



# REQUIREMENTS ASSESSMENT For GIS Implementation

Pune Municipal Corporation

Document ID: EIC/PMC/DOC/RA/Draft

Version Draft  
19<sup>th</sup> March 2008

**Submitted to:**

Pune Municipal Corporation  
Pune

**Submitted by:**

NIIT GIS Ltd. (ESRI India)  
8, Balaji Estate  
Sudarshan Munjal Marg  
Kalkaji, New Delhi 110019  
Phone: + (11) 26203840  
Fax: + (11) 26203838  
Web: [www.esriindia.com](http://www.esriindia.com)



Pune Municipal Corporation

**ESRI India**



**OFFICIAL  
DISTRIBUTOR**

Version No: Draft	Pune Municipal Corporation	Page 2 of 181
	Requirement Assessment	

### Revision History

Version No.	Date	Sectn. No.	Page No.	Description / Amendments made	Prepared By	Approved By
Draft	17 <sup>th</sup> March 2008	All	All	Document Created	Prasad Patil, Shruti Parkhe	Mahesh Pande

## Table of Contents

<b>1. INTRODUCTION .....</b>	<b>6</b>
1.1 PURPOSE OF THE DOCUMENT.....	6
1.2 SCOPE OF THE DOCUMENT .....	6
1.3 DEFINITIONS, ACRONYMS AND ABBREVIATIONS .....	7
1.4 REFERENCES.....	8
1.5 GENERAL OVERVIEW .....	9
1.6 BUSINESS OVERVIEW .....	10
<b>2. EXISTING SYSTEM ANALYSIS.....</b>	<b>11</b>
2.1 INTRODUCTION ABOUT PMC .....	11
2.2 ORGANIZATIONAL STRUCTURE.....	12
2.3 ZONAL STRUCTURE OF PMC .....	13
2.4 PROJECT EXECUTING DEPARTMENTS OF PMC.....	13
2.5 DETAILS OF PMC DEPARTMENTS .....	14
2.5.1 Bhavan: (Building Constructions) .....	15
2.5.2 Building Permission (Fast Track).....	18
2.5.3 Building Permission / Control.....	22
2.5.4 Census Department [as part of the Office of the Assistant Municipal Commissioner].....	26
2.5.5 Computer and Statistics Department.....	28
2.5.6 Development Plan.....	30
2.5.7 Drainage- Old Limit.....	33
2.5.8 Drainage- Project (Extended area) .....	35
2.5.9 Education Department.....	37
2.5.10 Elections Department.....	41
2.5.11 Electric .....	43
2.5.12 Electric Pole Shifting.....	46
2.5.13 Encroachment Department [as part of Dy. Municipal Commissioner (Special)].....	48
2.5.14 Fire Brigade .....	50
2.5.15 Garden.....	53
2.5.16 Health.....	56
2.5.17 JNNURM – BSUP.....	59
2.5.18 JNNURM- Roads.....	62
2.5.19 JNNURM- SRA.....	66
2.5.20 JNNURM (SRA).....	69
2.5.21 Kothi Karyalaya Development Engineer .....	72
2.5.22 Land Acquisition.....	74
2.5.23 Land and Estates .....	78
2.5.24 Nagar Wasti Vikas Yojana.....	82
2.5.25 Octroi.....	85
2.5.26 PMPML.....	88
2.5.27 Property Tax.....	91
2.5.28 Roads.....	93
2.5.29 Sky Signs Department.....	97
2.5.30 Slum .....	100
2.5.31 Traffic Planner.....	103
2.5.32 Up- Aayukta Karyalay (Ward Office).....	106
2.5.33 Vehicle Depot.....	111
2.5.34 Water supply.....	112
2.5.35 Water supply-Project (Extended area).....	115
2.6 PROBLEM STATEMENT .....	119
<b>3. STAKEHOLDER AND USER DESCRIPTIONS.....</b>	<b>120</b>
3.1 STAKEHOLDER SUMMARY.....	120
3.2 USER SUMMARY: .....	121
3.3 STAKEHOLDER / USER NEEDS.....	121

3.4	HIGH LEVEL REQUIREMENTS OF GIS BASED SYSTEM .....	121
3.4.1	<b>Functionality</b> .....	122
3.4.2	<b>Performance</b> .....	122
3.4.3	<b>Supportability</b> .....	122
3.4.4	<b>Benefits envisaged</b> .....	123
3.5	GIS DATA AND FUNCTIONAL REQUIREMENTS:.....	124
3.5.1	<b>Bhavan: (Building Constructions)</b> .....	124
3.5.1.1	GIS Data Requirements: .....	124
3.5.1.2	GIS Data Requirements.....	125
3.5.2	<b>Building Permission (Fast Track)</b> .....	127
3.5.2.1	GIS Data Requirements.....	127
3.5.2.2	GIS Functional Requirements.....	128
3.5.3	<b>Building Permission / Control</b> .....	129
3.5.3.1	GIS Data Requirements.....	129
3.5.3.2	GIS Functional Requirements.....	130
3.5.4	<b>Census Department [Office of the Assistant Municipal Commissioner]</b> .....	131
3.5.4.1	GIS Data Requirements.....	131
3.5.4.2	GIS Functional Requirements.....	131
3.5.5	<b>Development Plan</b> .....	133
3.5.5.1	GIS Data Requirements.....	133
3.5.5.2	GIS Functional Requirements.....	134
3.5.6	<b>Drainage - Old Limit</b> .....	136
3.5.6.1	GIS Data Requirements: .....	136
3.5.6.2	GIS Data Requirements: .....	136
3.5.7	<b>Drainage- Project (Extended area)</b> .....	138
3.5.7.1	GIS Data Requirements: .....	138
3.5.7.2	GIS Functional Requirements.....	138
3.5.8	<b>Education Department</b> .....	139
3.5.8.1	GIS Data Requirements: .....	139
3.5.8.2	GIS Functional Requirements.....	139
3.5.9	<b>Elections Department</b> .....	141
3.5.9.1	GIS Data Requirements: .....	141
3.5.9.2	GIS Functional Requirements.....	141
3.5.10	<b>Electric</b> .....	142
3.5.10.1	GIS Data Requirements: .....	142
3.5.10.2	GIS Functional Requirements: .....	142
3.5.11	<b>Electric Pole Shifting</b> .....	143
3.5.11.1	GIS Data Requirements: .....	143
3.5.11.2	GIS Functional Requirements: .....	143
3.5.12	<b>Encroachment Department [as part of Dy. Municipal Commissioner (Special)]</b> .....	144
3.5.12.1	GIS Data Requirements: .....	144
3.5.12.2	GIS Functional Requirements: .....	144
3.5.13	<b>Fire Brigade</b> .....	145
3.5.13.1	GIS Functional Requirements: .....	145
3.5.13.2	GIS Functional Requirements: .....	145
3.5.14	<b>Garden</b> .....	147
3.5.14.1	GIS Functional Requirements: .....	147
3.5.14.2	GIS Functional Requirements: .....	147
3.5.15	<b>Health</b> .....	149
3.5.15.1	GIS Functional Requirements: .....	149
3.5.15.2	GIS Functional Requirements: .....	149
3.5.16	<b>JNNURM – BSUP</b> .....	150
3.5.16.1	GIS Data Requirement: .....	150
3.5.16.2	GIS Functional Requirement: .....	150
3.5.17	<b>JNNURM- Roads</b> .....	151
3.5.17.1	GIS Data Requirement: .....	151
3.5.17.2	GIS Functional Requirement: .....	152

Version No: Draft	Pune Municipal Corporation	Page 5 of 181
	Requirement Assessment	

