

### 3. Pune Development & Growth Direction

#### 3.1 Overview

Pune is the seventh largest city in India and second largest city in Maharashtra after Mumbai (Figure 3.1). Pune Municipal Corporation (PMC) jurisdiction extends up to an area of 243.84 sq. km. housing 2.54 million populace within 144 wards. Referred as ‘Detroit of India’, the city has experienced a long standing urban tradition: first as an historical centre of pre-colonial urbanism, then as an important military centre during British rule, after independence as a rapidly growing contemporary industrial centre, and today identified as a growing metropolis. Pune, also known as an ‘Oxford of India’, houses six Universities with about 600 functional higher education centers catering to an estimated 5 lakh student population. Additionally, Pune is popularly nicknamed as ‘Queen of Deccan’, ‘Pensioners Paradise’, ‘Cultural Capital of Maharashtra’, ‘Cyber City’ etc. owing to its location, pleasant climate, historical importance, vibrant culture and upcoming IT-BT centers.

#### 3.1.1 Location

Situated on leeward site of Deccan Plateau (Sanhyadri Hills/Western Ghats) between 18° 32’ North latitude and 72 ° 51’ East longitudes, Pune is well connected by road, rail and air network with almost all the important cities within Maharashtra and India.

The city is located at the confluence of Mula and Mutha rivers ( plains of Bhima and Nira River basin) at a height of 560 m above Mean Sea Level (MSL) and characterized by vast stretches of undulating plains interspread by low and medium ranges of hills.

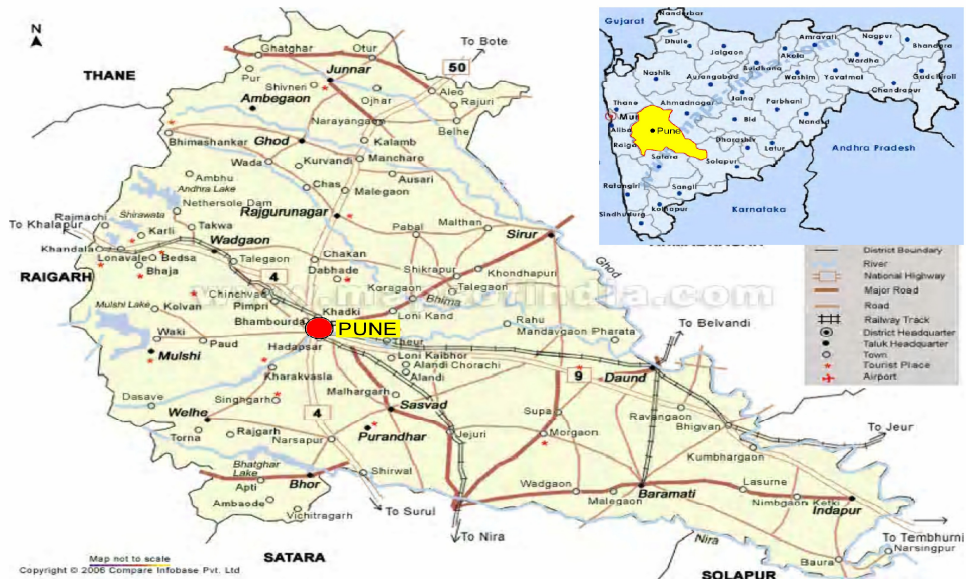


Figure 3.1: Location of Pune

## 3.2 Urban Development

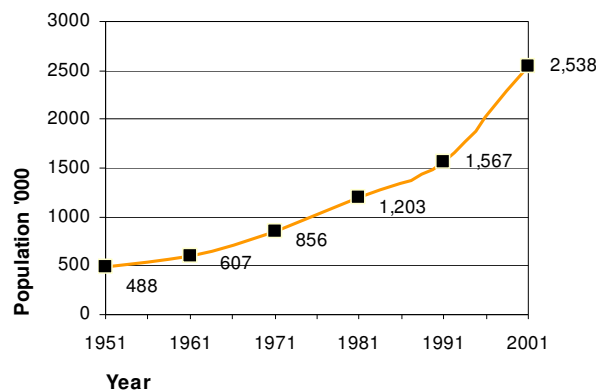
### 3.2.1 Pune Metropolitan Region (PMR)

Urban development in PMC is greatly interlinked and supported by its surrounding areas. Considering this, boundaries of PMR were defined in early 1967. Spread out over an area of approximately 1,340 sq. km. in Haveli Taluk of Pune District, PMR consists of Pune Municipal Corporation (PMC), Pimpri Chinchwad Municipal Corporation (PCMC), Pune Cantonment (PC), and Khadki Cantonment (KC) and close to 100 other census towns and villages. The PMR Region is shown in **Figure 3.2**.

