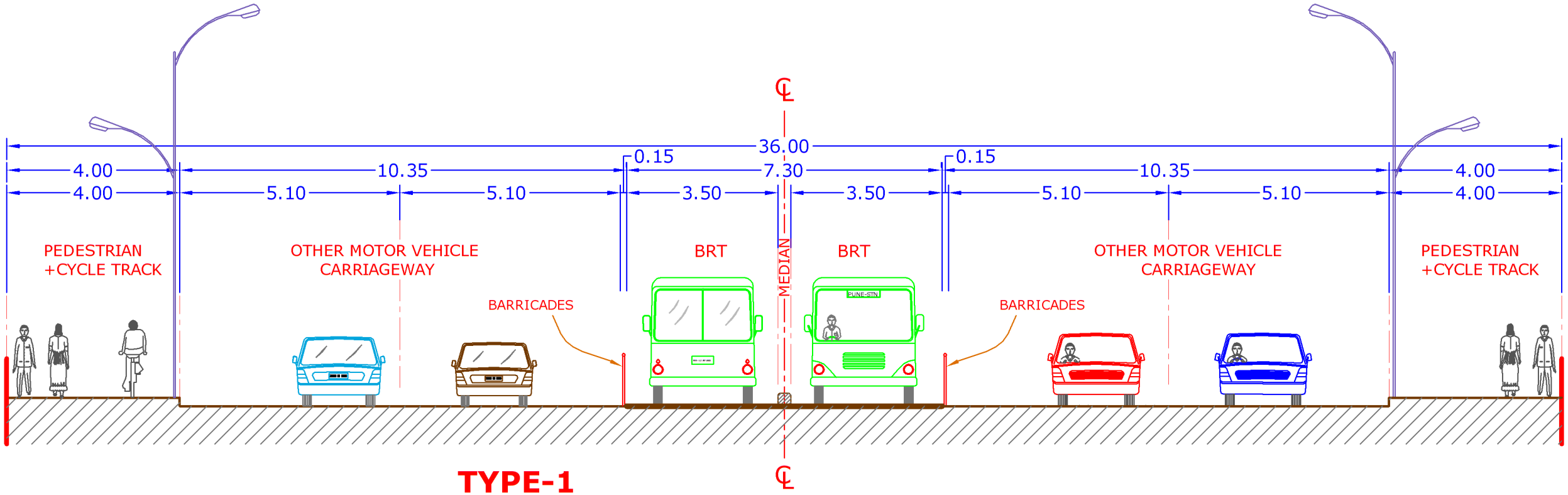


TYPE-1 (WITH BRT)