<b>3.5.18</b>	<b>JNNURM- SRA</b>	<b>153</b>
3.5.18.1	GIS Data Requirement:	153
3.5.18.2	GIS Functional Requirement:	153
<b>3.5.19</b>	<b>Kothi Karyalaya Development Engineer</b>	<b>154</b>
<b>3.5.20</b>	<b>Land Acquisition</b>	<b>155</b>
3.5.20.1	GIS Data Requirements:	155
3.5.20.2	GIS Functional Requirement:	155
<b>3.5.21</b>	<b>Land and Estates</b>	<b>156</b>
3.5.21.1	GIS Data Requirements:	156
3.5.21.2	GIS Functional Requirements:	157
<b>3.5.22</b>	<b>Nagar Wasti Vikas Yojana</b>	<b>158</b>
3.5.22.1	GIS Data Requirements:	158
3.5.22.2	GIS Functional Requirements:	158
<b>3.5.23</b>	<b>Octroi</b>	<b>159</b>
3.5.23.1	GIS Data Requirements:	159
3.5.23.2	GIS Functional Requirements:	159
<b>3.5.24</b>	<b>PMPML</b>	<b>160</b>
3.5.24.1	GIS Data Requirements:	160
3.5.24.2	GIS Functional Requirements:	160
<b>3.5.25</b>	<b>Property Tax</b>	<b>161</b>
3.5.25.1	GIS Data Requirements:	161
3.5.25.2	GIS Functional Requirements:	161
<b>3.5.26</b>	<b>Roads</b>	<b>162</b>
3.5.26.1	GIS Data Requirements:	162
3.5.26.2	GIS Functional Requirements:	163
<b>3.5.27</b>	<b>Sky Signs Department</b>	<b>165</b>
3.5.27.1	GIS Data Requirements:	165
3.5.27.2	GIS Functional Requirements:	165
<b>3.5.28</b>	<b>Slum</b>	<b>166</b>
3.5.28.1	GIS Data Requirements:	166
3.5.28.2	GIS Functional Requirements:	166
<b>3.5.29</b>	<b>Traffic Planner</b>	<b>167</b>
3.5.29.1	GIS Data Requirements:	167
3.5.29.2	GIS Functional Requirements:	168
<b>3.5.30</b>	<b>Up- Aayukta Karyalay (Ward Office)</b>	<b>170</b>
3.5.30.1	GIS Data Requirements:	170
3.5.30.2	GIS Functional Requirements:	171
<b>3.5.31</b>	<b>Vehicle Depot</b>	<b>172</b>
<b>3.5.32</b>	<b>Water supply</b>	<b>173</b>
3.5.32.1	GIS Data Requirements:	173
3.5.32.2	GIS Functional Requirements:	173
<b>3.5.33</b>	<b>Water supply-Project (Extended area)</b>	<b>175</b>
3.5.33.1	GIS Data Requirements:	175
3.5.33.2	GIS Data Requirements:	176
<b>3.6</b>	<b>OTHER REQUIREMENTS:</b>	<b>177</b>
<b>3.6.1</b>	<b>Integration with existing systems</b>	<b>177</b>
<b>ANNEXURE – I:</b>		<b>178</b>
<b>ANNEXURE – II:</b>		<b>179</b>

Version No: Draft	Pune Municipal Corporation	Page 6 of 181
	Requirement Assessment	

## 1. Introduction

Pune Municipal Corporation (PMC), vested with the responsibilities of providing Urban Services within its jurisdiction limits, faces the challenges put forth by the complex and ever increasing needs of a rapidly growing City.

PMC covers an area of approximately 430 sq. km. and provides services to a population exceeding 2.5 million. It is responsible for providing basic infrastructural facilities to the residents of the city. Due to challenges posed by rapid urbanization and tremendous rise in the infrastructure needs of the citizens, PMC envisages to implement the state-of-the-art Geographical Information System in its operational activities so as to improve the efficiency and thereby its services.

To bring about efficiency and effectiveness in provision of services to its populace, PMC has already initiated GIS based survey of Properties in the City with a view to maximize the returns from the valuable Property Information.

PMC wished to carry out a System Requirement Study of its proposed Geo-informatics solution to gather the requirements for creating and implementing a GIS based solution across all its departments.

The objective of the project is –

**To develop Software Requirement Specifications for an Enterprise GIS Implementation for various key departments in Pune Municipal Corporation.**

### 1.1 Purpose of the Document

The purpose of this document is to provide a detailed report on NIIT GIS Ltd. (ESRI India) findings associated with Requirements Analysis meetings / interviews that spanned over a period of time from January 17, 2008 – March 11, 2008, at the PMC premises. PMC and NIIT GIS jointly agree that the information described herein may not be a definitive representation of the actual GIS based system that PMC envisages to implement.

The purpose of this document is ONLY to sum up the GIS related requirements of various user departments of PMC. The document is prepared with the objective of attaining a clearer understanding of the user requirements and validating the same from the users.

**It is to be noted that this document is NOT the Software Requirement Specifications (SRS) document. This document shall be used to develop the SRS.**

### 1.2 Scope of the Document

- This document brings out the existing status of all the departments – the list of which has been finalised in consultation with the PMC Project Team and the concerned officials of PMC. The scope of work and the scope of this document are limited ONLY to these departments which have / which are thought to have direct / relevant GIS applicability in their operational activities. The list of departments interviewed for gathering requirements is provided in **Annexure – I**. Any department out of this list is out of scope of this SRS study and would not be included in this document.

- This document lists out various GIS related requirements posed by the departmental users of PMC with respect to Spatial Data and usage / applications of GIS tools and techniques in their respective operational activities. However, it is to be noted that the feasibility of the requirements is not assessed in this document.
- The document ONLY lists out and states the GIS related requirements of the User Groups / Departments as told by the nominated members of the various departments. The requirements are captured as per format of Questionnaire in **Annexure – II**. This Requirement Assessment document is not supposed to discuss details on how these requirements would be met using GIS.
- This document also covers high-level requirements for GIS based implementation as discussed with the User Groups / Departments. These are discussed as indicative requirements ONLY and the technical details of how these high-level requirements would be met are not discussed in this document.

### 1.3 Definitions, Acronyms and Abbreviations

No.	Acronym / Abbreviation	Meaning
1.	AE	Assistant Engineer
2.	BI	Building Inspector
3.	BOT	Build Operate and Transfer
4.	BPAMS	Building Plan & Approval Management System
5.	BPMC	Bombay Provincial Municipal Corporation
6.	BSUP	Basic Services for Urban Poor
7.	CAD	Computer Aided Drawing
8.	CTS	City Survey
9.	DCR	Development Control Rule
10.	DP	Development Plan
11.	DPR	Detailed Project Report
12.	DSR	District Scheduled Rate
13.	Dy. CE	Deputy City Engineer
14.	EWS	Economically Weaker Sections
15.	FSI	Floor Surface Index
16.	GIS	Geographical Information System
17.	GM	Gravity Mains
18.	HOD	Head of Department
19.	HFLS	High Flood Level Surveys
20.	IRD	Integrated Road Development Programme
21.	J.E.	Junior Engineer
22.	JNNURM	Jawaharlal Nehru National Urban

No.	Acronym / Abbreviation	Meaning
		Renewal Mission
23.	LAN	Local Area Network
24.	MIS	Management Information System
25.	M RTP	Maharashtra Regional Town Planning
26.	MSEB	Maharashtra State Electricity Board
27.	MSL	Mean Sea Level
28.	NGO	Non Government Organisation
29.	NOC	No Objection Certificate
30.	PMC	Pune Municipal Corporation
31.	QA/QC	Quality Assurance / Quality Check
32.	RA	Requirement Assessment
33.	SR	Service Reservoir
34.	SRA	Slum Rehabilitation Authority
35.	SRS	System Requirement Specification
36.	SSA	Sarva Shiksha Abhiyan
37.	STP	Sewerage Treatment Plant
38.	TDR	Transfer of Development Rights
39.	ULB	Urban Local Body
40.	WMS	Works Management System

#### 1.4 References

- i. Capacity Enhancement Assessment Study for Pune Municipal Corporation prepared by CRISIL LTD.
- ii. City Development Plan for Pune: Vol. I – Under JNNURM Framework: A presentation by CRISIL LTD.
- iii. City Development Plan for Pune: Vol. II – Under JNNURM Framework: A report by CRISIL LTD.
- iv. Development Plan Section – TDR Process document
- v. Sky Signs Section - Fee Schedule (Rates) for Machinery Permits approved by the Standing Committee or through General Body Meetings (Published in Year 2000)
- vi. Sky Signs Section - Rules & Regulations prescribed by the State Government (in year 2003) for Licensing of Advertising Boards
- vii. Nagar Vasti Vikas Yojana – Vividh Kalyankari Yojana (2007 – 2008)
- viii. Nagar Vasti Vikas Yojana – Urban Slum Development Scheme (PMC) – Year 2007`



Version No: Draft	Pune Municipal Corporation	Page 9 of 181
	Requirement Assessment	

## 1.5 General Overview

Various key sections of the Requirement Assessment document have been organized as discussed below –

### i. Section 2.0: Existing System Analysis

This section deals with Introduction to PMC, how the Organizational Structure of PMC is and then covers details about the existing status of various departments of PMC in terms of Departmental Structure (the technical staff involved, the hierarchy of the department), what are the key functions of each department, their internal and inter department workflows and the type of data / information used and lastly the existing IT infrastructure in each department.