### 3.2.2 Urbanization and Population Growth Trend

Urbanization and urban population growth are pointers towards the change in the occupational pattern of the community, from agriculture and allied livelihoods to industrial and other non-agriculture occupations. The population growth for PMR is shown in **Figure 3.3**.

(i) **PMC.** PMC has a population of 2.54 million (2001) which accounts for 35 percent of the total urban population in Pune District and 60 percent of total PMR population. The PMC's population has grown from 1.57 million in 1991 to 2.54 million in 2001, and in the last decade experienced a compounded annual growth rate (CAGR) of 4.94 percent. PMC's growth is not limited to few but influenced by various factors. It is the most preferred destination for many citizens in Maharashtra for job, education, healthcare treatment, real estate investment, better quality of life etc. as Mumbai is already crowded complied with comparatively high cost of life. The same is for many citizens all over India who migrate to the city for better jobs and education. Industries, trade and commerce activities and number of educational centers in PMC attract floating population from all over India into the city. Rapid growth of the city however mainly attributed to industrialization of PMC/PCMC after 1960 and expansion of information technology (IT) industry in the last decade.



**Figure 3.3: Population Growth – PMC**

(ii) **PCMC.** PCMC is a twin city of PMC and houses most of the industrial developments. PCMC has a population of 1.01 million (2001) which accounts for 14 percent of the total urban population in the Pune District and 23 percent of the total PMR population. The PCMC's population has grown from 0.52 million in 1991 to 1.01 million in 2001. PCMC has experienced a high CAGR after its industrialization in 1960, almost thrice than that of PMC growth.

(iii) **PC and KC.** Pune is headquarters of the Indian Army Southern Command. PC and KC are the military bases established during British rule and still continue to operate as army bases for Indian army. KC is also famous for two ordnance factories: ammunition factory (AFK) and high explosive factory (HEF). PC and KC account for only four percent of the total PMR population and shown a slight growth in the last decade (CAGR 2.16 and 2.28 percent respectively) compared to negative growth during

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1981-1991. Any development in these cantonment areas are under control of Indian army and have minimal impact on urbanization of the rest of the PMR.

(iv) **Rest of the PMR.** The remaining part of the PMR consists of close to 100 census towns and villages with population of 0.56 million that accounts for 13 percent of the total PMR population. The rest of the PMR is also shows a fast pace of urbanization in line with PMC and PCMC growth.

### 3.2.3 Area and Population Density

PMC jurisdiction extends up to an area of 243.84 sq. km. which constitutes approximately 20 percent of the total PMR area. Since 1951, PMC area has to almost doubled from 125.75 sq. km. to 243.84 sq. km. Spatial growth of PMC over the last two centuries is shows in **Figure 3.4**. An average population density as per Census 2001 for PMC is 10,410 persons/sq. km. Population density ranges from as low as 1,476 persons /sq. km. to as high as 182,049 persons/sq. km. The Urban Development Plans Formulation and Implementation (UDPFI) guideline indicate average density of around 15,000 persons/sq. km. for the city, whereas in PMC, almost 60 percent of the wards have higher densities than the prescribed norm. Population densities are higher in the old city wards, and wards along major transport corridors (**Figure 3.5**).

**Table 3.1: Urbanisation in PMC**

Year	PMC		PCMC		PC		KC		Rest of the PMR		Total PMR	
	Popn (No.s)	CAGR (%)	Popn (No.s)	CAGR (%)	Popn (No.s)	CAGR (%)	Popn (No.s)	CAGR (%)	Popn (No.s)	CAGR (%)	Popn (No.s)	CAGR (%)
1951	488,419	-	26,367	-	-	-	-	-	-	-	-	-
1961	606,777	2.19	39,654	4.17	65,838	-	58,496	-	101,363	-	872,128	-
1971	856,105	3.50	98,572	9.53	77,774	1.68	65,497	1.14	135,558	2.95	1,233,506	3.46
1981	1,203,351	3.46	251,769	9.83	85,986	1.01	80,835	2.13	233,881	5.61	1,855,822	4.12
1991	1,566,651	2.67	520,639	7.54	82,139	(0.46)	78,323	(0.32)	395,966	5.41	2,643,718	3.76
2001	2,538,473	4.94	1,006,417	6.81	101,723	2.16	98,090	2.28	556,770	3.47	4,301,473	5.38

(Source: Census of India.)