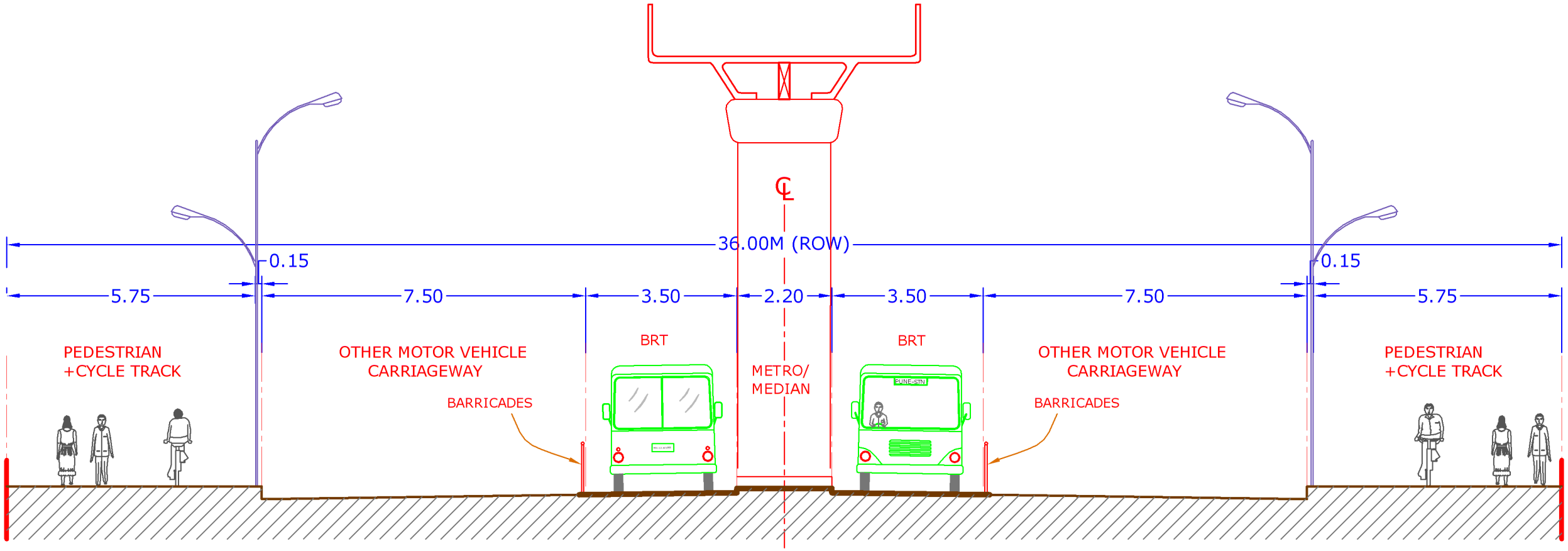


TYPE-2 (NON-BRT)