Along with the aforementioned aspects, the GIS related status is also discussed in terms of whether any GIS data or application is used by the department or not, what is the GIS skill-set available in each department, etc.

### ii. Section 1.8: Problem Statement

This section discusses the issues / problems identified with the existing system in the PMC departments individually & collectively. Solutions to these identified issues are discussed in terms of GIS as a possible solution and why a GIS based centralized application / system is required to be implemented across PMC Departments.

### iii. Section 2: Stakeholder and User Descriptions

This section and its sub-sections are dedicated for identified stakeholder and Users of the GIS based enterprise system. It discusses their needs and requirements vis-à-vis GIS and a centralized GIS based application. The requirements are discussed in two categories as ‘High Level Requirements’, which are viewed from an overall system point of view and ‘Detailed Requirements’, which are identified department wise.

### iv. Section 3: Dependencies

With respect to the needs and requirements covered in Section 2, this section discusses about what are the various types dependencies – which could be related to IT infrastructure (software / hardware), data availability, existing methodology, etc. – for implementing a GIS based enterprise system at PMC.

### v. Section 4: Supporting Requirements

This section derives other supporting requirements of a GIS based Enterprise System from the dependencies discussed in Section 3 and provides details about these requirements, which could include the supported host operating systems and network platforms, configurations, memory, peripherals and companion software.

## 1.6 Business Overview

PMC envisages implementing the state-of-the-art Geographical Information System in its operational activities so as to improve the efficiency and thereby its services.

To bring about efficiency and effectiveness in provision of services to its populace, PMC has already initiated GIS based survey of Properties in the City with a view to maximize the returns from the valuable Property Information.

The City Development Plan (Vol. II) of PMC – in its Reforms Action Plan – identifies the mandatory reforms that an Urban Local Body (ULB) needs to implement to be eligible for funding under JNNURM.

The specific actions plans which PMC intends to implement as part of these reforms include:

- Introduction of a system of e-Governance using IT applications such as GIS and MIS for various services provided by the ULB
- Reform of property tax with GIS and achievement of collection efficiency of 85 per cent of the demand by the end of mission

In compliance With respect to Property Tax, the department has undertaken GIS mapping of properties through a consultant and survey agency. However, the complete set of information related to the properties has not been completed.

There are other major issues in front of the PMC that need to be addressed so as to progress on the Action Plans for implementing e-Governance and GIS based Property Tax Information System. These are –

- **Inter-departmental Coordination:**
- **Independent (asynchronous) IT Initiatives of departments:**
- **Heterogeneity of Systems / applications implemented by Individual Departments**
- **Distributed Data base creation, Storage, Maintenance and Administration**

Owing to such issues, PMC desired to conduct an Organization wide study in the form of a project for Software Requirement Specifications (SRS) for GIS Implementation for the Corporation. The SRS is envisaged to study in detail the existing working of the departments - their functions, activities, internal departmental as well as inter-departmental workflows – the existing data / information they use, process and analyze, the existing methods of data capture, storage, maintenance, etc. so as to assess the potential for application of GIS in all of the above.

PMC wished to carry out a System Requirement Study of its proposed Geo-informatics solution to gather the requirements for creating and implementing a GIS based solution across all its departments.

The SRS would bring out recommendations for applications GIS for departments, database management, capacity building for GIS, hardware / software required and phase wise implementation plan as work breakdown structure.

Version No: Draft	Pune Municipal Corporation	Page 11 of 181
	Requirement Assessment	

## 2. Existing System Analysis

### 2.1 Introduction about PMC

Pune Municipal Corporation - governed by the Bombay Provincial Municipal Corporation (BPMC) Act, 1949 – was established in the year 1950. As per this Act, PMC is obligated to provide basic infrastructure like water supply, drainage, sewerage, and roads and services such as conservancy, fire fighting, streetlights, education and primary health to the citizens.

The deliberative wing of the PMC is the General Body that consists of 146 elected members and five appointed members. To assist the General Body in its functioning, there are various committees; the chief being the Standing Committee and the Ward Committee.

The Standing Committee, as specified under the BPMC Act, is the most important committee of the Corporation. The standing committee consists of 16 Corporators and is elected by the Corporators from among themselves at their first meeting after the general elections. The Standing Committee / General Board essentially govern the functioning of the Corporation and make all decisions with respect to the establishment and finances of the Corporation. The Standing Committee has unlimited financial powers and is subject to supervision by the State Government.

The Ward Committee consists of Corporators representing the electoral wards within the territorial areas of the ward committees. The main functions of the committee are to approve the cost of works for the wards, incorporate the expenses in the budget, etc.

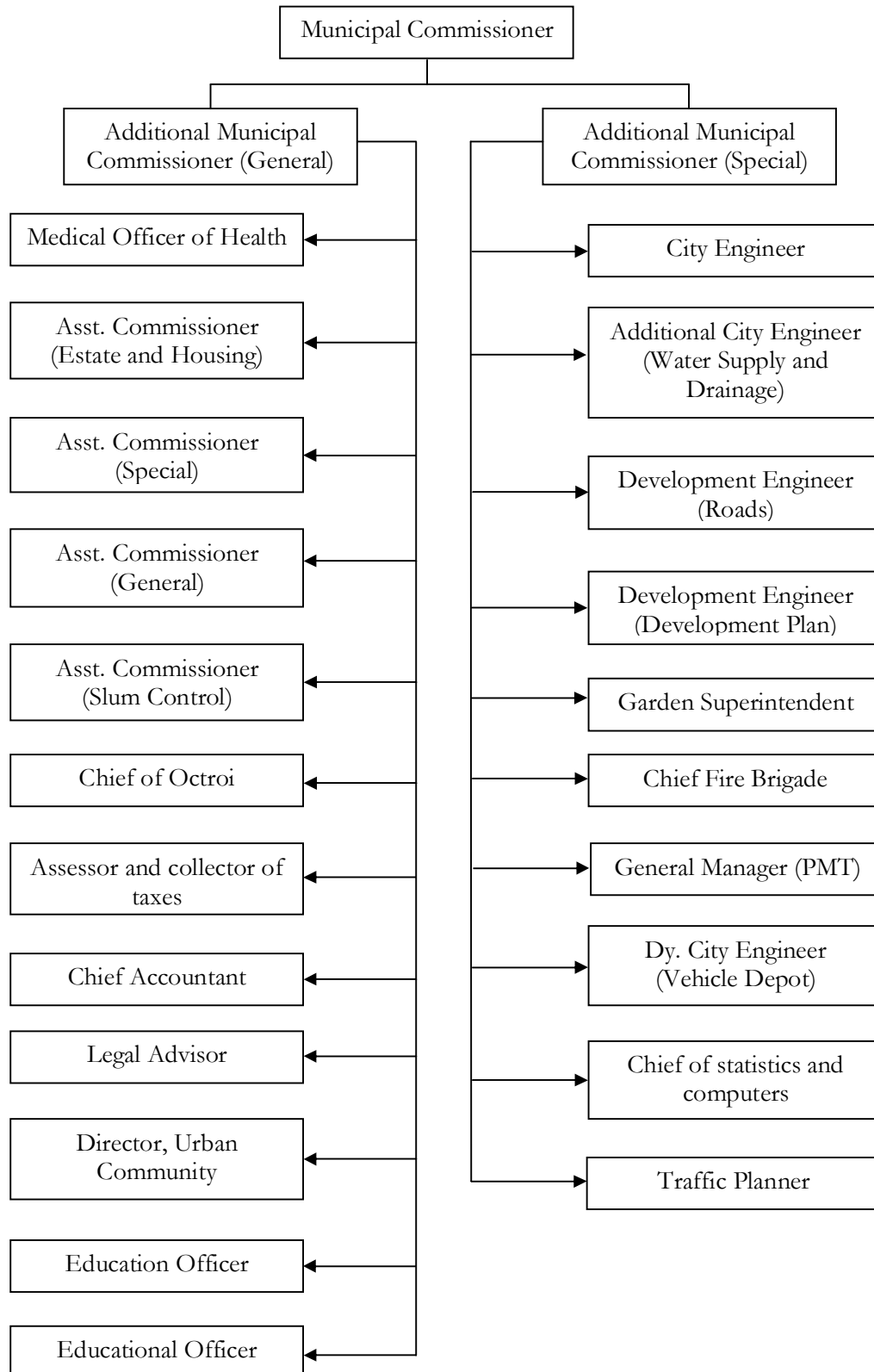
The Municipal Commissioner is the Administrative head of PMC; assisted by Senior Officials in discharging his functions. The Commissioner manages the day-to-day affairs of the Corporation subject to approvals and sanctions from the Standing Committee and the Corporation. Whenever required, the entire executive powers to carry out the provisions of the BPMC are vested in the Commissioner.