### 3.3 Economy and Employment

#### 3.3.1 Workforce Participation

Workforce participation ratio for PMC at 34.08 percent (Census 2001) has shown an increase from Census 1991 value of 31.88 percent (Table 3.2). Since work category wise break up is not available for Census 2001, Census 1991 figures are evaluated here. Employment is mainly seen in the service sector, which also includes IT sector (30 percent of the total working population) followed by manufacturing and processing industry (25 percent) and trade and commerce activities (22 percent).

**Table 3.2: Distribution of Workers in Pune**

Sector	1991		2001	
	Nos.	%	Nos.	%
Primary Sector	6,873	1.27	10,246	1.32
Household Industry	9061	1.68	25430	3.28
Other Workers	523,607	97.05	739,943	95.40
<b>Total Main Workers</b>	<b>539,541</b>	<b>100.00%</b>	<b>775,619</b>	<b>100.00%</b>

(Source: Census of India 1981, 1991 and 2001).

#### 3.3.2 Industry

The growth of PMC is being driven by various industry segments. Table 3.3 gives details on major existing and proposed industrial establishments in and around PMR (also refer Figure 3.6). Except Kharadi Knowledge Park, which is located within PMC limits, all other industries are located outside PMC in PMR or close to PMR towards North-West, North and North-East. PCMC houses a majority of the industrial developments.

**PCMC MIDC.** PCMC saw a spate of industrial development following the setting up of Explosives units at Khadki during World War II. The next milestone was the entry of Kirloskar Oil Engines Ltd. into the city in the forties with which PCMC emerged as a known hub for diesel engine manufacturers. In 1960, MIDC set up a huge industrial estate at Bhosari. It was in fact this development, which made PCMC the hometown for production. This development of PCMC an auto-hub has been particularly evident in the period 1960-1990. The MIDC in PCMC is an active industrial hub, hosting close to 3,200 units in production. With many highly rated clients such as Bajaj, Tata Motors, DGP Hinoday, Philips India Ltd. and Centura Enka to its credit, the PCMC MIDC has been instrumental in facilitating the development of

the Small and Medium Enterprises in the area that are today suppliers to the bigger established players there. Given the proximity of the PMC and the PCMC, some of the suppliers to the players in the PCMC have set up industrial operations in the PMC areas such as Hadapsar or Kondwa. In fact, one finds a lot of spilling over between the two corporation limits, whether in terms of industry logistics, talent pool or commercial business support systems.

Table 3.3: PMR Industries

Industrial Area	Completion Status	Area	Zoning	Distance From Pune	Sector
		Ha.	PSI <sup>1</sup>	Km.	
Pimpri Chinchwad MIDC	100%	1,225	A	18	Auto, Auto components
Rajiv Gandhi InfoTech Park Hinjewadi Phase I	100%	87	A	15	IT, ITES
Rajiv Gandhi InfoTech Park Hinjewadi Phase II	80%	218	A	16	BT
Rajiv Gandhi InfoTech Park Hinjewadi Phase III (SEZ)	0% Land Acquisition in Process	350	A	16	IT, ITES
Rajiv Gandhi InfoTech Park Hinjewadi Phase IV	Proposed	400	A	16	IT, ITES
Kharadi Knowledge Park	100%	27	A	PMC	Software
Talawade InfoTech Park	60%	75	A	18	IT
Talegaon Floriculture Park	NA	-	B	37	Floriculture
Ranjangaon Industrial Area	40%	925	C	55	White Goods
Chakan Industrial Area	40%	258	C	30	Auto, Auto components
Jejuri	NA	118	C	48	Mixed Profile
Bharat Forge SEZ	Proposed	1,800	-	40	Auto, Auto components

(Source: Maharashtra Industrial Development Corporation.)