TYPICAL CROSS SECTIONS FOR 36.0M WIDE ROAD

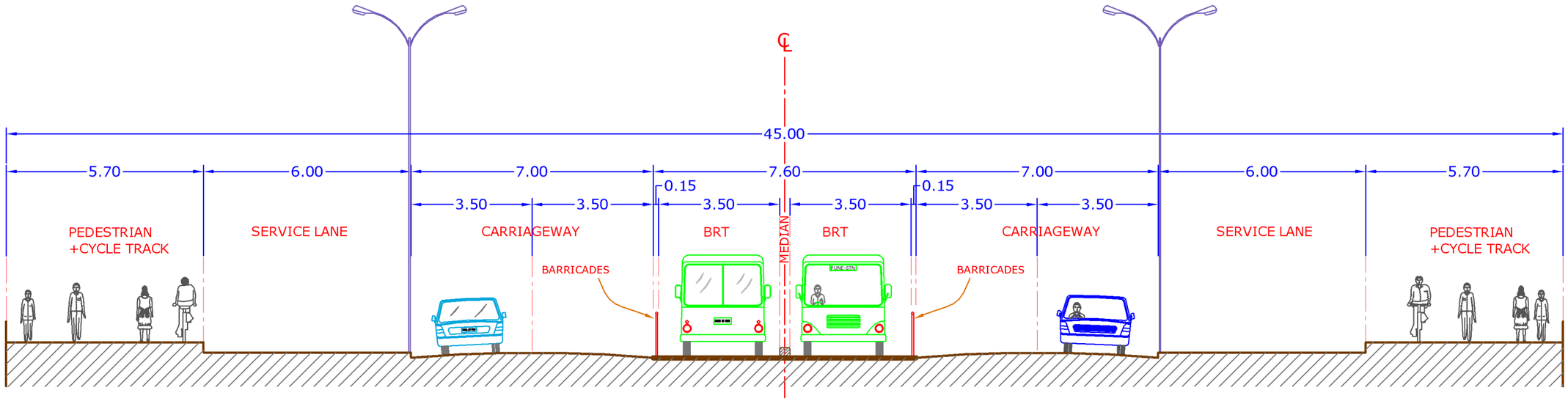


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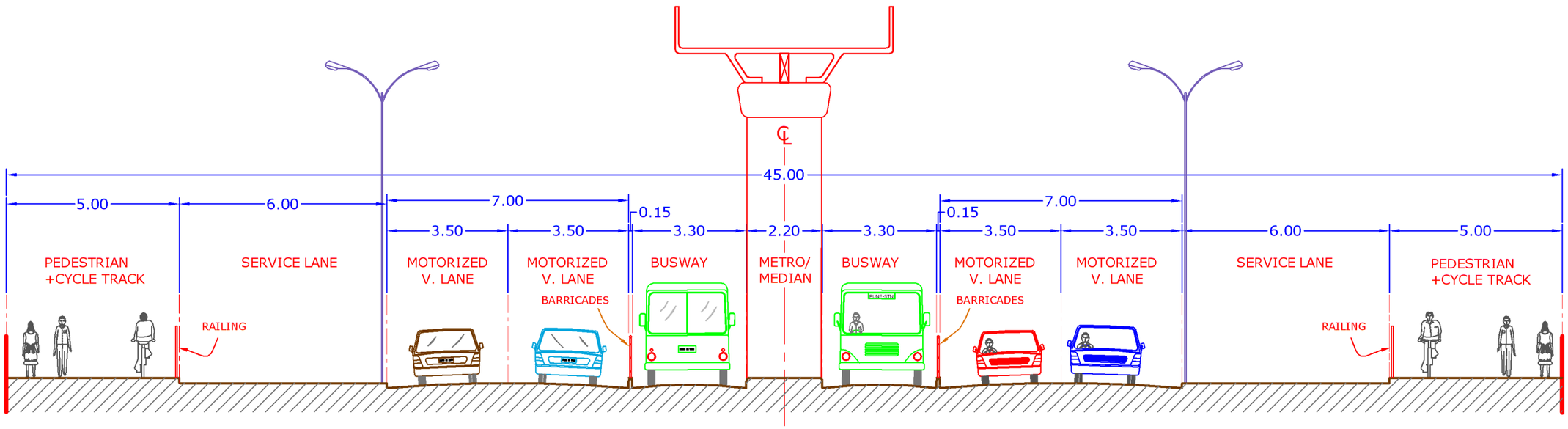