The Administrative Wing of PMC is divided into 14 wards, each headed by a ward officer. Following are the prime functional departments of PMC:

- General Administration
- Municipal Secretary
- Tax Collection
- Octroi
- Accounts and Audit
- City Development
- Public Works
- Public Health
- Water Supply
- Sewerage
- Public Security- Fire& Street Lighting
- Slum Clearance/Improvement
- Primary Health
- Education
- Transport Department / Workshop

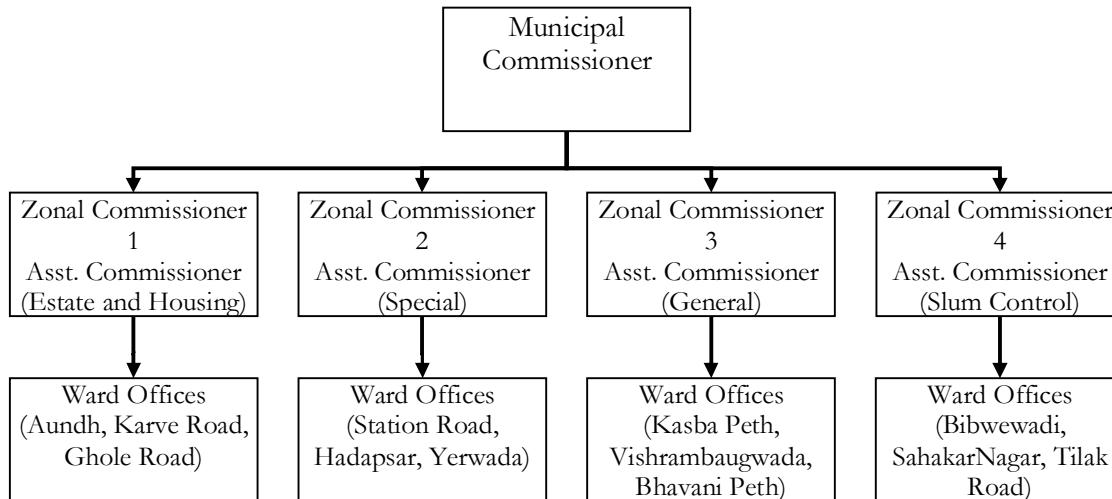
## 2.2 Organizational Structure

The overall organizational Structure of the PMC is as illustrated below –



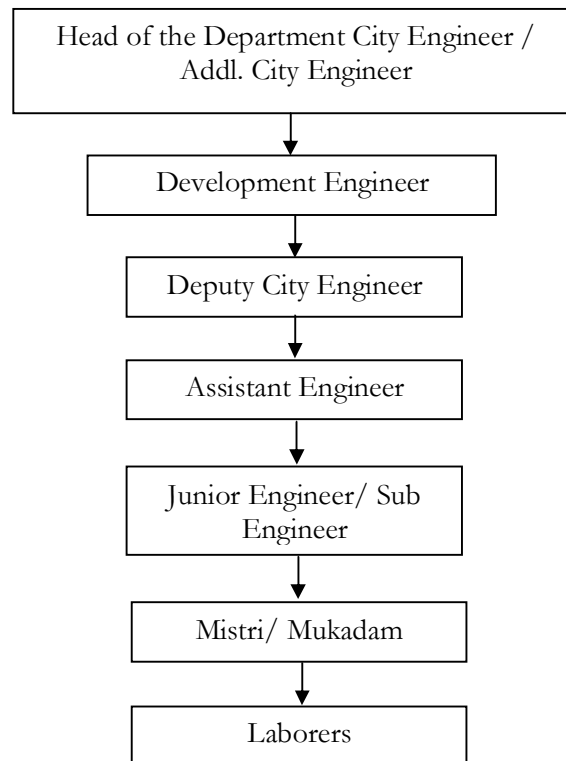
### 2.3 Zonal Structure of PMC

The Zonal Structure of the PMC is as illustrated under –



### 2.4 Project Executing Departments of PMC

There are engineering departments of PMC which are responsible for both the capital projects and the operation and maintenance activities. However, the 'Drainage Projects' department among them is responsible only for the capital projects. An overview of major engineering departments of the PMC is as under.



- i. **Water Supply and Drainage Department:** Responsible for capital projects for water supply, operation of water supply and drainage services and maintenance of the service infrastructure.
- ii. **Drainage Projects Department:** Responsible for executing capital projects for drainage and sewage services
- iii. **Road Department:** Responsible for executing Road Projects, maintenance of roads
- iv. **Traffic Planning Department:** Responsible for Traffic Management projects, operation and maintenance of traffic management infrastructure
- v. **Garden Department:** Responsible for construction and maintenance of Gardens, junctions, etc.
- vi. **River Improvement Department:** Responsible for execution of projects related to the riverfront development, cleaning and deepening of the river, etc.
- vii. **Slum (Social Welfare) Department:** Responsible for minor infrastructure works within slum areas, operation and maintenance of slum assets.

## 2.5 Details of PMC Departments

The following pages and subsections deal with the Existing Status of all the User Departments interviewed for the purpose of requirement gathering. The Requirement Gathering meetings / workshops were held during the period of 17<sup>th</sup> January '08 till 17<sup>th</sup> March '08.

The inputs were captured from the departments in accordance with the Questionnaire provided in **Annexure II**.

The inputs are documented as told and informed by the nominated personnel from each department and are assumed to be authentic. The filled up questionnaires had been provided to the respective departments for providing feedback or suggesting any modifications required. Feedback made available to NIIT GIS Team has been incorporated in the document.

The Departments are listed in the **Alphabetical Order** only.

### 2.5.1 Bhavan: (Building Constructions)

Date of Meeting: 25/01/08

Head of the Department: Mr. V.R.Patil

Meeting Held with: Mr. Mahindrakar

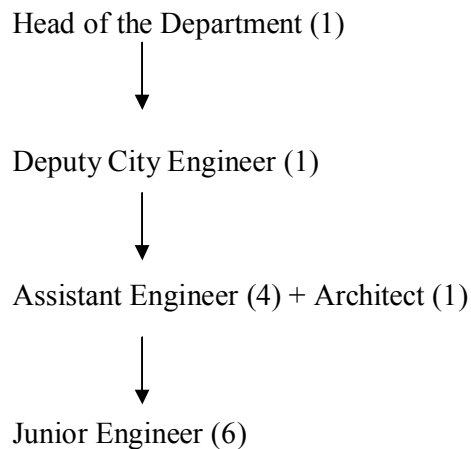
No. of Expected Users: 10-12

#### Introduction:

The department is actively involved in the development of land.

#### Existing Department Structure (with number of staff):

The department comprises a team of 10-12 technical members. For this department, entire Pune city has been divided into 14 ward offices. Each A.E. has two or three J.E.s working under his supervision and each Junior Engineer has been allocated 2 ward offices per head.



#### Municipal (Development / Maintenance) Functions of Departments

The department is involved in the development of land which includes the construction of schools, cremation grounds, hospitals and cultural centers, gymnasiums, swimming tanks, commercial complexes, playgrounds, sport centers and the likes.

