



Comprehensive Transport Policy for Pune Metropolitan Region

Pune Municipal Corporation

2007



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Vision, Policy and Recommendations

1.0 Introduction

Various groups that are closely associated with traffic and transportation issues in the city came together to discuss various points of view and to try and arrive at a common vision and a set of recommendations that were felt should be adopted by the City as an essential part of the City's Development Plan.

Already, in recognition of the vehicular pollution in the City with its disastrous effects on Pune citizens, the Bhure Lal Committee of the EPCA[†], appointed by the Supreme Court, has issued directives aimed at improving the Traffic and Transportation situation with an aim to address this health catastrophe. Several recommendations in this document are in line with those directives.

Increasingly people from a wide array of fields worldwide have started questioning the conventional thinking about dealing with the growing transportation needs of a city. The catastrophic failures of transport policies on many fronts have led citizens, cities and countries to revolutionalise their current positions and adopt radically new policies.

For urban areas to be able to support the required level of economic activity, they must provide for the easy and sustainable flow of goods and people. Unfortunately, however, such flow of goods and people has been facing several problems; most prominent among them have been the following:

Accessing jobs, education, recreation and similar activities are becoming increasingly time-consuming. Billions of man-hours are lost with people "stuck in traffic". The primary reason for this has been the explosive growth in the number of motor vehicles, coupled with limitations on the amount of road space that can be provided. For example, on an average, while the population of India's six major metropolises increased by about 1.8 times during 1981 to 2001, the number of motor vehicles went up by over 6 times during the same period.

The cost of travel, especially for the poor, has increased considerably. This is largely because the use of cheaper non-motorized modes like cycling and walking has become extremely risky, since these modes have to share the same right of way with motorized modes. Further, with population growth,

[†] Please see Appendix I for the full list of directives of the Environment Pollution Control Authority (EPCA).

cities have tended to sprawl and increased travel distances have made non-motorized modes impossible to use. This has made access to livelihoods, particularly for the poor, far more difficult.

Travel in the city has become more risky with accident rates having gone up from 1.6 lakh in 1981 to over 3.9 lakh in 2001. The number of persons killed in road accidents has also gone up from 28,400 to over 80,000 during the same period. This again has tended to impact the poor more severely as many of those killed or injured tend to be cyclists, pedestrians or pavement dwellers.

Rapid motor vehicle growth has also caused severe air pollution, adversely affecting the health of the people and their quality of life.

Unless the above problems are remedied, poor mobility can become a major dampener to economic growth and cause the quality of life to deteriorate.

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This re-orientation in thinking has been advocated by traffic and transportation planners both within India and abroad for some time. While they have gone largely unheeded at home, they have been increasingly accepted not only in several developed nations but also in some developing nations with spectacular results.

In the year 2007, Pune is at the crossroads in its urban development journey. Decisions made at this juncture about the way we invest our resources will have an enormous impact on our future. We are in a position to avoid the bad decisions made by other societies and leapfrog to a better future.

Over the next five decades, Pune will certainly grow not only into a metropolis but might even turn into a large megapolis¹. Even with such explosive growth, all Pune-kars should be able to enjoy a high quality of life. We have to plan for this growth so as to create a city that citizen will necessarily enjoy living in.

The active citizens of Pune have always challenged the status quo and by being resourceful have accomplished more than what was ever thought possible.

The planners and visionaries cannot brush aside valid and reasonable ideas with supporting data by labelling them *impractical*. The path of least resistance, always tempting, will lead us to an unliveable city. There will be many obstacles and difficulties; fiscal, political and practical, but instead of excuses, planners must face the reality and become solution focussed. This means having resolve and sometimes making unpopular decisions. This path will lead us to a better future.

¹ Urban India is expected to grow up to 820 million people in 2051 from 285 million in 2001 [source Ribeiro, E.F.N; director Association of Urban Management and Development Authorities (AMDA)]

Planners and decision makers must not allow the city to become one where commuters spend hours in horrible traffic snarls, where it is impossible to take a walk or ride a bike and where people need to wear masks to save them from the poisonous air. The heritage, history, landmarks, the unique landscape, the rivers and hills must be preserved instead of leaving a concrete jungle as our legacy. Nobody wants a city where the rich live in gated communities, and where in the midst of wealth, the poor live in unspeakable conditions.

The science of traffic and transportation underlies every social, economic and environmental issue. It concerns every citizen, irrespective of caste, creed, community, gender or age. Ultimately the vision for the city is directly related to the issue of mobility and the manner in which it is addressed.

2.0 Vision

- Develop Operate and availability of Environment friendly, economic, safe and socially acceptable transport to all citizens.
- Create and manage Pune's integrated urban transport system, which makes available to its inhabitants convenient, comfortable, affordable, efficient, safe and environment friendly transport system, which allows congestion free movement of traffic including bus, goods, pedestrian, cyclists and other modes of transports.
- All of which suppose the effective patterns of land use, equitable development of our city, boost the economic activity and support social development of its people and put them on the path to sustainability.
- In other words, , "Establish fast, comfortable, economic, and personalised vehicle-competitive mass transit systems (MTS) that will serve the mobility needs of all segments of Pune's population, even current owners of personalised vehicles".
- It is necessary to quantify the vision in terms of reduction of the number of personalised transport on roads during peak hours and improvements in the various indices such as, walkability, safety, public transport and intermediate public transport. The aim would be to improve the number of pedestrian infrastructure vis-à-vis the total length of roads, reduce accidents, and improve the number of PT/IPT per lakh of population (the aim should be to make available the requisite number of buses per lakh population as per CIRT norms).

Vision statement of NUTP policy:

- *To recognize that people occupy centre-stage in our cities and all plans would be for their common benefit and well being*

- *To make our cities the most liveable in the world and enable them to become the “engines of economic growth” that power India’s development in the 21st century.*

- *To allow our cities to evolve into an urban form that is best suited for the unique geography of their locations and is best placed to support the main social and economic activities that take place in the city*

OBJECTIVES

The objective of this 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 our cities. This is sought to be achieved by:

- *Incorporating urban transportation as an important parameter at the urban planning stage rather than being a consequential requirement*

- *Encouraging integrated land use and transport planning so that travel distances are minimized and access to livelihoods, education, and other social needs, especially for the marginal segments of the urban population is improved*

- *Improving access of business to markets and the various factors of production*

- *Bringing about a more equitable allocation of road space with people, rather than vehicles, as its main focus*

- *Investing in transport systems that encourage greater use of public transport and non-motorized modes instead of personal motor vehicles*

- *Establishing regulatory mechanisms that allow a level playing field for all operators of transport services*

- *Introducing Intelligent Transport Systems for traffic management*

- *Increasing effectiveness of regulatory and enforcement mechanisms*

- *Addressing concerns on road safety and trauma response*

- *Reducing pollution levels through changes in travelling practices, better enforcement, stricter norms, technological improvements, etc.*

- *Building capacity (institutional and manpower) to plan for sustainable urban transport and establishing knowledge management system that would service the needs of all urban transport professionals, such as planners, researchers, teachers, students, etc*

- *Promoting the use of cleaner technologies*

- *Raising finances, through innovative mechanisms that tap land as a resource, for investments in urban transport infrastructure*
- *Associating the private sector in activities where their strengths can be beneficially tapped*
- *Taking up pilot projects that demonstrate the potential of possible best practices in sustainable*

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3.0 Problem Definition

The most visible problem facing Pune is its deteriorating mobility². One is currently facing congestion: ever increasing commuting times chaotic and accident prone traffic conditions whatever the mode of transport degraded air quality, which continues to worsen and threaten the health of citizens loss of breathing lungs for the city like open spaces and green areas

The main reason for this is the explosion in the number of vehicles in the city³.