TYPE-2

TYPICAL CROSS SECTIONS FOR 45.0M WIDE ROAD

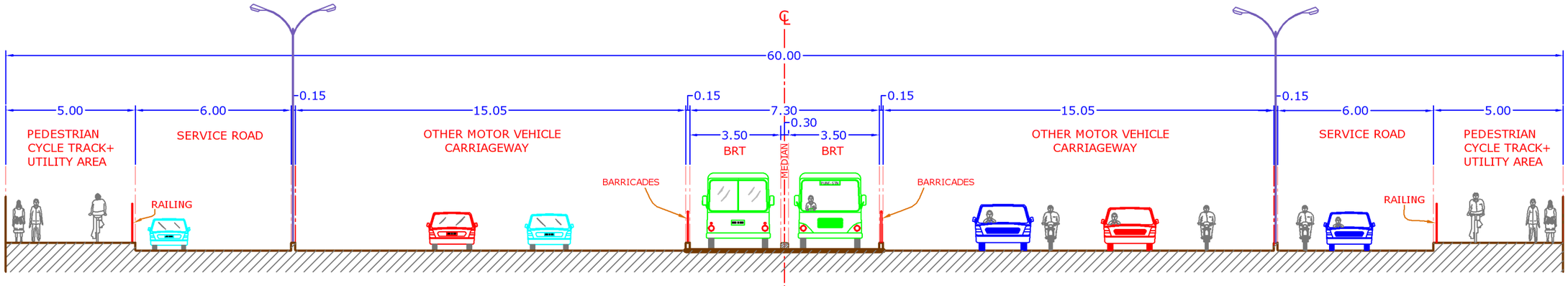


TYPE-1

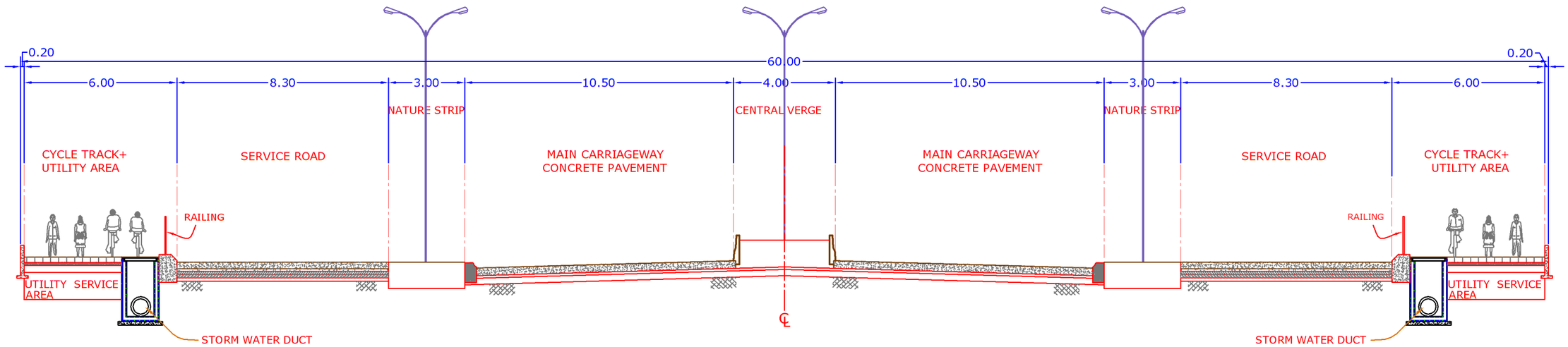


TYPE-2

TYPICAL CROSS SECTIONS FOR 60.0M WIDE ROAD



TYPE-1 (WITH BRT)



TYPE-2 (NON-BRT)

ANNEXURE-D

USERS PERMISSIBLE IN DESIGNATED SITES

1) Public Semi-Public Zone:-

This zone includes Government, Semi-government, Local bodies and institutions owned properties and civic amenities and large infrastructure facilities of health, education, sports, cultural and social institutions.

Ancillary uses to the main use shall not exceed 7.5% of total area. For educational complex, the ancillary users like bank extension counter, canteen, gymkhana, stationary shops, etc. and in case of hospital medical stores, canteens, laundry, fruit stalls etc. may be permitted only by the Municipal Commissioner.

Permissible land uses in Public and Semi Public category:-

1) Higher primary schools, Integrated Residential Schools.
2) Health centers and Hospitals.
3) Research institutions.
4) Government buildings & residential accommodation for Govt. Employees , auditoriums, cultural complexes,
5) Educational Institutions , Colleges
6) Burial grounds, crematorium under special circumstances with the approval of Corporation / Standing Committee.
7) Nursery school subject to a plot size of min 300 sq.m
8) Sub offices of utilities up to 50 sq.m
9) Police stations, post offices
10) Primary schools
11) Parks, Play grounds and Maidans
12) Telecommunication /microwave towers under special case
13) Nursery crèches
14) Spastic Rehabilitation centers , Orphanages, Govt. dispensaries

15) Public distribution system shops
16) Fire stations
17) Bill collection centers, Government Collection Center.
18) Traffic and Transport related facilities
19) Places of worship, Dharmashala, hostels
20) Dhobi Ghat
21) Broadcasting and Transmission stations
22) Public library
23) Meteorological observatories
24) Airport and ancillary uses

2) Traffic &Transportation Zone

TRAFFIC AND TRANSPORTATION ZONE (T&T)

Transportation zones are reserved for Traffic and Transport related activities such as railway yards, railway station, bus stands, bus shelters, Road and transport depots, parking areas, airport, special warehousing, cargo terminals and transfer of cargo between different types of transport (rail, road & air).