#### Existing Business Processes / Activities of Departments

(Information not available at the time of meeting)

#### Existing workflows – Intra & Inter-department

- Proposal / Requirement → Estimation → Tendering → Execution → Billing

The **Traffic Planning Department** seeks / gives information from / to:

- Land Records: To check if the land has been acquired by PMC or not.
- Land Acquisition Department: To acquire the land for PMC, for demarcation and also to check for any suggested road widening.
- Development Plan: To check the proposed long term / short term plans in the area under consideration (with respect to reservations) and also to check for zoning and check for any suggested road widening.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 16 of 181</b>
	<b>Requirement Assessment</b>	

- Building Permissions department: For issues related to sanctions of the plan as suggested by the architect (in-house / external consultant).
- Drainage Department / Water supply / MSEB / Telecom / Electric Department are sent notifications before preparing estimates to check if any department has got any service lines in the area under consideration.
- Fire Fighting Department: Recommend areas for a new facility to be developed.
- Health Department: Recommend areas for a new facility to be developed
- Audit Department: For clearing the bills which are done phase-wise as might be suggested in the tender document.
- Garden Department and/or BOT cell: To carry out the landscaping in and around the infrastructure developed.
- Tender Cell (Works Management System): For preparing the tenders.
- Ward Offices: To carry out the maintenance works.

### **Existing Data / Information Details**

#### **Type of Data / Information Used:**

- Development Plan
- Election Map (Ward Offices) with well defined boundaries
- Plain Table Survey Reports
- Total Station Survey Reports
- Service Line Networks (not directly but through concerned department)
- Traffic Engineering Guidelines
- Development Control Rules (Guidelines)
- IS Codes (for RCC, Steel, etc.)
- DSR (scheduled rates which are revised every year)

#### **Existing Data:**

- The AutoCAD data pertaining to the areas on which the survey was carried out.
- Paper Maps for those areas also available.
- Development Plan (paper map) also available.

### **Data Capture / Storage & Maintenance Methodology**

- Google Earth (To roughly estimate the area)
- Excel Sheets (Budgets, Billing Details, Estimates)
- Field Survey

#### **Types of Surveys conducted are:**

- Topography survey
- High Flood Level Surveys (HFL)
- GPS Survey (to find out the Reduce Levels(MSL))

#### **The filed information is stored JE wise in –**

- Files, Tracing Papers
- Hard Disks (AutoCAD format)
- Compact Disks



<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 17 of 181</b>
	<b>Requirement Assessment</b>	

Means of Data Maintenance:

- Ammonia Prints, Hard Copy Maps, Tracing Papers

The data is stored each case-wise and the work carried out is available with the department and audit department (billing) and also with the Land Records Department.

#### **Data Usage / Processing and Analysis**

- To prioritize tasks and
- To identify & analyze location for a particular amenity through onsite survey.

#### **Outputs / Results / Reports produced**

The results are noted down phase-wise in -

- Measurement Books (used to calculate the billing amount)
- On site progress reports
- MIS Reports
- Reports showing Funds allocated, funds utilized, Work Completed (%), Reasons for slow progress etc.

#### **Existing Software / Applications / Systems:**

- AutoCAD
- Microsoft Office 2000

No Customized application or any other system is used.

#### **Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset)**

- Digital Maps in CAD format of specific areas (new projects)
- Budget related information available in excel format.
- **GIS Skillset available:** Two + One Architect

#### **Existing IT Infrastructure:**

- 7-8 Desktops
- 6 Printers( 2-3 Laser printers, 3 Dotmatrix, 1-2 Inkjet)
- 3 Laptops

#### **Specifications:**

Operating Systems used: Windows XP (Desktop), Vista (Laptop)

RAM: 512 MB (Desktop), 1GB (Laptop)

HDD: 80 GB (Desktop), 110 GB (Laptop) (confirmation required)

## 2.5.2 Building Permission (Fast Track)

**Date of Meeting:**

**Head of the Department: Development Engineer**

**Meeting Held with:** Mr. Milind Bapat

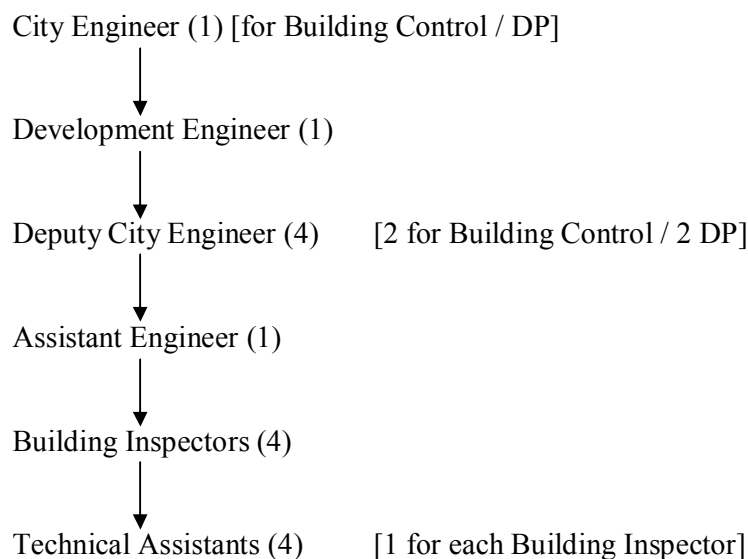
### Introduction:

This department essentially deals in provision of Building Permissions to special cases termed as Fast Track. These cases are processed as per the AutoDCR application developed by PMC for Building Permissions. For each case requiring Fast Track Building Permissions, certain Pre-requisites (in the form of documents, digital drawings, etc.) are verified using the AutoDCR application before granting the Building Permission / sanction.

### Existing Departmental Structure (Technical Staff):

The City Engineer heads the departments of Building Control and Development Plan. He is followed by the Development Engineer who has 4 Deputy Engineers to assist. Out of these, 2 are for DP section and 2 for Building Control. These are followed by Assistant Engineers who are organized into 2 categories as per Area of Sanction viz. below and above 1000 sq.m.

- Below 1000 sq.m. – For such a case, the Building Control has been decentralised into 4 ward offices for which there are 4 AEs – 1 AE per Ward Office. These AEs are assisted by 16 Building Inspectors. Lastly, there are technical assistants; 1 for each Building Inspector.
- Above 1000 sq.m. – For these cases, there are 6 AEs for regular cases Building Control and 1 AE for Fast Track cases. There are 14 Building Inspectors for regular cases and 4 for Fast Track. These are followed by Technical Assistants; 1 for each Building Inspector.