**Package Scheme of Incentives** – Concessions on electricity and stamp duty and octroi refunds. Under the Package Scheme of Incentives (2001), have entitled manufacturing industries to receive several benefits depending on their area of operation. Thus, the different areas in Maharashtra state have been classified into different zones A, B, C, D and D+, where A indicates a high level of industrial development and D+ reflects very low level of the same. In order to create balanced regional development and incentive industries to re-locate to less developed areas, A and B zone are offered lesser incentives as compared to C, D and D+ zones. The Govt. of Maharashtra, in its IT and ITES Policy 2003, has identified the IT and IT Enabled Services to be a driver of growth in the state. Hence, one finds that even if manufacturing activities in A and B zone do not get incentives under PSI 2001, the IT and ITES units in A and B zones can still avail of certain benefits in these zones.

**Ranjangaon Industrial Area.** A recent study by Maratha Chamber of Commerce Industries and Agriculture (MCCIA) reveals that in the past 5 years, nearly 25 percent of the proposed investments by medium and large scale manufacturing units in Pune are along the Nagar road belt (Shirur taluka) at Supa, Sanaswadi or Ranjangaon. This is partly to do with the MIDC that has been developed at Ranjangaon. Ranjangaon MIDC is given status of '5-star industrial area' and avails the benefits of 'C' PSI zoning. Ranjangaon is getting to be popular as a White Goods hub, primarily because of the presence of players like LG, Anchor Daewoo, National Panasonic and Whirlpool. Some South Korean vendors of LG such as Nainko have also established operations at Ranjangaon. This has helped in giving an MNC touch to the Ranjangaon MIDC.

**Chakan Industrial Area.** MCCIA study also states that an additional 15 percent of proposals for setting up manufacturing operations are in Chakan MIDC. At a distance of 30 km. from PMC and 20 km. from PCMC, Chakan MIDC is suitable for its strategic location. Due to its proximity to PCMC MIDC, automobile and auto - related manufacturing operations are been set up in Chakan MIDC.

**IT Industries.** PMC is emerging as a major IT centre, with sprawling software parks mushrooming all over the city and PMR area. According to the Software Technology Parks of India (STPI), software exports from Pune has increased by 48 percent, touching the US\$2 billion-mark, even surpassing Mumbai's exports. Today, PMR houses more than 100 IT industries, one forth of which are multinationals, who are involved in research and development, engineering services and embedded technology-related work. The biggest IT Park in PMR is MIDC promoted Rajiv Gandhi InfoTech Park (Phase I and II) at Hinjewadi, which has witnessed a spectacular growth. Currently spread over 305 Ha., it is likely to be expanded (additional 750 Ha.) in the next few years. Followed by Hinjewadi, Kharadi and Talawde IT Parks are also rapidly developing. In addition to IT Parks developed by MIDC, and since GoM as permitted several private developers to establish IT Parks, a series of IT parks are coming up in residential areas such as Kharadi, Magarpatta, and Kalyani Nagar etc.

### 3.3.3 Trade and Commerce

A large proportion of the city's population thrives on wholesale and retail trade and commerce. The city serves as the regional wholesale market for food grains and other commodities. It also serves as the market centre for agricultural produce such as green peas, wheat, rice, pulses, oilseeds, maize, etc., which are cultivated in the rural hinterland. Pune also functions as a distributing centre for agricultural implements, fertilizers, drugs and medicines, iron and steel, cement and minerals, petroleum products and forest produces such as timber, and readymade garments and textiles. (Table 3.4) .

Table 3.4: Commercial Establishments in PMC

Category	Establishments	Employment
	Nos.	Nos.
Shops	11,718	28,866
Commercial Establishments	22,925	193,557
Hotels	3,967	9,237
Theaters	30	313
<b>Total</b>	<b>38,640</b>	<b>231,973</b>

(Source: PMC – Environmental Status Report, 2005.)



Currently, Central Business District (CBD) comprises areas of Camp (MG Road, East Road), Swargate, Laxmi Road (Tilak Road, Bajirao Road), Kalyani Nagar, Shivajinagar, Wakad Wadi, Deccan, FC Road, JM Road, and Ahmednagar Road (**Figure 3.10**). Main commercial activities observed in these areas are corporate offices/ headquarters for manufacturing and service units, business process outsourcing centres, call centres, banking, insurance, retail trading, shopping malls, entertainment, cinema theatres, health services, educational institutions, hotels and restaurants etc.