Permissible Land uses in Transportation Category

1) Bus terminals, Road transport uses
2) Bus bays, Auto rickshaw stand, Bus shelters, information kiosk, taxi stand
3) Metro stations, parking areas
4) Multi level car parking
5) Filling stations, service stations
6) Ware houses, Storage depots
7) Truck terminals
8) Railway station, Yards, Depots, Airport
9) Special warehousing, cargo terminals.
10) Transport offices
11) Workshops and garages
12) Automobile spares and services, Godowns ,

13) Loading and unloading platforms (with/without Cold storage facility), weigh bridges.

14) Public toilets as per requirement.

15) All ancillary uses for above categories decision of the Municipal Commissioner shall be final.

3) MULTIPURPOSE GROUND

Users permissible in sites reserved for Multi-purpose ground

1. Playground
2. Exhibition ground
3. Festival fairs, ceremonies, religious functions etc.
4. Circus
5. Social gathering , public speeches
6. Cultural activities like Kalagram etc.
7. Music Concerts etc.
8. Institutional programs
9. Cinema / open air theaters
10. Govt. or semi-government orgnisation functions
11. Parking

4) MUNICIPAL PURPOSE

Users permissible in sites reserved for Municipal Purpose :

i) Public , Semi-public uses as per clause M-11
ii) Temporary use allowed for confirming
iii) Municipal Corporation activities as decided by the Commissioner.

GUIDELINES FOR DEVELOPMENT OF BUSINESS HUB:





Hadapsar Industrial TPS II No.20, 21, 89, 90, 91, 93, 94, 95, 96, 124 to 143 is planned for commercial zone. Total numbers of final plots considered in planning are 29. The areas of plots vary from approximately 550 sq.m to 56000 sq.m.

Concept behind proposing a business hub there is to promote trade and commerce for the local area. At a later stage this could turn out to be a major business or commercial hub of the city.

It was originally planned for industrial development. Henceforth which will include only commercial activity based development shall be permitted, Trade and Commerce, office complexes, shopping mall, business outlet, showrooms w.r.t. machines, mechanical parts, equipments, electronics, vehicles, construction related products etc. No day-to-day based activities shall be permitted.

Parking, Go-downs, Central recreational space in form of open space or garden are the allied features in the development. Plots under the said development shall be re-planned in the view of business hub as a new TP scheme. Two nearby plots i.e. Plot No.2, Railway siding and Plot No.19, Bus Terminus can also be utilized for parking or similar other development. Also the 18 m wide roads are widened by 6 m i.e., 24 m and 24 m wide new link near Plot No.92 have been proposed. This zone has been shown in the development Plan a blue colour and orange diamond hatch.

The detailed regulations regarding the development of Business Hub have been described in Development Control Regulations.

GUIDELINES FOR DEVELOPMENT OF SPECIAL COMMERCIAL ZONE:

This zone has been earmarked in survey numbers 159, 165, 166, 207 and 236 of village Hadapsar. It has been earmarked with a view to promote the small scale shopping and professional offices, which cater to the daily needs of the population. Users permitted in this zone shall include those permitted in R1, R2, C1 zone, etc. Adequate parking spaces shall be provided in this zone to cater the huge parking demand that is generated. Town Planning Scheme shall be prepared by the PMC in this area to ensure an orderly and planned development. This zone has been shown in the Development Plan in blue colour with black diamond hatch.

The detailed regulations regarding the development of this zone have been mentioned in Development Control Regulations.

ANNEXURE-E

PLANNING STANDARDS

INTRODUCTION

Planning standards is technical part to study the need and provision to be made to cater the functional requirements of the projected population for the city.The term planning is used to fix the area for each use for a certain population.

While looking into the issue of planning standards it is necessary to have close look at the following aspects.

- Categories and types of public needs for which the land reservations are necessary in the Development plan.
- Reasonable minimum land requirement for these purposes assuming that land is economically and efficiently used.
- Difficulties in implementation arising due to financial stringency as also basic requirement of reservation system have to be kept in mind and suitably addressed.
- The manner in which the spatial needs of public purposes is incorporated in development management system.
- Changing pattern of the society.