**Municipal (Development / Maintenance) Functions of Department:**

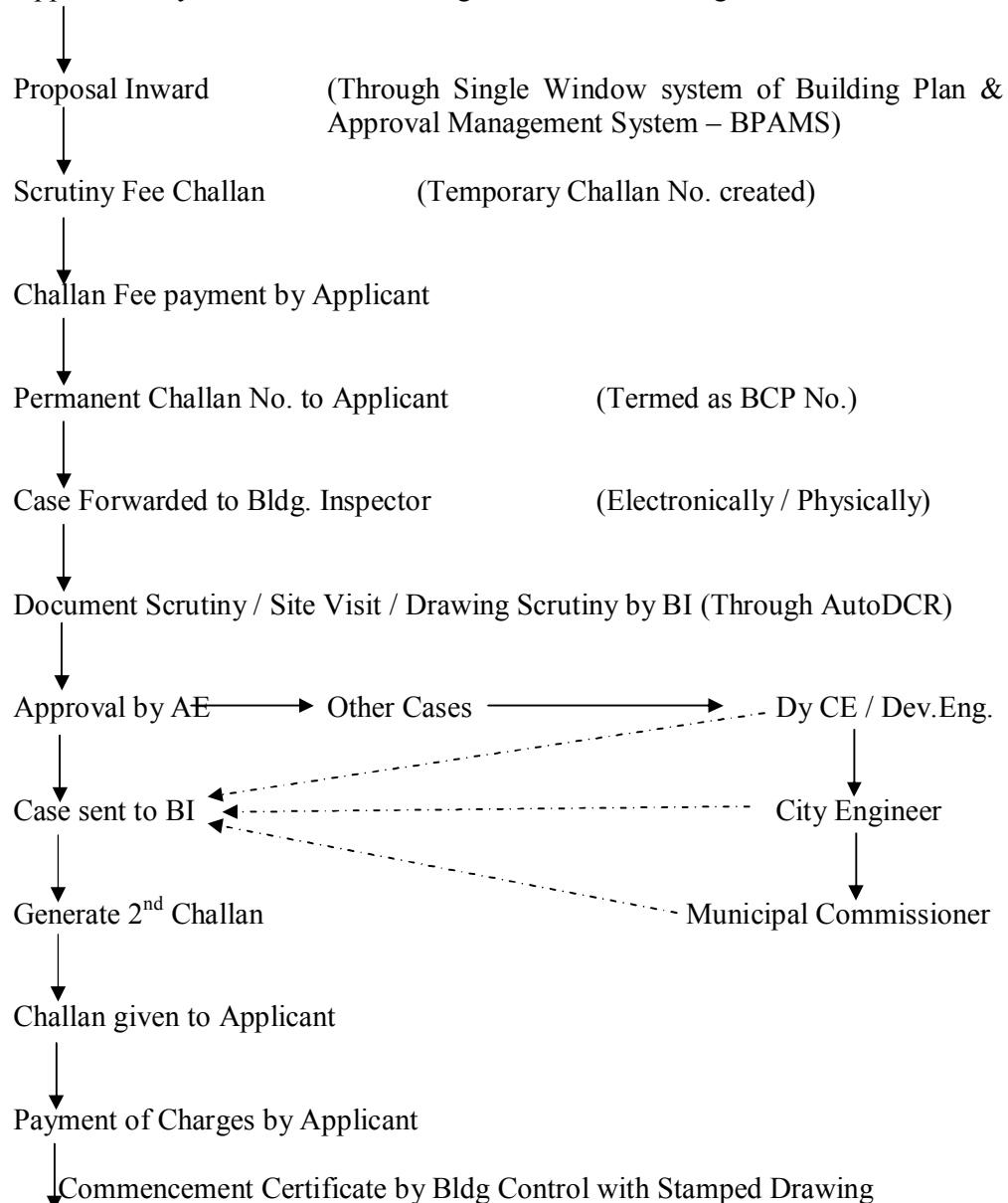
- Building Control – which is primarily dealt with by the Building Permissions Department and NOT the Fast Track section
- Building Permissions within 24 Hrs for some cases
- Notifications to Unauthorised Constructions; taking appropriate / necessary action on these; regularization / demolitions of such unauthorized constructions

**Existing Business Processes / Activities of Departments:**

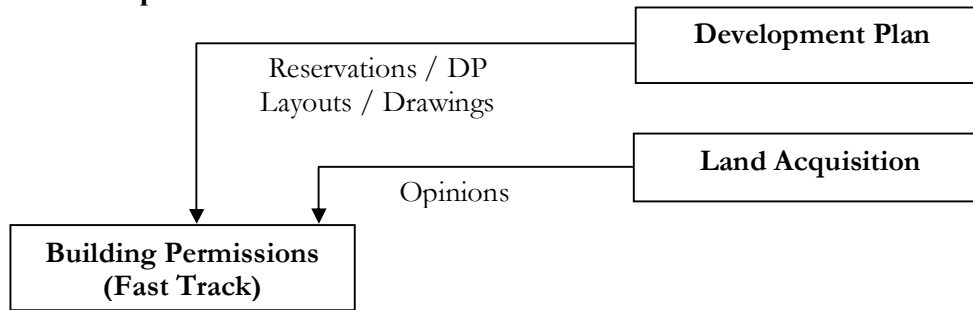
- Grant Building Permissions within 24 Hrs (in accordance with AutoDCR)
- Bringing out Office Circulars (regarding DC Rules, MRTP Act, etc.)
- TDR Cases

**Existing workflows – Intra & Inter-department**

Application by license Architect / Engineer / Structural Engineer



### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan: on account of Layouts / Development Plan drawings to refer the reservations marked in the Development Plan
- Land Acquisition: For inviting opinions from this department before giving sanction

### Type of Data / Information Used:

- Submission drawings by Applicant
- Development Plan Reservations
- Survey No.s
- Revenue Village Maps (Hard Copy) in 1:10,000 scale
- Ownership Records from City Survey
- DC Rules / MRTP Act / BMC Act
- Building Bye Laws
- Circulars regarding DC Rules

### Existing Data:

- This department manages all the data of Building Permission cases through the application called 'Building Plan & Approval Management System – BPAMS'.

### Data Capture / Storage & Maintenance Methodology

- BPAMS – This is an ASP application that uses MySQL to store database.
- Through AutoDCR application

### Existing Data Storage & Maintenance:

- Office Files
- BPAMS
- AutoDCR

### Data Usage / Processing and Analysis

- How many Fast Track applications of Bldg Permissions received in a specified time period?
- How many sanctions given in a specified time period?
- MIS reports are generated through BPAMS

### Outputs / Results / Reports produced

- Drawing Scrutiny Reports / Document Scrutiny Reports
- Other reports by Computer Department (Under City Engineer)

### Existing Software / Applications / Systems

- AutoDCR (AutoCAD based)

### Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset)

The existing digital data is the same as that used by DP Dept. along with the one stored in AutoDCR.

Type	Limit	Hardcopy/Digital	Format	Scale
DP	Old	Hardcopy	Paper	1:2000
	New	Hardcopy	Paper	1:10000
Village	Old	Hardcopy	Paper	1:10000
	New	Hardcopy	Paper	1:10000
CTS	Old	Hardcopy	Paper	1:500 (ft/inch)
	New	Hardcopy	Paper	1:500 (ft/inch)
DP	Old	Digital	CAD	1:2000 (Work in Progress)
	New	Digital	CAD	1:10000
Village	Old	Digital	CAD	1:10000
	New	Digital	CAD	1:10000
CTS	Old	Digital	CAD	1:500 (ft/inch)
	New	Digital	CAD	1:500 (ft/inch)

**GIS Skillset available:** One Personnel

### Existing IT Infrastructure:

- 1 desktop
- 1 printer

### 2.5.3 Building Permission / Control

Date of Meeting:

**Head of the Department: City Engineer**

**Meeting Held with: Mr. Kshirsagar**

**No. of Expected Users: 65**

#### Introduction:

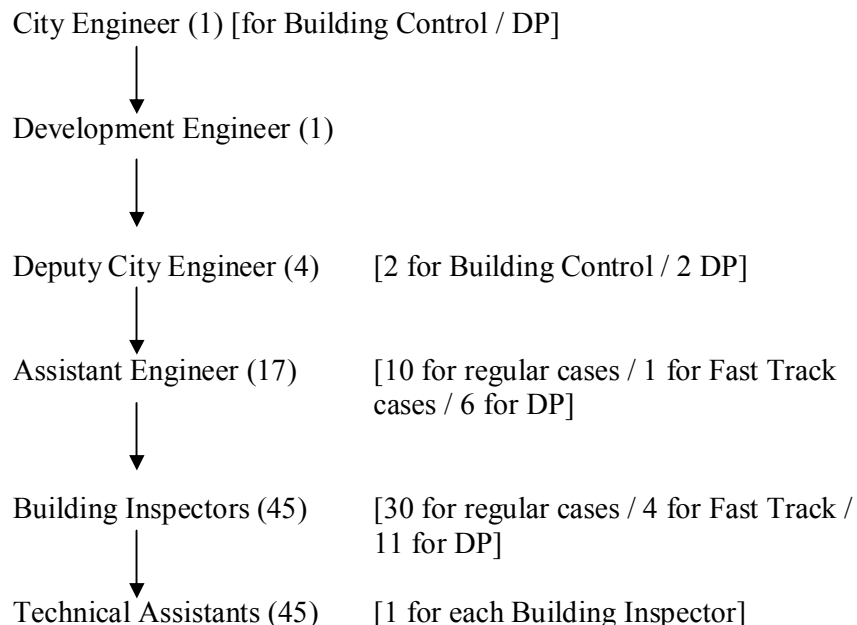
The department is involved in granting Building Permissions to Licensed Architects / Engineers / Structural Engineers for construction of buildings within the PMC jurisdiction area. The department also termed as Building Control works in close association with the Development Plan Section and the Building Permissions (Fast Track) section.