Discouraging use of personal motor vehicles

Measures that discourage the use (not ownership) of personal motor vehicles during peak periods would have to go hand in hand with measures that encourage the use of public transport. The Central Government would, therefore, encourage the adoption of measures that restrain the use of motor vehicles, through market mechanisms such as higher fuel taxes, higher parking fees, reduced availability of parking space, longer time taken in traveling by personal vehicles vis-à-vis public transport, etc. It would also encourage the use of congestion pricing schemes, requiring the payment of special taxes by personal motor vehicles if they operate in the more congested parts of a city. The objective would be to encourage people to use public transport or non-motorized transport for daily trips to work or school and limit the use of personal motor vehicles to periodic family outings and recreation or leisure trips. A word of caution: Traffic systems that have proved successful abroad should be very carefully weighed before embarking in Pune.

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Vehicle Growth by Mode in last 5 years in Pune – Source: PMC’s Environment Status Report 2006-07

² Almost every eminent visitor to Pune expresses concern over the city’s rapidly deteriorating traffic situation.

³ Since 1960 the population of Pune had gone up by a factor of 4. During the same time period vehicles on the road have increased 87-fold! Pune (pop. ~30 lakhs) has more vehicles on the road (~13 lakhs) than even Mumbai (pop. 1.2 crores, vehicles ~11.2 lakhs). Pune continues to add over a lakh vehicles to its roads every year. (Mumbai figures from Mumbai Traffic Control Branch [www.trafficpolicemumbai.org])

Table 1 Numbers by Year

Year	Two Wheelers	Three Wheelers	Cars	Buses	Trucks	Other	Total
2000	609497	58574	97279	8084	55800	1375	830609
2001	665232	61776	106183	8212	59465	1406	902274
2002	723247	65450	117659	7829	60935	1433	976553
2003	788191	67945	129059	7994	62729	1461	1057379
2004	864738	70095	143107	8716	64130	1470	1152256
2005	922674	70241	161020	10020	59336	1503	1224794
2006	1017753	57384	185140	10011	24969	22111	1317368
2007	1123898	58916	210818	10273	17566	23893	1445364

Table 2 Vehicles per lakh people

Year	Population	Two Wheelers	Three Wheelers	Cars	Buses	Trucks	Other	Total
2001	2538473	24010	2307	3832	318	2198	54	32721
2005	3006036	28767	2332	4761	290	2133	49	38331
% growth since 2001	51.4	19.9	65.5	23.9		6.3	9.3	47.5

Note: Only Two-wheelers and Cars have increased significantly per lakh people

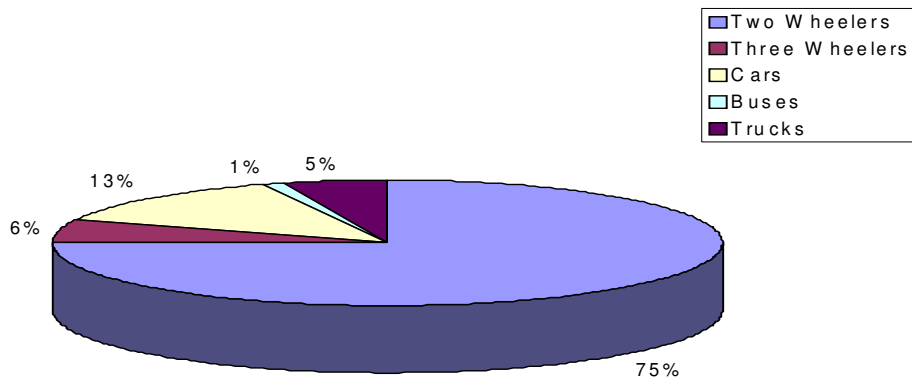
This has happened because of a lack of viable alternative transport modes, be it public transport or walking and cycling for short commutes.

In turn, the ever-increasing numbers of vehicles on the roads accelerates pollution, and dense traffic conditions leading to increased frustration and hence to increased traffic violations.

4.0 Framework for a solution

Clearly, solutions that lead to an ever-increasing use of personal auto-vehicles for transport cannot ever succeed.

Vehicle Composition



It is, therefore, necessary to adopt a wide range of policies that will reduce the number of vehicles on the roads of Pune while simultaneously improving accessibility, safety and environmental conditions for all sections of society by creating a world class Public Transport network.

It is recommended that every traffic and land use policy decision should be in consonance with this overarching principle.

In the end Pune must be a city that is people-friendly, not vehicle-friendly.

High Level Guidelines

- i. While thinking about traffic and transportation systems, one does need to think about the mobility of people.
- ii. Public space is for the equitable use of all people.
- iii. It is stressed that a city must only adopt sustainable modes of growth. Traffic and Transportation must be built around public transportation with a view to moving more people, more efficiently; but with fewer vehicles. Other environment friendly modes of mobility like walking and biking must have a very high priority.
- iv. Every mode of transport should pay its real cost, both direct and indirect (like its environmental impact). Ultimately, a city must be safe as well as accessible for all its residents.
- v. Pune must have an integrated and balanced traffic and transportation or comprehensive mobility plan. Integration means dovetailing the traffic and transportation plan into the city's land use plan, usually covered by the Development Plan or City Development Plan (CDP).

Integration also implies that it starts at the citywide level (broad) and then be detailed down. The plan must attend to the short-term, mid-term and long-term needs of the city. This plan must apply to the Pune Metropolitan Region (PMR), which includes PMC, PCMC and the Khadki and Pune Cantonment Boards. This is because there is continuous flow of traffic to and from these areas, which are inter-connected. For example, the industry is located mainly in PCMC area while the work force largely

resides in the other three areas. PMC and PCB areas house most of the educational institutions and hence attract traffic from the other three areas. The main business district is located in Pune city. However, each of the areas also has its own business area. Finally, the various modes of transport must be seamlessly integrated both physically and operationally.

- vi. All segments that are associated with mobility must have inputs into the traffic and transportation plan. The police and other first respondents, emergency medical services and fire departments must be an active part of planning. The needs of physically disabled persons, senior citizens and children must also be taken into account. The transport policy must also take into account the special considerations of travel by women⁴.

The only way to accomplish this is to create proposals that are based on data (surveys) and which undergo thorough analysis. The procedures to come up with recommendations must be based on scientific principles. In other words, selection of a mass transit system must comprise a pre-feasibility and a techno-economic feasibility studies to select the MTS and then a detailed project report for implementation of the same. Similarly, every MTS project should have a project management consultant. The process must invite the community at large and be open and transparent.

In the long term, the decisions taken in this fashion will be effective, as well as efficient and economical too.

For the effective implementation of the above policy guidelines, we need to have strong commitment and support from all sections of the society, elected representatives and officials, otherwise this difficult problem will continue to remain unsolved.

5.0 Recommendations

Sustainable Traffic and Transportation policy has several components. While thinking of each one independently, they must ultimately mesh into a holistic plan.

5.1 Public Transport

Lynchpin of Traffic and Transportation Policy

In light of the overall vision it is clear that public transportation must be the nucleus of a city's traffic policy. The current system must not just be improved, but radically reoriented, so that it can provide for a bulk of the transportation needs of the city, both present and future.