The main objective is to provide for social facilities viz. recreation, education and health facilities etc to make comfortable planning standards. Planning norms are drafted with respect to the considering made by the suktankar committee, also the references from the UDPFI guidelines , National building code , Planning standards adopted for DP of 23 villages in PMC limits and of PCMC area are considered the planning norms to be adopted.

In the process of the preparation of revised DP of 1987 the steering committee has adopted the following planning standards.In order to ensure orderly development of a city by prescribing the land uses and supported by development control rules, the development plan also aims to cater to the

needs of the population to enjoy the desirable standards to have healthy, living conditions.

Government under their circular of the urban development and Public health department TPS 3674/18773 UD.5 dt 19th June 1979, NBC, UDPFI, extended villages DP of PMC and PCMC following planning standards are taken into consideration

EDUCATION FACILITIES

The main element in regard to education use explained below:

a) Primary Schools:-

- The Primary school going population is considered as 15% of total population as per Government notification, the sanctioned DP (1987), extended villages DP of PMC, UDPFI guidelines & National Building Code (NBC) and also extended villages DP of PCMC.
- The need of primary schools is jointly shouldered by Municipal Authority along some Private institutes in the city.
- From the trend of PMC & Private school going population in various sectors, it is considered that 50% of the total student will go to PMC School.
- It is also considered that schools are run in two shifts and among this morning shift shall be primary school and afternoon shift shall be secondary school.
- The student strength per school is considered to 500 students per school. The minimum area per school is considered upto 0.4 ha excluding Parking area as per these guidelines.
- As per government notification no TPS/3206/488/CR/104/06/UD-13 dt. 8/9/2006, 40% play area has to be provided in every primary school campus.

2) Secondary School: -

- The Secondary school going population is considered as 10% of total population as per Government notification, the sanctioned DP (1987), extended villages DP of PMC , UDPFI guidelines & National Building Code (NBC) and also adopted in the preparation of DP and extended villages DP of PCMC.
- In the city the need for Secondary education is catered both by Private institutes & Municipal Schools.
- The proportion for Private & PMC School going children is mentioned only in the DP of extended villages of PMC & PCMC as 50:50.
- The student population per school is upto 1000 students per school. The minimum area per school is upto 1.6 ha excluding Parking area as per these guidelines.
- It is also considered that schools are run in two shifts and among this morning shift shall be primary school and afternoon shift shall be secondary school.
- As per government notification no TPS/3206/488/CR/104/06/UD-13 dt 8/9/2006, 40% play area has to be provided in the campus of school of the secondary school.

3) RECREATIONAL FACILITIES

- The above planning norms for PMC DP of 1987 & for extended villages have been based on the Government circular are similar. These are as for PG/CPG is 0.4 Ha/ 1000 population & for parks, garden it is 0.2 Ha/ 1000 population.
- As the norms for DP (1987) are same as above considering that the reservations are made in with reference to the existing open areas in the city & accordingly the provision for recreational spaces for the year 2027 is made in the DP.
- As the recreational space requirement are population basis, the analysis shows recreational space required in each sector. Planning norms for

PG/CPG is 0.4 Ha/ 1000 population & for parks, garden it is 0.2 Ha/ 1000 population.

- The preservation of natural resources or elements like Lakes, rivers, Nallas & their surrounding area, railway area, Wildlife habitat areas, Hill Tops & Hill Slopes should be considered essential to the health of the ecological balance and subsequently the overall quality of life in the region.
- Additional elements which are not part of the natural resource base but are important in identifying areas with scenic, recreational, ecological and educational value are.

1) Existing outdoor recreational sites
2) Potential outdoor recreation and related recreation sites
3) Historic sites and structures
4) Significant scenic areas and vistas

Since large space would be available for reservation on the hill slopes and hill top areas, it has been decided to provide 40% of the standard in the lower developable areas and the balance in such higher areas. The provision for this amenity has therefore, been made accordingly in the revised Draft DP.