### 3.4 Land use Distribution

The first Development Plan (DP) for PMC was prepared in 1966 for a 10 year horizon till 1976 as per Maharashtra Town and Country Planning Act, 1966. Revision to this was made in 1982 which was sanctioned by the GoM in 1987. This second DP was prepared for 20 year horizon (to be valid till 2007) for PMC area of 138.36 sq. km. In 2001, PMC jurisdiction was extended by merging 23 neighbouring villages (in parts) and DP was exclusively prepared for this fringe area for a horizon of 20 years (valid till 2021). Distribution of land use as per 1987 and 2001 DP is given in **Table 3.5**. The combined percentage distribution for various land use categories is presented in **Figure 3.7**.

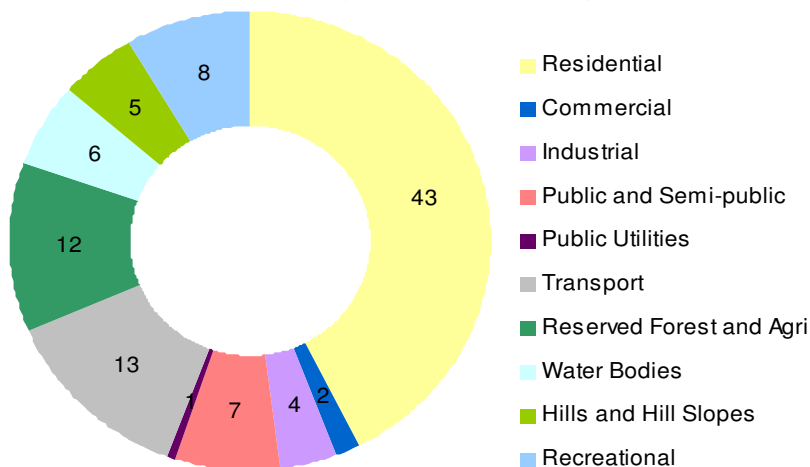


Figure 3.7: Percentage of Land use Distribution – PMC

Table 3.5: Land use Pattern – PMC

Land use Category	1987 DP	2001 DP	Total	1987 DP	2001 DP	Total
	Sq. km.	Sq. km.		Sq. km.	%	
Residential	50.58	53.16	103.74	36.56	50.35	42.53
Commercial	2.35	1.57	3.92	1.70	1.49	1.61
Industrial	7.26	2.62	9.88	5.25	2.48	4.05
Public and Semi-public	15.22	1.45	16.67	11.00	1.37	6.83
Public Utilities	1.38	-	1.38	1.00	-	0.57
Transport	22.00	9.81	31.81	15.90	9.29	13.04
Reserved Forest and Agri	2.35	26.70	29.05	1.70	25.29	11.91
Water Bodies	12.04	2.48	14.52	8.70	2.35	5.95
Hills and Hill Slopes	12.45	-	12.45	9.00	-	5.10
Recreational	12.73	7.79	20.52	9.20	7.38	8.41
<b>Total</b>	<b>138.36</b>	<b>105.58</b>	<b>243.94</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

(Source: City Development Plan (CDP), PMC).

The combined land use pattern shows that around 43 percent of the area is under residential zone, two percent is under commercial zone, four percent under industrial zone and 16 percent under public/semi-public and recreational use. The 1987 DP was implemented up to 30 percent only. Though statistics for the ground situation for changed land use is not available, from field surveys and discussion with PMC officials, it is observed that a lot of land use changes are taken place from the defined zones, especially for commercial areas. Old city wards are overcrowded with commercial establishments and the same is the case with areas along transport corridors. One can also see a number of IT offices in residential areas since IT industry is permitted in residential zones.

## 3.5 Growth Trends and Projection

### 3.5.1 Spatial Growth

Over the years PMC has grown in concentric rings. Future growth of PMC will be mainly governed by existing transport corridors, existing and future industrial developments in and around PMC and the expansion of central business district (CBD). Spatial growth of PMC will taken place towards employment nodes; in areas which are closer to these nodes and areas which gives immediate connectivity to these nodes. Along with this, few areas in PMC will be further densified and will be overcrowded in terms of commercial developments while out migration is expected from already overcrowded residential areas towards peripheral areas. A detailed discussion on spatial growth is given below. Overall PMR growth directions will be in line with PMC, however, below, potential areas within PMC are mainly furnished. Growth corridors of PMC are shown in **Figure 3.8**. Also refer **Figure 3.9** and **Figure 3.10** for PMR Industries and Future Growth, and PMC CBD and Future Growth.

