2. Study Methodology

2.1 Stage1: Mobilization and 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) and Institutional Structure of the city operations. The Consultant was involved in preparation of the report "Studies on Traffic and Transportation policies and strategies in Urban Area" under Ministry of Urban Development which included Pune City and hence is institutionally aware of most of the issues that face the city and its populace.

2.2 Stage 2: Data Collection

2.2.1 Secondary Data Collection

The secondary data required for the development of study was collected from various sources primarily from the Government/planning organizations of Pune. The secondary data includes information regarding the population and employment distribution, land use information, road network details, vehicle ownership details, and accident data. Also, transport policy plan and any relevant reports prepared for the improvement of traffic and transport problems of Pune, was collected. List of a few of the documents / reports referred to was as follows:

- BRT Pilot Route Project
- City Development Plan
- Report on Commonwealth youth Games 2008
- Environmental Status Report
- Comprehensive Traffic and Transportation Study
- Traffic Dispersal Study
- Sky Bus Report
- Report on MRTS
- Report on Cycle Track network
- Report on ATCS

2.2.2 Primary 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
- IPT Survey
- NMT Survey

2.3 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. The detailed methodology is discussed in **Chapter 6**.

2.4 Stage 4: Draft Mobility Plan

2.4.1 Identifying Short Term Improvements

Based on the observations made during the field reconnaissance and the results from the analysis of the data, the most obvious problem areas have been identified. The findings from all the surveys and data analysis have been used in recommending short term improvement measures. Short term measures are those schemes that can be implemented immediately but have a short life period. Improvements are suggested to optimize existing facilities to the fullest using the Transportation System Management (TSM) Techniques.

2.4.2 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. If required these alternatives have been supplemented by additional land use transport scenarios for input into the long range transport model.

2.4.3 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 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.

In Pune, as indicated earlier a significant quantum of studies on improving the transport network has been already prepared. The strategy adopted in this study was to make use of these to the fullest extent (since many have been accorded approvals) ensuring however they fit into the overall scheme of things through a screening process.

2.4.4 Project Evaluation & Screening

The long range planning model developed under this study has been is utilized for identifying the impact of the proposals on the urban transport system. The project evaluation and screening framework provides a basis for systematically evaluating improvement proposals. This does not eliminate citizen judgment and involvement process. However, it assists decision-makers by guiding the investment proposals according to a set of criteria aligned with the city's long-range transportation objectives.

2.4.5 Identifying and Prioritizing of Improvements

For each infrastructure project one or more options if feasible has been identified. These could include conceptual options or variations on the concept. For most options including new linkages the features are defined in conceptual detail. Patronage, revenue and costs have been assessed. An appropriate phasing plan has been suggested for the improvement proposals.

2.4.6 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.

2.4.7 Economic Evaluation for CMP

A Preliminary economic evaluation for the CMP has been prepared to assess the economic feasibility of the CMP proposals assuming block cost estimates. The EIRR has been computed for the overall CMP based on benefits accrued.

2.4.8 Mobility Plan

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

2.5 Stage 5: Stakeholder Participation & Updation

2.5.1 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 has 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.

2.5.2 Updation of the Draft Mobility Plan

Post these meetings the input from the stakeholders have been compiled and all applicable comments and concerns have been addressed to the best possible effort and included. The mobility plan has been updated accordingly.