This Land use includes the provision under four categories-

1) Children's Play-Ground 2) Play Ground 3) Parks 4) Gardens

4) HEALTH FACILITIES

The health standards adopted in DP (1987) are as follows:

Municipal Dispensaries:-

- 50% of the population will be catered by the Pune Municipal Corporation. While the balance will be catered by other institutions in the private sectors.
- One dispensary site for 25000 population is considered for being provided in DP.
- Site area at 1000 sqmtr per dispensary site is considered to be adequate.

Municipal Maternity Homes:

- 50% of the population will be catered for by the Pune Municipal Corporation. While the balance will be catered for by institutions and private nursing homes.
- One site for 25,000 population is considered to be adequate.
- Site area at 2,000 sqm will be adequate.

Hospitals:

- 50% of the population will be catered for by the Pune Municipal Corporation. While the balance will be catered for by other institutions and private hospitals and nursing homes.
- 4 beds per 1000 persons is considered
- Site area @ 40 sqm per bed.

5) NORMS FOR OTHER AMENITIES

- **Fire Brigade**

  1 Fire Station (1 Ha) or sub fire station (0.6 Ha) within 1 for 3 km to be provided for 2 lakh population as per UDPFI & NBC Guidelines
- **Post Office**

  1 Post office counter (85 Sqmtr) for 15000 population - UDPFI & NBC Guidelines. These users can be made available in rental premises in R-1 or R-2 users.
- **Bus Terminal**

  1 for 1 Lakh Pop (4000 sqmtr) NBC Guidelines.

  Proposed as per requirement of PMPML and availability of site.
- **Bus Depot**

  1 for 5 Lakh Pop (2 Ha) NBC Guidelines

  Proposed as per requirement of PMPML and availability of site.
- **Burial Ground**

  1 for 5 lakh pop (4 Ha) NBC Guidelines

  Proposed as per requirement and availability of site.

- **Crematorium**

  1 Electric crematorium (2 Ha) at city level 1 Crematorium Ground (2.5 Ha) for 5 lakh population (NBC Guidelnes)

  Proposed as per requirement and availability of site.

- **Community Hall/ Library**

  1 for every 15000 polulation (2000 sqmtr) UDPFI & NBC Guidelines

  Construction of library is permitted in amenity spaces.

- **Police Chowky/ Station**

  1 Police Station for 90,000 population (Area 1.5 Ha), 1 Police Post for 50,000 Polulation (Area 0.16 Ha) UDPFI & NBC Guidelines.

  Proposed as per requirement of the concern department.

- **Civic & Cultural Centre**

  1 for one lakh population(10000 sqmt each)

  Reservations of 1987 DP are continued , and as per availability new sites are proposed.

- **School for Handicapped Children**

  One for 45000 population. 400 students site of 5000 sqmtr (2000 sqmtr school building & 3000 sqm PG) - UDPFI & NBC Guidelines)

- **Information & Booking Centre**

  CFC centres are allowed in recreational spaces like public parks, gardens and bus stands public parking etc. where there are crowds attracted in huge amount .

- **Amusement Park & Entertainment Centre**

  1 location of 5 to 10 Acres (MTDC office Requirement w.r.t. discussion held with officials)

  These uses are allowed in Hill top hill slopes Zones, green belts etc.

Land for Art & Craft Village uses are also permitted in the above zone.

- **Electrical Sub station**

  11 KV (500sqmtr) substation for 15000 pop, 2 nos of 66 KV each substation for 1 lakh pop of 6000 sqmtr each (size 60 X 100 mtr) & 220 kv substation (4 Ha0 for 5 lakh population.

  Space for substations upto 2 MW capacity consumption to be kept reserved in the layout.

- **Municipal Purpose**

  Sites are proposed as per requirement and availability of site.