**West, North-West and North – IT and Auto hub.** PCMC MIDC is fully developed and will continue to attract PMC citizens for jobs which are already created. Hinjewadi Phase I and II are attracting major investments while Phase III and IV are in the planning stage. Hinjewadi Phase III has given a Special Economic Zone (SEZ) status and is borne to attract number of multinational companies. As already discussed in earlier sections Chakan MIDC is also attracting major investments and is developing as an extension to PCMC MIDC. Bharat Forge has proposed an SEZ just 45 km. North of PMC over an area of 1,800 Ha. to be developed majorly as auto and auto component industries. All these existing and future industrial developments are well connected with PMC through old and new NH-4 and Mumbai-Pune expressway through city roads such as Pashan Road, Sus Road (SH-57), Baner Road, Karve Road and Sinhagad Road. For future expansion of PMC in the West, North West, and North potential areas will be Baner, Balewadi, Sutarwadi, Pashan, and Aundh where a majority of residential growth is likely to take place. Though there is a spill over of developments into PCMC area (in and around Waked) which are closer to Hinjewadi and PCMC MIDC, PMC is the preferred destination as there have

better level of infrastructure services. CBD expansion is expected in and around city roads leading to old and new NH4 and expressway.

**North-East – IT, BPO and White Goods hub.** North-East areas of Pune will receive equal attention for various developments along with West, North-West and North areas. Towards North-East, Ranjangaon MIDC with 'C' PSI zoning is attracting White Good's investments while areas of Kharadi, Kalyani Nagar, Parnakuti, Bund Garden along Pune-Nagar Road are attracting IT and BPO investments. This area has a proximity advantage to existing airport at Lohgaon while the proposed international airport at Chakan can be easily be accessed from Pune-Alandi Road. Along with these developments, Pune-Nagar Road is witnessing a high commercial developments along it in the last few years. For future expansion of PMC in the North-East potential areas will be Kharadi, Ramwadi, Wadgaon Sheri, Lohgaon, Parnkuti, Kalyani Nagar, Yerwada etc. CBD expansion is expected in and around Pune-Nagar Road.

**South, South-East.** Following West, North and North-East, South and South-East will be the potential area for PMC spatial growth. Hadapsar area has already seen a lot of spill over from PCMC MIDC and many investors have established their manufacturing operations here. Hadapsar industrial areas have advantage of Pune-Solapur Road connectivity. This area has also seen IT developments by private investors, where IT offices are developed as a self-contained city (along with residential areas, schools, amenities etc.). Magarpatta Cyber city is a good example of this. Southern areas of PMC will be further densified taking advantage of connectivity to industrial areas in West and North through Mumbai-Pune expressway. PMC's growth towards the extreme south and beyond its boundaries is restricted due to hills and forests. For future expansion of PMC in the South and South-East potential areas will be Hadapsar, Ramtekadi, Mahamadwadi, Kondhawa etc. CBD expansion is expected in and around Pune-Solapur Road.