It is well known that public transport occupies less road space and causes less pollution per passenger-km than personal vehicles. As such, public transport is a more sustainable form of transport.

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While other modes of Mass Transit Systems (MTS) should certainly be considered, the following are important and urgent.

⁴ Women are more likely to use public transport, since they often do not have access to personal vehicles. They also have more complex travel needs. Issues of safety become paramount when considering travel by women.

A. Improve the existing bus system. Some major action items are –

- i. While the merger of PMT and PCMT into PMTC is now in force, it is necessary that the modalities of merger should be completed on priority so that the merged entity is in complete charge of the public transportation needs of the PMR. †
- ii. The merged entity should be managed by a transport committee vested with adequate authority to ensure better management.
- iii. Improve the current fleet. This means more buses^{5†}, better buses and better-maintained buses. Discipline on buses, signage and well maintained bus terminals that improve the commuters experience must be priorities. Obstacles in achieving these objectives must be identified and addressed.
- iv. Stress the capacity building of new public transport body. This entails better training and better management of the staff, which should improve their ability as well as morale. This should be an ongoing exercise, built into the very operation of the public transport organisation and should be viewed as an important aspect of the organization, not subject to the personal inclinations of the top-management.
- v. Introduce a hierarchical system that consists of buses with different levels of service such as no-standee buses, air-conditioned buses, express buses etc. Across the board subsidized fares can be thus avoided, improving the collection. Ensure ease of transfer between routes by introducing through tickets.
- vi. Ways to improve the fiscal health of the PMTC should be vigorously pursued. This should include direct funding with money collected from non-public transport sources such as parking fees and vehicle taxes as well as increased revenue from advertising/billboards as well as franchises at bus terminals and depots. Transparency and open systems need to be put in place to avoid political favours and corruption.
- vii. Scientific and data based route rationalization
- viii. Scientific and data based fare rationalization

B. Start the transition to the next generation bus based public transport system

The improvement to the PMT bus fleet (both in terms of number of vehicles and vehicle quality) will improve the commute time, comfort and reliability for the current users. It will also reduce the danger to commuters and non-commuters and generally enhance its currently poor image. These measures must, therefore, be undertaken immediately.

However, it is important to realize that no significant shift from private vehicle use to public transport will be accomplished without a completely new system that is designed from scratch with this goal in mind.

One such system that has been implemented in cities abroad is the Bus Rapid Transit (BRT). BRT is a complete system; its design seamlessly incorporates walking and cycling also. Most importantly, it is designed and built to attract every class of commuter, even those that may own vehicles. By providing an attractive alternative to vehicle users, it has the potential to reduce road congestion.

⁵ CIRT recommends that a city must have at least 40 buses for every 1 lakh people. However, CIRT also says that this is not a sacrosanct figure and the norm should change according to the needs for PMR with the twin cities in its ambit, the figure is nearer 55. E.g. in Delhi the availability is 100 per lakh of population but still the public transport is inadequate. For PMC with a population of 30 lakhs, this implies having 1,650 buses. The figure for PMRPMTC needs to be worked out.

BRT is currently being implemented in one corridor⁶ in the city.

Implementing a BRT system is a complex exercise. Considering the absence of previous experience, the capacity of various institutions has to be assessed. They must be given time and resources to build capacity and in addition Private-Public partnerships must be considered. An implementation roadmap must be developed prior to launching this system.

5.2 Financial health and subsidy issues

Almost every public transportation system in the world is subsidized. This is not only in order to keep the fares within the reach of the common man but also in recognition of the public benefit that a city enjoys when it has a healthy public transport. It is commonly held that private auto-vehicle use is un-subsidized. This however is a myth.

Private auto-vehicle users do not actually pay the full cost of their use. Cars and two-wheelers use a lion's share of roads, both while driving and parking. They are also responsible for pollution. In a country like India, they also use subsidized fuel. If one were to calculate the true cost on the city of private vehicle use and pass it on to the vehicle owner, private vehicle use would become expensive and hence increasingly unattractive.

Public transport is often considered a poor man's choice for travelling and hence planned for accordingly. The State often dictates the fare structure, which can be at odds with actual operational costs.

There is a need for the city planners and officials to recognize the benefits of Public Transport in its wider context. There needs to be a gradual removal of indirect subsidies to private vehicle users. Public Transport, in addition to being the recipient of city grants, should also become the direct beneficiary of money collected from private auto-vehicle users for road use, fuel use, parking levies and pollution.

Once people make the investment in a vehicle, there is little incentive not to use it, unless its use is made costly by imposing taxes and parking fees.

Private vehicle use can be more effectively discouraged by levying usage based charges rather than one-time upfront costs. While more sophisticated methods such as mileage-based insurance and taxes exist, simpler schemes such as annual taxes[†] (rather than a one time tax) and parking charges[†] (which clearly are more equitable, since more frequent users of vehicles, end up paying more) are easily implemented. Taxes on private vehicles currently go to the State Government, while it is the Municipal Corporation that bears the burden of roads. Users of Public Transport pay a passenger tax in contradiction to the arguments made earlier. Both of these are aberrations and should be corrected. It is suggested that the State Government should carryout the detailed study on tax structure that might be considered in future.

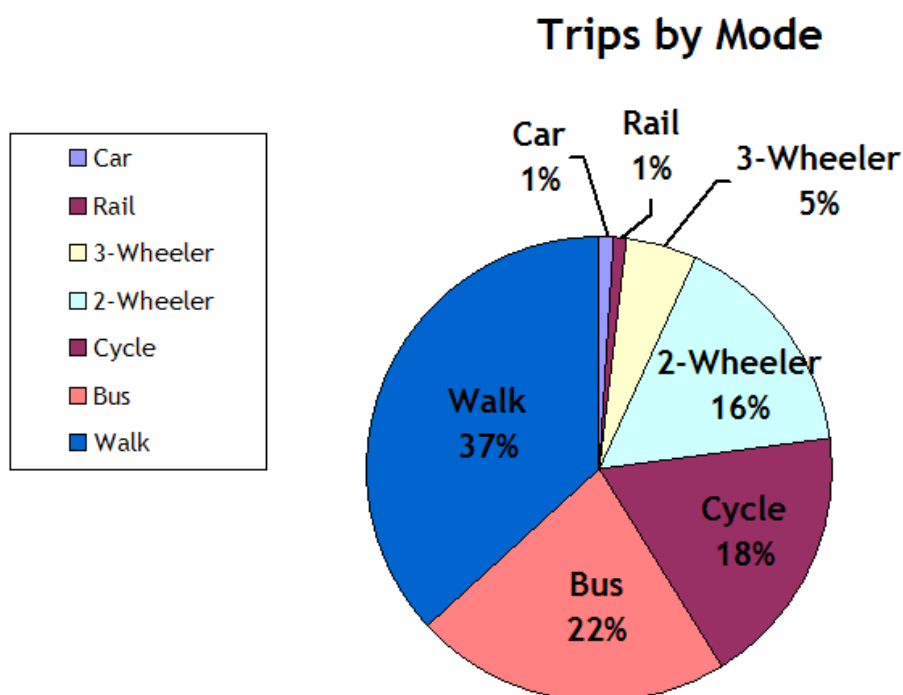
Another point for consideration is that the State Government currently takes away as much as 55.8 % from the prices of petroleum products in terms of various taxes (state surcharge, sales tax/VAT and excise duty, while giving nothing to the citizens who are paying this encumbrance. It would be prudent for the state government to part with some of this money rather than tax the citizen further. Similarly, the amount generated by the police from compounding fees for traffic offences needs to be ploughed back in strengthening the traffic police infrastructure. Please see Appendix III for break-down of petroleum prices.