#### Existing Departmental Structure (Technical Staff):

The City Engineer heads the departments of Building Control and Development Plan. He is followed by the Development Engineer who has 4 Deputy Engineers to assist. Out of these, 2 are for DP section and 2 for Building Control. These are followed by Assistant Engineers who are organized into 2 categories as per Area of Sanction viz. below 1000 sq.m. and above 1000 sq.m.

- Below 1000 sq.m. – For such a case, the Building Control has been decentralised into 4 ward offices for which there are 4 AEs – 1 AE per Ward Office. These AEs are assisted by 16 Building Inspectors. Lastly, there are technical assistants; 1 for each Building Inspector.
- Above 1000 sq.m. – For these cases, there are 6 AEs for regular cases Building Control and 1 AE for Fast Track cases. There are 14 Building Inspectors for regular cases and 4 for Fast Track. These are followed by Technical Assistants; 1 for each Building Inspector.

For the Development Plan Section, the structure is similar at the Ward Offices. There are 6 AEs for DP, who are assisted by 11 Building Inspectors followed by Technical Assistants.



### **Municipal (Development / Maintenance) Functions of the Department:**

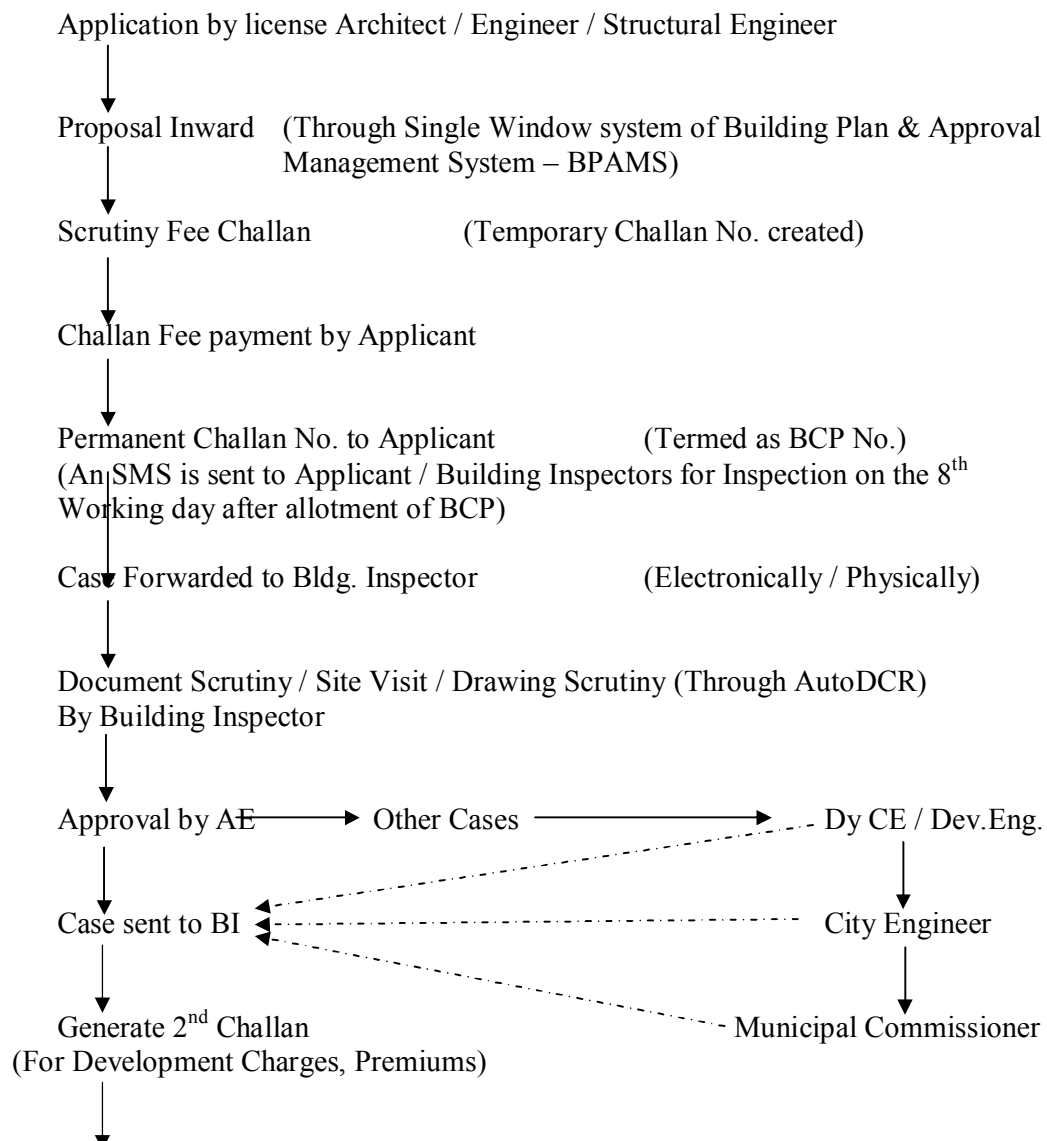
- Building Control / Building Sanctions
- Layout Planning (Land Sub-division / amalgamation)

### **Existing Business Processes / Activities of Departments**

Following activities are performed in the department w.r.t. the above functions.

- Providing Building Permissions to applications from licensed Architects / Engineers / Structural Engineers.
  - This involves activities of Plinth Checking and provision of Occupancy Certificates after Commencement Certificate for construction is given to the applicants.
- Carrying out Demolitions of Unauthorized Constructions
- Represent PMC in legal matters (affidavits, etc.)
- Resolve complaints about Building Control

### **Existing workflows – Intra & Inter-department:**



Challan given to Applicant



Payment of Charges by Applicant



Commencement Certificate by Bldg Control with  
Stamped Drawing

### **Inter-Departmental Workflows**

The Department interacts with (Property / Water) Tax department to obtain NOC for providing sanctions to vacant plots / plots with existing structure where extension to the structure is to be constructed.

It also interacts with the following departments for opinions / NOC before granting building permissions –

- Land Acquisition
- Water Supply
- Roads
- Garden
- Encroachment

### **Existing Data / Information Details**

- Submission drawings by Applicant
- Development Plan Reservations
- Survey No.s
- Revenue Village Maps (Hard Copy) in 1:10,000 scale
- Ownership Records from City Survey
- DC Rules / MRTP Act / BPMC Act
- Building Bye Laws
- Circulars regarding DC Rules

### **Existing Data:**

- This department manages all the data of Building Permission cases through the application called 'Building Plan & Approval Management System – BPAMS'.

### **Data Capture / Storage & Maintenance Methodology:**

- BPAMS – This is an ASP application that uses MySQL to store database.
- AutoCAD based AutoDCR
- Office Files

### **Data Usage / Processing and Analysis:**

- How many regular applications of Bldg Permissions received in a specified time period?
- How many sanctions given in a specified time period?
- Generate Bldg Inspector-wise Efficiency Index (there is a limit of 21 days set for BIs to complete the sanctioning process of an application)
- Several MIS reports are generated through BPAMS



**Outputs / Results / Reports produced:**

- Reports on FSI
- Revenue generated in a specific time period
- Area wise / Peth-wise sanctions given
- Pending payments against Challans

**Existing Software / Applications / Systems**

- AutoCAD based PreDCR & AutoDCR
- BPAMS

**Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset)**

The existing digital data is the same as that used by DP Dept. along with the one stored in AutoDCR.