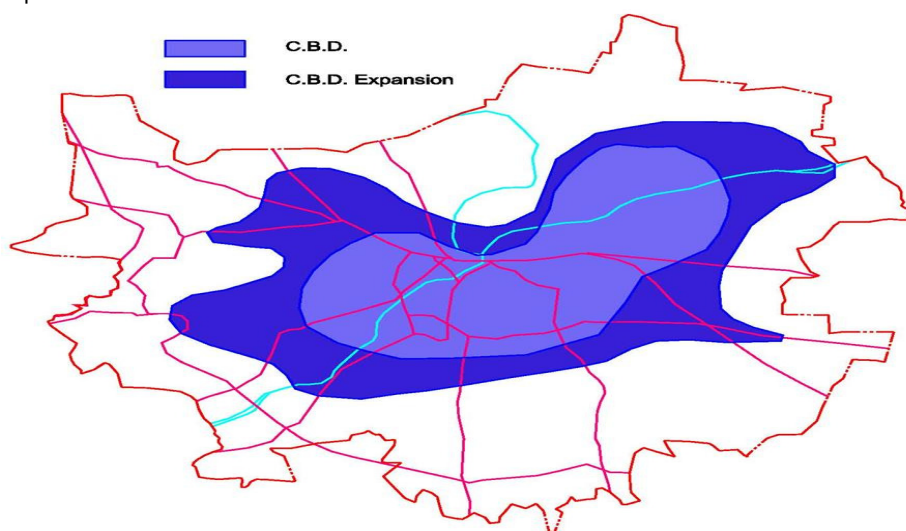


Figure 3.10: PMC CBD and Growth

South, South-West Expansion in South and South-West areas will be mainly triggered by Mumbai-Pune expressway link. Areas of Kothrud, Warje, Karve Nagar, Wadgaon will continue to receive attention for residential and commercial developments. These areas are already developed in terms of infrastructure services and availability of various amenities (education, health, banking services etc.) and hence preferred by many citizens. In the South and South-West, spill over of developments beyond PMC limits is not expected in future due to geographical restrictions such as Panshet and Khadakawasala dams, hills and forests. The area beyond PMC also lacks transportation linkages except for Pune-Satara Road.

### 3.5.2 Population and Employment Growth

Population and employment projections worked out for PMR, except PMC are mainly based on past trends. Population and Employment projections for PMC are based on assessment presented in earlier sections. This broadly includes:

- I. Land use distribution as per Old and New Development Plans, Land use Changes
- II. Spatial growth of PMC, existing and future Growth Corridors
- III. Existing density patterns
- IV. Existing and future investments in Industries
- V. Future growth of CBD, employment scenario
- VI. Future growth of residential areas
- VII. Average employment for commercial/public/industrial areas in different localities

For ward wise projections, wards were applied with different growth rates based on existing population density and employment in each ward and its potential for future development. Different growth rates were also applied over the decades such as for 2011, 2021, 2031 etc. considering overcrowding and out-migration issues. **Table 3.6** gives the summary of projected population and employment for PMR. A detailed ward wise projection for population and employment for PMC is given in **Appendix 3.1** and **Appendix 3.2** respectively. **Figure 3.11** shows the Population growth in PMC. Following are the major observations from population and employment projection analysis:

- I. PMC population will grow to 5.63 Mn. by 2031
- II. PMC employment will grow to 2.36 Mn. by 2031 to have workforce participation rate of around 42 percent
- III. PMC average population density in 2007 will be 12,173 persons/sq. km., in 2011 will be 13,718 Persons/sq. km., in 2021 will be 18,064 persons/sq. km. and in 2031 will be 23,102 persons/sq. km.
- IV. Population density will be more than twice of population density in 2001.

- V. PMR population will grow to 11.41 Mn. by 2031
- VI. PMC employment will grow to 4.85 Mn. by 2031 to have workforce participation rate of around 43 percent

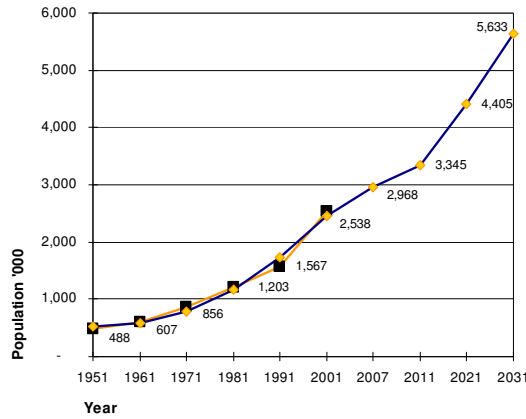


Figure 3.11: PMC Population Growth

Table 3.6: Projected Population and Employment

Region	Population (Million)				Employment (Million)			
	2007	2011	2021	2031	2007	2011	2021	2031
Pune Municipal Corporation	2.97	3.34	4.40	5.63	1.11	1.35	1.78	2.36
Pune Cantonment	0.11	0.12	0.13	0.14	0.04	0.04	0.05	0.05
Khadki Cantonment	0.12	0.12	0.13	0.15	0.04	0.04	0.05	0.05
Pimpri-Chinchwad Municipal Corporation	1.42	1.74	2.75	4.10	0.54	0.72	1.26	1.89
Rest of the PMR	0.70	0.79	1.07	1.39	0.25	0.29	0.39	0.50
<b>Total Pune Metropolitan Region (PMR)</b>	<b>5.31</b>	<b>6.11</b>	<b>8.48</b>	<b>11.41</b>	<b>1.98</b>	<b>2.44</b>	<b>3.52</b>	<b>4.85</b>

(Source: Analysis.)