⁶ Hadapsar-Swargate-Katraj corridor

This should become part of stated public policy so that Public Transport is officially recognized as the preferred mode of transport, and one, which in the long-term is the only real solution for a liveable city. Every attempt must be made to have public transport, which is energy efficient, environmentally friendly and efficiently operated.

5.3 Dedicated lanes for buses

Today roads are laid out, designed and built, all with an automobile (or 2-wheeler) in mind. Not enough consideration is given to other users like pedestrians, cyclists and public transport. Heritage sites, open spaces etc are increasingly being sacrificed to accommodate the needs of private auto-vehicles.



In Pune (as in most other cities in the country) an overwhelming majority of trips are still done by way of walking, cycling and by bus (even in its current deplorable state). Additionally the benefits of these modes in terms of energy efficiency and lowered pollution per passenger are well known. In light of this we recommend that these modes be always given priority share of road space. A bus system that uses a dedicated lane will provide all aspects of a desirable public transport: comfort, speed, safety and reliability. It is commonly cited that certain streets, especially in the city centre are too narrow to allow for a dedicated bus lane. In order to use the limited road space available most efficiently, one must try to move as many people as possible (mobility-centric) rather than trying to move more vehicles (traffic-centric). Hence even on narrow roads, one must ensure that

- i. there are provisions for adequate footpaths
- ii. there are provisions for cycle paths
- iii. there are lanes for buses

The PMC should define a road as consisting of a footpath, a cycle track, a bus lane and a motorised lane and no road should be constructed without these specified lanes. If necessary, private vehicle traffic should be diverted to alternate routes and on-street parking restricted.

Integrated public transport systems

All cities have corridors that have varying densities of travel and hence need technologies that best match the level of demand on the corridor. This often requires different operators managing such systems. However, a good public transport system is one that is perceived by the user as a single system and allows seamless travel between one mode and the other as also between systems managed by different operators. Such seamless interchange is possible if proper inter-change infrastructure is available and users are able to use a single ticket over all such systems. This also requires that a single agency takes responsibility for coordination so that there is a common approach to public transport planning and management.

A whole system vision is, therefore, essential for PMR although the Comprehensive Mobility Plan could be with different types of MTS for execution in phases. Such a vision for the entire system may consist simply of a route map showing all intended planned corridors and the corresponding MTS. An evolutionary approach of developing relatively small MTS projects one by one⁽⁷⁾ fits the Pune ethos of moderately high interest in PT but with ever-pressing four and two-wheeler lobbies working against PT.

Accordingly, the Central government would expect that investments in public transport systems would also seek to ensure that such systems are well integrated and offer a seamless system to the users. Central government's financial support would be contingent on appropriate authorities/entities being set up to ensure that a coordinated and integrated public transport system becomes available.

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5.4 Footpaths and Bicycle Track Network

Since 55% of all trips in the city still take place by people walking or cycling, this is probably the most important component of the Traffic and Transportation Policy and one that is, sadly, the most ignored. Making sure that pedestrians and cyclists are well provided requires the least infrastructure -- neither concrete roads nor flyovers are needed. Considering that currently these two modes are used predominantly by people from the lower economic strata, our national ethos and ethics demands that their basic due is given. Walking and cycling are not only non-polluting, environmentally friendly and healthy, but Pune's salubrious weather and compact size makes these modes eminently suitable for being used on a wider scale. No wonder Pune was once regarded a 'cycling city'.

Hence, the goal of the Traffic and Transportation policy must fulfil the twin objectives of:--

- i. making walking and cycling safe and convenient for pedestrians and cyclists; and
- ii. Encouraging more and more people to walk and/or bicycle (instead of using their auto vehicles).

5.4.1 Footpaths

The footpaths or Pedestrian paths need to adhere to certain standards. The basic aim is to provide pedestrians a continuous, convenient and comfortable walkway. This means that footpaths must be adequately wide, continually navigable with no (or minimal) breaks and be free of obstructions. In their absence, pedestrians tend to use the carriageways, both endangering themselves as well as impeding the flow of traffic.

⁷ Bus Rapid Transit Planning Guide, (Commissioned by Federal Ministry for Economic Cooperation & Development, Germany)

It is recommended that roads should have a footpath standard, codified in the city's road-standards. This should include:

- i. mandatory tree-lined footpaths on either side of all roads, with
- ii. the minimum width, irrespective of the width of the road itself (narrow roads with footpaths act as a natural constraint for vehicles and discourage people walking on roads)
- iii. a maximum/standard height (from the road level)
- iv. a standard design that
 - a. accommodates hawkers, acknowledging that they will remain an integral part of the roads, in clearly marked areas;
 - b. includes specifications for placement of bus stands, post boxes, electric and telephone boxes, street signs and street lamp poles and other utility objects so as not to impede pedestrian flow;
 - c. is accessible to the handicapped, with specifications that will allow use of wheelchair;
 - d. Minimizes breaks in footpaths. This can be achieved by removing breaks at access points. The auto vehicles will have to go over the footpath which will also act as a speed bump;
- v. a maintenance and cleaning schedule;
- vi. trash bins at specified regular intervals;
- vii. suitably designed overhead pedestrian bridges or underpasses, preferably the latter, at all major junctions and heavy traffic areas; and
- viii. strict action against encroachments by parked (or moving) vehicles, debris or construction material, billboards etc

By publishing these clear standards, subjectivity in the construction of footpaths will be eliminated and violations when and if they occur, become apparent. Pedestrians should be told their rights, so that they become the enforcers.

First of all, the safety concerns of cyclists and pedestrians have to be addressed by encouraging the construction of segregated rights of way for bicycles and pedestrians. Apart from improving safety, the segregation of vehicles moving at different speeds would help improve traffic flow, increase the average speed of traffic and reduce emissions resulting from sub-optimal speeds. Such segregated paths would be useful not only along arterials, to enable full trips using NMT but also as a means of improving access to major public transport stations. Such access paths, coupled with safe bicycle parking places, would contribute towards increasing the use of public transport.

-----*(NUTP) National Urban Transport Policy*

5.4.2 Bicycle Network

A similar set of standards, vis-à-vis their design, must apply to bicycle paths as well. Some extra considerations for cycle paths are

- i. To prevent encroachment by other vehicles, cycle lanes must be physically segregated. Cycle lanes alongside parked cars present a great danger to cyclists and must be avoided as far as possible;
- ii. bicycle lanes must be given greater and shorter access routes (such as allowing them both ways on one-way roads meant for vehicles), short cut routes for bicycles only etc;

- iii. The ability to park cycles in secure areas at exchange points such as bus stands, major bus stops, railway stations and in congested areas.

Public Transport must also be designed to allow bicycles on board apart from provision for physically differently-abled persons. The ability to do this will increase the ridership on public transport substantially and truly provide commuters a viable alternative to the use of personal vehicles.

5.5 Commercial Developments and Impact on Traffic

There has been a spate of commercial developments (such as the massive shopping malls) in the city. Many of these will generate extremely high volumes of traffic, especially during peak-hours⁸. Only putting in place minimum parking requirements is not enough. Access from and onto the main roads can create traffic snarls and impact other traffic. The increased traffic and confusion can cause security and safety concerns. Agencies responsible for these (e.g. the police) have very little input during the planning stages. It is important that the traffic impact of ALL such commercial developments, without ad hoc exemptions, be studied by various agencies including the police, before they are implemented or even granted building permission.

