



Necessity of City Mobility Plan for Pune, India

KEYWORDS

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Introduction

The National Urban Transport Policy (NUTP) has been formulated by the Ministry of Urban Development in 2006 to transform the current urban transport system into a safe, convenient and efficient transportation system across all urban areas in India. In order to ensure that the various urban transport projects that are being developed by the cities are NUTP compliant, the ministry has in a 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." The CMP essentially will suggest various actions that lead towards a vision. The Comprehensive City Mobility Plan addresses traffic growth of 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. The objectives of this Study are:

To understand present day traffic characteristics and prepare forecasts of these character through the development of a transportation model. develop a transportation vision for Pune. To identify specific strategies and measures to address traffic growth of all modes of transportation in an effort to meet set goals.

Prepare a programme of CMP implementations along with block cost estimates.

Study Area

While the focus is on Pune Municipal Area, the study area included a much larger area taking into accounting all areas that have a influence on Pune's traffic. This study hence extends itself to the Pune Metropolitan Region PMR that includes Pimpri Chinchwad and all surrounding villages, Pune cantonment and khadki Cantonment. The PMR area is shown in



Figure 1.1

Study Methodology

Stage 1 Mobilization & Reconnaissance

The task includes mobilization of both human and material resources, involving the establishment of the project team and facilities. Staff deployment planning was done, paying due attention to the project plan and deliverable timelines. The project was assigned a project manager to coordinate with IL&FS and the city. One of the first task that was to be undertaken to appreciate transport issues in Pune was to conduct a reconnaissance that covered land use, road system, public transport system (Bus, Rail and Air)

Stage 2 Data Collection

Various traffic surveys were conducted to study the existing travel characteristics of Pune city. The detailed survey methodology and results for traffic surveys are discussed in Appendix 4.1. The types of surveys conducted are listed below:

- Road Network Inventory
- Mid Block Traffic Volume Counts
- Road Side Interview Survey
- Speed and Delay Survey
- Parking Survey
- Pedestrian Crossing Count Survey
- House Hold Travel Survey
- Bus Passenger /Terminal Survey
- NMT Survey

Stage 3 Urban Travel Demand Model Building

An Urban Land use Travel Demand model has been build for forecasting travel characteristics for the study region. The model analyzes the present and future land use patterns to estimate the number, origin and eventual destination of trips through various travel modes.

Stage 4 – Draft Mobility Plan

Alternative Transport Plans and Land Use Plans

As the city is experiencing development of several new integrated townships, SEZs and IT parks, local and State governing bodies have prepared several studies. Each of these studies resulted in identifying appropriate solutions to meet the resultant transportation demands. Several road widening and network improvement proposals (including flyovers and junction improvements) are underway, a key initiative towards addressing the public transportation system is the Bus Rapid Transit System (about 100 km of network), that is being implemented. City Development Plan process initiated by the JNNURM and the existing Land Use Master Plan given one roadmap for the future land use development. From both the above mentioned transport proposals and land use plans composite land use transport plans have been prepared for testing the various proposals

Transport Vision and Strategy

The Mobility Plan is developed in layers, from one broad, overarching vision through specific steps— such as goals/strategies—to a list of specific actions that will carry the city towards that vision. PMC has developed a Transportation Policy as well as a City Development Plan. Both the documents contain a vision for the urban transport sector for the Pune city. The national urban transport strategy (NUTP) also lays a policy frame work for transport network development in urban areas across the country which has been used defines the vision. Several citizen groups have initiated developing a transport vision for Pune city. The study had considered all the available national and local reports as well as public input through workshops before finalizing a broad vision statement. A set of strategies/goals have been identified towards Achieving that direction of the mobility plan. The goals have been developed based on the available transport research in the country and consultant's experience and the consultation process. It is assumed that the improvement proposals or actions that have been short listed meet those goals or strategies.