Multiplexes and shopping complexes have free FSI for providing parking places; there is substantial expenditure for construction. As free parking anywhere (including in industrial premises for their own employees) is against the principles of good traffic management and should be discouraged, PMC should take a major percentage of the parking charges in shopping malls and multiplexes leaving a small portion for maintenance of the parking places for the owners while compensating the owners for the amount spent on the construction of the parking spaces. Hence, parking charges should have a built-in system for recovering the construction and maintenance charges over a given time frame and ensuring that the parking charges both inside and outside have a proper correlation.

5.6 Vehicle-Free Zones / Walking Plazas

The most congested parts of the city, which also have mixed residential and business areas, are coming under increasingly severe traffic stress. It is impossible to expand the roads in this area. In order to both improve the conditions of the residents as well as to revitalize the considerable businesses in this area, a plan to create vehicle-free zones must be given serious consideration. This idea has been tried with considerable success elsewhere. While businesses have been sceptical about such schemes, well planned vehicle-free zones have shown very positive results and have often rejuvenated moribund business districts. Several options exist such as

- A. pedestrian-only areas
- B. vehicle-free zones with special consideration for public transport (such as non-polluting buses⁹ or special loop trolleys)

These zones may be open to regular or commercial traffic during off-peak hours.

The success of these zones depends very much on its planning and implementation. It is recommended that all such plans be made with wide public participation and inputs and on

⁸ The International Convention Centre on Senapati Bapat Road, Multiplexes and Malls are all prime examples.

⁹ Electric or Hybrid vehicles can be appropriate for operation in vehicle-free zones.

the basis of valid data and proper analysis. This exercise should be carefully monitored and used as an input to creating similar zones in the old/congested parts of Pune.

5.7 Latent Demand and Traffic Demand Management (TDM) measures

It is assumed that as the economy grows, people will become increasingly affluent, and will naturally shift to private vehicles for transportation. It is also assumed that it is the duty of the city machinery to make sure that the needs of these vehicles are met by providing and increasing the network of roads and parking spaces needed for all these vehicles. New thinking on Traffic and Transportation questions both these assumptions.

Unlike cities in developed nations¹⁰ our cities tend to grow very fast both in populations as well as per capita vehicle ownership. This high latent demand means that there is no way that the city can create an infrastructure to adequately cope with this huge escalating demand. Even when an inordinately large proportion of the city's budget is devoted to building and repairing the roads, growing numbers of vehicles will quickly outstrip any advantage from such increased infrastructure¹¹.

Hence it is critical to find ways to limit the number of vehicles coming on roads. This means adopting measures that make the alternative attractive and to consciously avoid measures such as dedicated lanes for two-wheelers, which will inevitably encourage or facilitate their growing use. The right policy would to move more people; but certainly less vehicles keeping in mind that congestion is a peak hour problem.

6.0 Parking Policy

6.1 Planning for now and for future

As the numbers of vehicles in the city explode, parking will become a public nuisance, swallowing all available spaces meant for other road users as well as creating a demand for all available open spaces to be turned into parking lots. This dangerous trend has already begun. The mindset that provision of parking is a right must be changed. Parking space is extremely valuable and no resident has the right to its free use.

Rather than having a reactive parking policy, one that constantly changes with the ever-increasing numbers of vehicles, the policy itself should ensure a reduction in the need for parking.

Parking

Limiting the availability of parking space and the levy of a high parking fee should be used as a means to curb the use of personal motor vehicles. Preference in the allocation of parking space for public transport vehicles and non-motorized modes as well as easier access of work places to and from such spaces would go a long way in encouraging the use of sustainable transport systems. Park and ride facilities for bicycle users, with convenient

¹⁰ Note that studies (e.g. Hansen, Mark 1995 "Do New Highways Generate Traffic?") indicate that every 1% increase in lane miles induces a 0.9% increase in vehicle traffic within 5 years – almost wiping out all of the expected benefit! In Indian cities, with their higher latent demand, this effect will be even stronger.

¹¹ Nowhere in the world has the congestion problem been solved by addition of road/highway infrastructure. In the United States, commute times have increased 25% in the last 20 years in spite of massive investments in roads and highways. (Source: Texas Transportation Institute, Urban Mobility Study 2005)

inter-change, would be another useful measure. Simultaneously, a graded scale of parking fee, that recovers the economic cost of the land used in such parking, should be adopted. The objective would be to persuade people to use public transport to reach city centres during peak hours and constrict the access of personal motor vehicles to such city centres.

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6.2 Goals and basic structure

Parking policy should have the following goals

A. Address the current needs for parking

The Pune Metropolitan Region¹² presently has over 19 lakh vehicles, and they are growing by roughly 10% every year. Space for parking these vehicles is already a problem in the more congested parts of the city. Also the illegal and inconsiderate parking of vehicles is leading to

- i. traffic slowdown
- ii. accident prone intersections
- iii. encroachment upon space for cyclists and pedestrians

Parking policy needs to ensure that parking takes place in restricted areas and that space thus made available is used more efficiently.

B. Act as a TDM mechanism

It is even more important to understand that parking is an effective TDM tool that enables planners to affect changes in the nature of traffic itself and contributes to the long-term goals of the T&T vision.

Finally, a Joint Parking Policy for the PMR is highly desirable given that the four administrative regions are inter-connected with a continuous flow of traffic to and from these areas.

6.3 Formulating the Parking Policy

These are recommended guidelines for creating a comprehensive parking policy for the PMR

- ❖ Specific measures should be adopted after following a scientific methodology based on data.
- ❖ It is important to have surveys for the number of 2/4-wheeler trips that end in busy areas, especially during peak traffic hours.
- ❖ For parking controls it is necessary to relate parking space to the traffic density on routes. For this, one has to establish a hierarchy of roads. In order to define the road hierarchy accurately one needs data about traffic density by types of modes and trips on each road within the PMR. Efforts should be made to compile this data.
- ❖ Traffic patterns and hence parking requirements are complex and dynamic. The use of computer modelling and simulations need to be carried out in order to arrive at optimal solutions.

¹² Pune Metropolitan Region (PMR) includes PMC, PCMC, PCB and KCB

- ❖ Amendments need to be done in Development Plan for parking in Malls/ Multiplexes.
- ❖ The policy needs to have norms for the number of malls / multiplexes / hotels in a given area. The parking norms for such buildings need to be framed separately (please also see paragraph 5.1.3 above).

Parking policy must also take into account people with special needs.

6.4 TDM Measures

"...excessive parking provisions are a fertility drug for cars"¹³

The lack of available parking and the price you pay for it are powerful incentives for people to consider alternative modes of transport. Transport choices can be influenced strongly by restrictions on convenient parking at the journey's end.

Since parking space, both on-street and off-street is usually in short supply, instead of trying to meet the demands for more parking space, the city should allocate limited space for parking that allows access directly to the destination. Parking spaces (on-street and off-street) have to be selected so as to least impact the flow of traffic, thus even in such cases parking will not be available at all locations and people may have to finish their journey on foot or by other modes of transport. Due consideration of course should be made for people with special needs.

Space should be allocated on the other hand to allow easy and convenient access to bus lanes (park-n-ride). This creates an incentive for commuters to use public transport thus increasing ridership while reducing vehicular traffic (enlarges the catchment area of public transport corridors).

In a city where a large share of trips are to be handled ideally by the public transport system, the intermediate modes of transport (auto rickshaws, taxis etc) become important to fill gaps left by the public transport grid. Currently no space has been allocated to these vehicles and they park or wait for rides on the roads and create major obstruction to traffic. In such cases also valuable parking spaces should be set aside for their use, especially at interchange locations between modes, like at bus terminals (both private and public) and railway stations. A separate study for Demand Management needs to be done.

6.5 Controlled Parking Zones (CPZ)

The idea behind CPZs is multi-fold. Wherever parking space is available it endeavours to maximize its use. By removing free and unlimited parking, abuse of parking space is eliminated.

There are two ways to control parking in such zones. By levying charges and by setting time slots (or by a combination of the two): The level of parking charges must flow from traffic

¹³ "The High Cost of Free Parking" by David Shoup, UCLA

management angle; to ration available space and to ensure that there is a rapid turnover of parked vehicles, rather than to maximise revenue¹⁴. It is thus incorrect to give discounts in parking fees to long-term users of parking spaces.

CPZs help to manage the competing demands of different user groups in areas of acute parking pressure. These are particularly useful where demands for commuter, shopping or leisure parking conflicts with residents and/or shopkeepers' needs. CPZs are the way forward to relieve congestion on roads due to occupation of road space by vehicles parked for longer durations. CPZs can restrain traffic if public transport serves the area well, or can cause reductions in on-street parking.

6.6 Multi-Storey Parking and BOT Financing

A recent proposed solution to the critical shortage of parking, especially in the congested areas of the city, is to build multi-storey parking facilities. There are several issues regarding this proposal that should be considered carefully.

Multi-storey parking is usually granted by enabling/increasing the permissible FSI. This increased FSI is then given for commercial development to the landowner, either at the same location or as a TDR. Here again, the same principle as for parking malls and multiplexes should apply (please see paragraph 5.1.3 above.)

If commercial development is allowed at the same location, this commercial use itself generates a need for extra parking, thus the projected solution for providing space for parking is never achieved. This has already been experienced in Mumbai.

TDR, even when utilized outside the congested area, has the potential to skew land use in the fringe areas. Hence this option must be used with caution.

Development of 'parking-only' structures is more appropriate. However this will be commercially viable only if parking charges are set higher. This automatically dictates the charges for on street parking in the vicinity of such structures, since they must be higher.

Multi-storey parking hence requires limited on-street parking, time-slotted on-street parking and higher rates. Without imposing these measures, multi-storey parking will fail to reduce congestion on the streets and will be a futile exercise.

6.7 Parking Norms

Residents' Parking:

There is flagrant violation of Development Control Rules, especially with regard to residential parking spaces. It is observed that the basements meant for parking are converted into commercial use. The result is blatant on-street parking, which is free of cost. Residents

¹⁴ Charges should be set at a level that gives an 85% occupancy rate, a commonly used operational criterion for parking management.

within 500 meters only should qualify for on-street parking. Residents have come to treat road space near their homes as private property and tend to park their transport 24 hours and 365 days in the year.

Residents have come to treat road space near their homes as their private property and tend to park their vehicles there on a long-term basis.

Residential parking standards normally relate to the floor space index (FSI). Parking standards should not encourage the use of private transport, particularly ownership of a second or subsequent vehicle. It is hence necessary to stipulate both minimum and maximum parking for a residential tenement. Residents should be entitled to one parking permit to per residence, valid for on street parking in a zone in the vicinity of the residence. Details such as fees for the permit, the size of the residential zones and the time slots for restrictions should be determined by detailed studies as well as discussions with local communities. Parking norms for Multiplexes, Malls, hotels and various other uses should be determined based on detailed field studies.

6.7.1.1 Enforcement

All recommendations and measures will amount to nought without strict enforcement. This is especially important for on street parking, particularly on bus routes and main roads, to minimise the impact of motorised parking on other road users.

Gross violations such as pavement parking also need to be strictly dealt¹⁵ with since this inconveniences the pedestrians who in turn use the road to walk on, thus adversely affecting the traffic flow.

While one can expect public dissatisfaction at strict imposition of parking rules in the beginning, once it is made clear through public education campaigns that parking is not a right and is strictly enforced by the police, (and control of parking will lead to better facilities for majority of citizens including the pedestrians and the cyclists) -- over time one can expect a change in public perception. This requires the police enforcement to be uniform, fair and well publicized.

6.7.1.2 Flyovers

The long-term efficacy of flyovers is being brought into serious question worldwide, some cities actually dismantling them for more people-friendly solutions¹⁶. A study by Tata Consultancy Services for Mumbai flyovers shows that a large majority of flyovers have a negative rate of return on investment¹⁷. A CIRT study for Pune is also on similar lines. Since flyovers actually impede the movement of pedestrians, cyclists and city buses¹⁸ and the only beneficiaries are motorists, (2-wheelers and 4-wheelers) the social justification of such projects in a city where the major trips are conducted by the former modes must be called into question¹⁹. If the overall vision of the city is to reduce vehicular traffic by improving public

¹⁵ Re: Judgement of Bombay High Court in writ petition 210 of 1996 to keep the existing pavements or the newly constructed pavements free from encroachments.

¹⁶ For instance the Cheonggyecheon Restoration Project in Seoul, S.Korea, involved the removal of the flyover that covered the river.

¹⁷ Economic analysis showed that except one (JJ Hospital Crawford Market) all the other flyovers show negative returns (ranging from Rs 50 crores to 300 crores).

¹⁸ Dr. P.G Patankar in TOI, March 27th 2002 "Fancy flyovers don't benefit motorists."

¹⁹ 2-wheelers and 4-wheelers constitute only 18% of trips in Pune.

transport and promoting sustainable modes of transport (walking and cycling), then flyovers as a policy must be questioned.

Government of India has issued instructions under its letter number K-14012/101(38)/2006-NURM-1 dated 5 March 2007 that each road or flyover should cater for pedestrianisation and non-motorised vehicles. PMC should adhere to these GoI instructions.

The long-term benefit of a flyover, without a simultaneous effort to constrain private vehicle use, will be short lived.

Flyovers, if based on solid data and analysis, may, in very specific situations prove to be beneficial. It is recommend that

- i. alternative solutions be considered (for e.g. rotary mode separators or grade separators);
- ii. projected benefits be clearly defined quantitatively;
- iii. Agency hired to decide viability of flyovers should be different from the contractor.
- iv. criteria for construction of flyovers be clearly defined and publicized;
- v. Post-construction surveys be mandated to gauge the effectiveness of the solution as a future learning experience.

In any case if the overall policy is to dissuade the use of personalised vehicles and encourage the use of omnibus transport system, let us make it clear that the first priority is to improve, augment and strengthen the PMPML and al the same time to make use of personalised transport more and more costly, thus encouraging the use of PMPML system and simultaneously discouraging the use of personalised transport.

6.7.1.3 Encroachment of open spaces

Open spaces and heritage sites are important to Quality of Life. No proposals for roads that prima facie diminish these should be entertained. The “cost” of open spaces and heritage sites is severely under-calculated, leading to their quick demise in face of “more urgent needs” of the city.