Institutional Framework

General guidelines have been suggested indicating the basic framework that will be necessary from the government for devising a proper institutional system for improvement of transport facilities in the city.

Mobility Plan

A mobility plan containing the vision, strategy and specific actions in the form of improvement proposals has been then developed.

Stage 5: Stakeholder Participation & Updation

Stakeholder Workshop/Meetings

To make the mobility plan a collaborative effort detailed meetings have been held to:

- disseminate the findings of the draft mobility plan
 - solicit the comments and concerns from the stakeholders
- Input from the stakeholder workshops and meetings have provided input to the development of the mobility plan on various aspects and issues of the transportation system. The public involvement has also given guidance to the outcome.

Pune Development & Growth Direction

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 inter spread by low and medium ranges of hills.

Urban Development

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.

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.

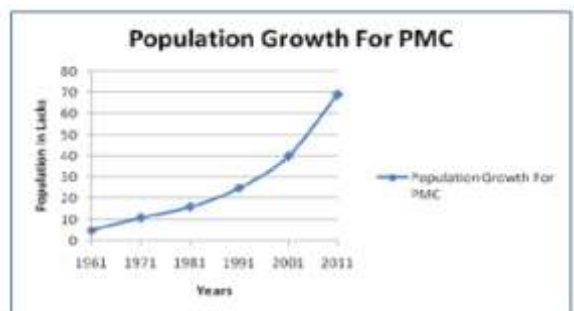


Figure - Population Growth – PMC

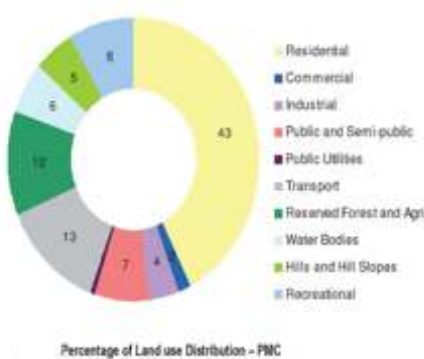
(ii) PCMC. PCMC is a twin city of PMC and houses most of the industrial developments. PCMC has a population of 1.01 million (2001) which accounts for 14 percent of the total urban population in the Pune District and 23 percent of the total PMR population. The PCMC's population has grown from 0.52 million 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) 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 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.

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 almost doubled from 125.75 sq. km. to 243.84 sq. km. Spatial growth of PMC over the last two centuries is shown 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 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



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
Total	138.36	105.58	243.94	100.00	100.00	100.00

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

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 take place towards employment nodes; in areas which are closer to these nodes and areas which give 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

Public Transport

Pune has a low share of public transport and high share of private transport. Pune Municipal Transport popularly known as PMT is operating buses in the PMC limits. A fleet of about 960 buses transporting nearly 5.50 lakh passengers in a day, a staff of about six and a half thousand, six depots, eighteen main bus stations and about 200 routes operated and maintained by PMT. PMPML has been recently formed merging PMT and bus corporation of Pimpri Chinchwad. 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 the PMPML has only about 1400 buses in running conditions.

Encourage and Designate Pedestrianisation 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 to car-free use is called pedestrianization. Well designed and placed public spaces can

enliven an area. M.G. Road in the city is already being made as 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 very high pedestrian volumes. 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 chronic air pollution and traffic jams That plague the old city

Mobility Plan Investment Program

Accurate estimation of urban transportation expenditure is a difficult task as the transportation infrastructure for urban area is implemented by various agencies such as Local Planning Authorities/ Development Authorities, Urban local bodies, NHAI/State Highways/PWDs, Traffic Police etc.

Conclusion

It is observed from various studies undertaken it is urgent need to channelize the traffic pattern along with pedestrian safely and Intelligent traffic management.

It is also concluded that if we want to provide better living standards to urban population enforcement of law along with basic infrastructure development is required. There

References

- 1) Pune City Mobility Plan
- 2) Ahmedabad BRTS Plan
- 3) Amritsar Mobility Plan