It is recognized all around the world that public open spaces for relaxation and recreation are needed more by people belonging to lower economic classes, since they do not have access to private open spaces that the more affluent do. Hence public open spaces should be seen as a social necessity and not viewed as a luxury that only rich cities should indulge in. A separate hawker policy needs to be prepared.

7.0 Proposals for Sky Bus, Tram and Metro: A multi-modal approach

While this policy document recommends a BRT network for Pune as an economical, flexible and quick to implement solution provided traffic studies so warrant, it also recommends other forms of MTS depending on the results of the surveys and studies as per the concept of a ‘whole-system vision (paragraph 5.1.1.3 above). The MTS chosen should match the demands of that corridor and the physical layout of the terrain along with many other technical and financial conditions.

Pre-feasibility and techno-economic feasibility studies, techno-economic feasibility reports, detailed project reports and wide public participation are a must before implementing any project (please see paragraph 4.1 above).

7.1 Sky Bus

Sky Bus Metro is latest, economical, eco-friendly, reliable and most innovative but simple technological solution developed by Konkan Railways as a rail based futuristic Urban Mass Transit System. Konkan Railway Corporation Limited (KRCL), a Government of India enterprise, under the Ministry of Railways has developed SKY BUS METRO. This system is noise and pollution free with capacity of 18,000 PPHPD, scalable to 81,000 PPHPD as required. A Detailed Project Report (DPR) highlighting the techno economic feasibility of the system was prepared for Pune city. A 21.2 km stretch was proposed in the report.

Sky Bus Metro can be considered as an option for Mass Transit System after necessary clearances from Government/ Railway Ministry.

7.2 Tram/LRT

There are many characteristics of Light Rail Transit (LRT) that may make it a desirable MTS, which fits into the overall Public Transit network. Trams, after being removed from cities, are now making a comeback in a modern and technologically superior incarnation. While having an environmental advantage, as a non-polluting MTS, an LRT has higher infrastructure costs. Only after a master plan for the PMR has been created, with a clear role for LRT identified in it, and a detailed feasibility study by an independent body, can it be proposed.

7.3 Metro

Elevated or underground metro systems are in operation in most mega-cities around the world and are being built in Indian cities also. They usually provide exceedingly high speed and high transport capacities (in excess of 40,000 pphpd). It is therefore necessary to carry out pre-feasibility studies to establish the necessity of a metro in Pune, especially where it is not possible to have a BRTS in all corridors either due to technical considerations or higher demand of traffic. The cost of a metro could range from 90 - 200 crores per km. If projections point to the need of such a system in the future, the city should start planning for it well in advance. Since high-density travel corridors are directly linked to land use policies, in effect, the creation of such corridors (or the avoidance of them) is something that can be controlled. How the city of Pune will grow (physically) over the coming decades is a subject of great importance and town planners are well advised to influence this through policy rather than reacting to it.

8.0 Alternative fuels

8.1 CNG

The introduction of CNG in Delhi has proved to be very effective in reducing pollution. Plans are underway to do the same in Pune. The actual availability of CNG in Pune depends on the completion of the Uran-Dahej pipeline; however the PMC can start putting in place a plan for the legislative, administrative and financial aspects of making the switch over to this new fuel and should go in line with National Policy. The plan should include:

- i. Number, location and type of filling stations²⁰ for the city. This will require data on number of vehicles, distribution in the city and their peak-period filling requirements. PMC should be involved early on in the process, when the PSU starts laying the CNG pipeline network in the city. CNG stations need to be built in large open spaces to allow multi-vehicle and multi-point dispensing. Ease of availability of CNG can become an issue which adequate and advance planning can avoid.
- ii. A strategy for conversion of vehicles, including the class of vehicles that will have mandatory conversion requirements and the timetable for doing so (if a phased approach is used).
- iii. Ensure availability of genuine cylinder kits and spare parts to be used for CNG vehicles to avoid accidents
- iv. Establish suitable codes/standards for CNG kit fitment, testing etc.
- v. A strategy for creating public awareness and acceptability for the switch over. The initial resistance in Delhi followed by the gradual acceptance should be studied and lessons learned
- vi. Financial and other incentives for promoting the conversion should be decided upon, the costs determined and ways to finance this should be found

While the importance of CNG in cleaning up the air cannot be denied, it must be kept in mind that the bulk of air pollution is created by two-wheelers and cars. However CO emissions from small vehicles and SPM emissions from heavy vehicles will be significantly reduced. For Pune, the only way to improve air quality is to reduce the use of two-wheelers and four-wheelers, by building up an option of high capacity public transport system of omnibus system to start with. It must be emphasized that the PMT should be improved both in capacity and efficiency to bring it to a level of a high quality public transport system.

8.2 LPG

Due to the low availability of LPG in the city, the demand so far has been low. Pune has over 40,000 auto rickshaws and air quality can be improved by having them switch over to this clean burning fuel. This can be achieved by the PMC working with other agencies in

- i. providing incentives
- ii. making LPG widely available
- iii. reducing difficulties in the conversion paperwork/process
- iv. making genuine LPG kits affordable and available
- v. Establishing suitable codes/standards for LPG kit fitment, testing etc.

PMC has provided an incentive of Rs. 2500/- to all the Auto Rickshaws who converted to LPG. The number of LPG stations will be increased in future as per the directive given by Bhurelal Committee. Here again, PMC should follow the National Policy.

9.0 Bypasses

Pune city is linked to important cities – Mumbai, Kolhapur, Bangalore, Goa, Solapur, Nagar. The inter city vehicular traffic passes through the city in absence of bypasses. It is important to have bypasses for the major highway roads connecting each other through the outer parts of the city. The south west bypass connecting Bangalore – Mumbai traffic has effectively reduced the highway vehicles on Satara road. More such bypasses are required to connect the other routes.

²⁰ CNG filling stations can be of types Mother, Online, Daughter and Daughter-booster.

Freight traffic

As economic activities in cities expand and city population grows, a substantial amount of freight traffic would be generated. The timely and smooth movement of such freight is crucial to the well being of the people and the viability of the economic activities they undertake. However, with limited capacity of the transport system, it is essential that freight traffic and passenger traffic are so staggered as to make optimum use of the transport infrastructure. It is a time honoured and tested practice to use off-peak passenger travel times to move freight.

Many cities have earmarked late night hours for the movement of freight and restricted the entry of heavy vehicles into cities during day time. Further, several cities have by-passes that enable through traffic to go around the city and not add to city traffic. These practices are sound and would be encouraged in all cities. For this purpose, cities would be encouraged to build by-passes, through innovative and viable public - private partnerships. Similarly, facilities for the parking of freight vehicles outside city limits, such as truck terminals, would also be encouraged through public-private partnerships. Proposals for such facilities would be considered under the National Urban Renewal Mission.

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10.0 Involvement of Police

It cannot be denied that the police are now faced with a near impossible task of imposing law and order (as it relates to traffic)²¹. While the constable on the road bears the brunt of the overload, not to mention the serious health hazards from auto effluents. The stressed and chaotic traffic conditions lead to frustration and hence increased traffic indiscipline, which in turn make the situation worse. It is important for the Police to depute officers to take part in various city development forums, so that their concerns and recommendations are represented consistently. It is essential to have a representative from the Police in all decision-making pertaining to traffic & transportation issues and development planning.

11.0 Recommendations to police.

The following recommendations will help the police to improve traffic conditions under the current situation

- ❖ capacity building – increase manpower, training and acquire state-of-the-art photo, video camera and other equipment to control traffic,
- ❖ consolidate authority for better traffic management,
- ❖ Install cameras at main junctions.

None of this can be accomplished without adequate resources and must be prioritised by the city.

²¹ The police currently have a staff of 467 and are woefully understaffed to handle the requirements of the city [source: Police (Traffic) dept.]

12.0 In Closing

We cannot overstate the importance of creating an integrated and sustainable comprehensive mobility plan for the city *and* also a transparent process for determining individual solutions. At the risk of sounding like a broken record, each solution *must* be backed by data and analysis by independent consultants, who are experts in the line.

There is a need to create an independent transport-planning unit. Such a body should work independently and plan for the traffic and transportation needs of the city in a holistic manner. Such a body will achieve success by adopting modern planning techniques, computer modelling, tools and by conducting itself professionally. One such option would be to create for PMR a Pune Metropolitan Region Development Authority (PMRDA) on the similar lines of MMRDA of highly skilled transportation experts to study the entire Pune Metropolitan Region and formulate a total Plan for Action.

This policy is also a clarion call for the creation of a world-class public transport system in Pune. It alone can provide for the large and ever-increasing needs of mobility. The policy embarks upon improving and augmenting the the public transportation system in PMR, which will generate a chain of positive externalities. Not only will the mobility of the people from the lowest socio-economic strata be improved but it will found the total public transport system on a solid base, which in times to come can be expanded to other modes and types of systems through Unified Metropolitan Transport Authority (UMTA).

The PMC is struggling to meet the demands of a rapidly developing city, so far. New thinking and a radical reorientation is warranted if Pune is to emerge as a vibrant city in the years ahead.

Appendices

Appendix I

Directives of the Bhurelal Committee, Environment Pollution Control Authority for Improvement in the Public Transport system and Transportation in Pune and Pimpri - Chinchwad Municipal Corporation areas

- i. Urban Development Department, Government of Maharashtra shall take decision on the merger of the Pune and Pimpri Chinchwad Municipal Transport undertakings immediately and the merger should be effected within 2 weeks
- ii. Pune Municipal Corporation shall hire 150 buses and purchase 200 new buses before 31st March 2006 and in addition shall take effective steps to further hire additional 150 buses if possible
- iii. Pune and Pimpri Chinchwad Municipal Corporations shall prepare a comprehensive public transport policy through a ward level public consultation within 3 months.
- iv. The Transport Commissioner will find the ways and means to eliminate passenger tax on public transport. EPCA believes this is an unfair burden on public transport and has also noted that public transport has a disproportion fiscal burden as compared to private vehicles and that this is impeding the growth of public transport in the city. This ever increasing private vehicular traffic is leading to air pollution in the city. EPCA would suggest that the losses in revenue should be made good by increasing the tax on private vehicles which should be on an annual basis rather than one time tax. The Transport Department must submit the status of this directive within 3 months to EPCA for review in the next meeting of the Authority.
- v. Pune and Pimpri Chinchwad Municipal Corporations shall prepare a comprehensive parking policy and first draft policy shall be ready in 3 months which should be subjected to wide public consultation. The final policy shall be ready for implementation within six months.
- vi. The Municipal Corporation is asked to review its directive not to levy parking fees on two wheelers. EPCA would suggest that it reconsider its decision given the fact that the large numbers of vehicles in the city are two-wheelers and it would also suggest that the Corporation could consider a substantial differentiation between the parking fees levied on four wheelers and two wheelers, which would allow for a more equitable solution and reduce the burden on the relatively less rich in the city.
- vii. Pune and Pimpri Chinchwad Municipal Corporations shall prepare a plan within 3 months for identification of the vehicle free zones within the cities after a wide public consultation.
- viii. The parking plan to be submitted to EPCA must also work out the facilities for vehicles to be provided in upcoming housing project so that vehicles do not spill on the public roads.
- ix. PMC and PCMC shall test the viability of the scheme on the exclusive Bus lanes for city buses by declaring a stretch on the main arterial road on an experimental basis and the results shall be reported to EPCA. This should also form a part of the Comprehensive Public Transport policy a directed by the Authority. The Plan already prepared by PMC shall be dovetailed to the Comprehensive Public Transport policy
- x. The flyover constructions in Pune and PCMC areas shall also form a part of the Public Transport Policy being prepared for these cities

Appendix II

PMT Over the last 5 years – Data Source P.M.T Statistician

	Investment in PMT	Service Provided	Crowding	Fares	Fleet Condition	
	Buses	Daily Km	Daily Passengers	Earning/ Passenger	Breakdown Rate/km	Km/litre
2000-01	824	160498	419141	5.73	0.78	3.42
2004-05	856	161932	625248	5.24	1.19	3.29
% change		1%	33%		34%	-4%

Conclusions

- i. The number of buses in the fleet has not substantially increased.
- ii. Transport service, as indicated by daily kilometers run by PMT, has not increased at all.
- iii. Assuming that there has been no change in average size of the bus or average trip length of a passenger, a 33% increase in passengers implies an increase in crowding.
- iv. The collection per passenger has not changed much (decreased in fact), indicating that fares have not changed substantially.
- v. An increase in the breakdown rate as well as a drop in fuel efficiency indicates an ageing fleet.

Appendix III

Retail Selling Prices of Motor Spirit and High Speed Diesel in Mumbai

	MS	HSD
	Rs / KL	Rs / KL
Current Ex-Storage Price	20385.15	21608.67
State Surcharge	1135.00	436.00
Other Elements	(71.32)	21.27
Sub Total	21448.83	22065.94
Excise Duty	14715.54	4711.18
Delivery Charges	44.00	44.00
Billing Rate	36208.37	26821.12
Sales Tax / VAT	11138.34	7509.91
Invoice Value	47346.71	34331.03
Dealer Commission	1024.00	600.00
RSP per KL	48370.71	34931.03
RSP (Rs. per Litre)	48.38	34.94

Source: Hindustan Petroleum Corporation

Glossary of Terms

MTS – Mass Transit System includes any system that caters to a large number of commuters. Such systems include bus-based systems and rail based systems.

BRT – Bus Rapid Transit A bus based MTS that includes specifications for not just physically segregated, dedicated bus lanes, but also seamless integration with pedestrian and cycle paths. It also includes a sophisticated system for ticketing and special buses and bus stops that allow for rapid loading and unloading of commuters.

LRT – Light Rail Transit Electric rail-based technology operating either as a single rail car or as a short train of cars, typically on exclusive right-of-way lanes at the surface level with overhead electrical connectors; a tram system can also be considered a type of LRT, but typically has smaller-sized vehicles and may share road space with other forms of traffic. Trams would come under LRT.

CNG - Compressed Natural Gas. Natural Gas has less energy density as compared to Liquid Fuel and hence it is compressed to over 200 Kg/cm² pressure to make it suitable for use in automobiles.

LPG – Liquefied Petroleum Gas. Less-polluting short-chain hydrocarbon fuel

SPM – Suspended Particulate Matter. Finely divided solids or liquids that may be dispersed through the air from combustion processes, industrial activities or natural sources These particles when breathed in, lodge in our lung tissues and cause lung damage and respiratory problems.

PM₁₀ – The amount of solid or liquid particulate matter 10 microns and less in aerodynamic diameter suspended in the atmosphere or in a sample of ambient air. The small PM₁₀ particles penetrate to deep portions of the lung, affecting sensitive population groups such as children and those with respiratory diseases.

pphpd – persons per hour per direction Used as a measure of carrying capacity by MTS