Type	Limit	Hardcopy/Digital	Format	Scale
DP	Old	Hardcopy	Paper	1:2000
	New	Hardcopy	Paper	1:10000
Village	Old	Hardcopy	Paper	1:10000
	New	Hardcopy	Paper	1:10000
CTS	Old	Hardcopy	Paper	1:500 (ft/inch)
	New	Hardcopy	Paper	1:500 (ft/inch)
DP	Old	Digital	CAD	1:2000 (Work in Progress)
	New	Digital	CAD	1:10000
Village	Old	Digital	CAD	1:10000
	New	Digital	CAD	1:10000
CTS	Old	Digital	CAD	1:500 (ft/inch)
	New	Digital	CAD	1:500 (ft/inch)

**GIS Skillset available:** Two Personnel

**Existing IT Infrastructure:**

- 40 Desktops (Including those of Fast Track Section)
- 1 Blade Server (has 14 Blades' Capacity)
- 1 Xeon Server
- 2 Printers

## 2.5.4 Census Department [as part of the Office of the Assistant Municipal Commissioner]

**Date of Meeting:** 12/03/08

**Head of the Department:** Mr. A.N.Patil

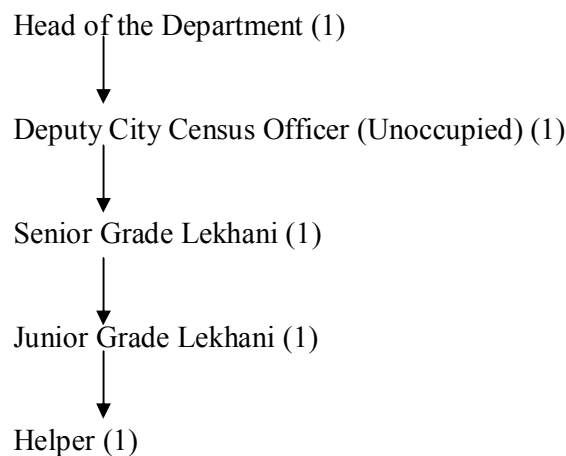
**Meeting Held with:** Mr. Vikas Khadke and Mr. Satpute

**No. of Expected Users:** 5

### Introduction:

Census department under PMC is entrusted with the responsibility to carry out all types of census to capture the socio-economic data as per the instructions issued by the government.

### Existing Departmental Structure (Technical Staff):



### Municipal (Development / Maintenance) Functions of the Department:

The department is involved in coordinating the activities carried out in the two phases of Census:

Phase I: House Listing and House Numbering and then the actual counting

Phase II: Actual Population Count

Types of Census carried out are listed as below -

- Population Census
- Economical Census
- Cattle Census
- Employees Census

### Existing Business Processes / Activities of Departments

- Identifying area to carry out Census as per the instructions (in the form of a booklet) issued either by State Government / Central Government, the type of census and the type of information to be collected.
- Carry out House Listing and House Numbering in Phase I.
- Division of wards into number of blocks (For ex: A total of 500 households would constitute a block) on the basis of house numbering.
- Nominate representative for each block (depending upon the number of blocks) for efficient data collection.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 27 of 181</b>
	<b>Requirement Assessment</b>	

- The number of blocks and no. of households lead to the total number of surveyors required to carry out the survey.
- Each of these surveyors, on nomination is provided with a study material followed by training on the same.
- Phase II begins on the said date and the information collected is aggregated block-wise then ward-wise and finally the information is compiled together for the entire city.
- The entire surveyed data along with the compiled information is sent to the State Government / Central Government, as asked for.

#### **Internal Departmental Workflows:**

Requirement→Assessment of the type of requirement → Division of Work Area→Allocation of Manpower → Training→Survey→Compilation of Information

#### **Inter-Departmental Workflows**

This Department seeks help from each of the departments under PMC / State / Central Government to depute employees to carry out the survey.

#### **Type of Data / Information Used:**

Training Booklets and Forms sent by the State / Central Government  
Previous Census Data about Wards, Blocks and other Socio-economic Data captured previously

#### **Existing Data:**

Final Compiled Census Data pertaining to all types of censuses carried out.

#### **Existing Method of Data Capture:**

On site survey

#### **Existing Method of Data Storage:** Office File Storage

#### **Existing means of Data Maintenance:**

The data is initially maintained block-wise then compiled ward-wise and thus the city-wise data is available with the department.

#### **Existing Data Processing / Analysis:**

The Phase I data pertaining to House Listing and numbering is used to sub-divide the wards in and smaller blocks to increase the efficiency in data collection.

#### **Existing Outputs / Results:**

Ward Wise Census Data available for the entire city i.e. statistical information.

#### **Existing CAD/Any other software used:** None

#### **Existing Digital Data Available:** None

#### **Existing GIS Skillset:** None

#### **Existing IT Infrastructure:** None

### 2.5.5 Computer and Statistics Department

**Date:** 14/03/08

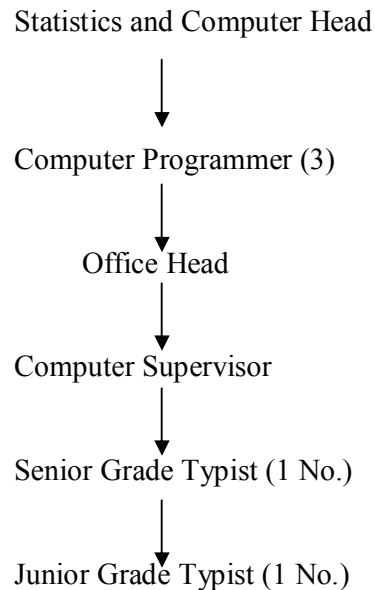
**Head of the Department:** Mr. Galinde

**Meeting Held with:** Mrs. Bhavana Chaudhary

#### Introduction:

This department performs the task of maintaining statistical information about all the departments of PMC. It also develops software programs based on the requirements of the departments. It maintains the PMC website.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of Department:

Functions of the Department involve –

- Software Development
- Maintenance of Computer/Server
- Network Connectivity
- Shifting/Allocation of Computers
- Database Maintenance
- Website maintenance
- Identifying and Maintaining Kiosks

#### Departmental Activities:

- All the above functions are carried out after requirement assessment.

#### Internal Departmental Workflows:

- The stages involved in the Departments workflow are as under –

**Requirement Assessment → Study Process → Development**

Version No: Draft	Pune Municipal Corporation	Page 29 of 181
	Requirement Assessment	

**Inter-Departmental Workflows:**

- This department works with other department once a requirement is identified or proposed by the concern department.

**Type of Data / Information Used:**

- Data/Information is collected from concerned departments based on the requirement of projects.

**Existing Data:**

- Once the database is developed the concern department maintains it.

**Existing Method of Data Capture:**

- The concerned department collects the data as required by the Statistical Department.

**Existing Method of Data Storage: Database Servers**

**Existing means of Data Maintenance:**

- The data is maintained by the concerned department.

**Existing Data Processing/Analysis: None**

**Existing Outputs / Results: None**

**Existing CAD / Any other software used: None**

**Existing Applications (if any):**

- The PMC website hosts applications for Food License, Sky, License, Property Tax and Birth Death Certificate. ASP .Net is used for developing these applications.

**Existing Digital Data Available:**

- Existing data is available as database records for the above mentioned application.

**Existing GIS Skillset: None**

**Existing IT Infrastructure:**

- Details to be provided by the department at a later date

### 2.5.6 Development Plan

**Dates of Meetings:** 25/01/08 & 28/01/08

**Head of the Department:** Mr. P.Waghmare

**Meeting Held with:** Mr. Pacharne, Mr. Bagde, Mr. Kindre and Mrs.Shinde

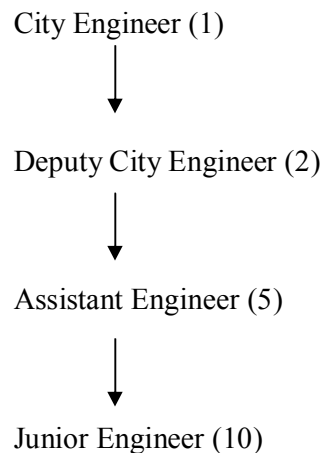
**No. of Expected Users:** 18-20

#### **Introduction:**

The department is actively involved in sanctioning the layouts and also to provide DP opinions on reservations when required by various departments.

#### **Existing Departmental Structure (Technical Staff):**

The department comprises a team of 18-20 technical members. For this department, entire Pune city has been divided into two major zones viz. Old and New Limit. Here, City Engineer heads the team. Under the direct supervision of City Engineer there are two Deputy City Engineers and each deputy city engineer has been given one Zone. There are five Assistant Engineers in all in the team. Each Assistant Engineer supervises 1-3 Junior Engineers. Each Junior Engineer has been allocated areas sector-wise for Old limit and Unit-wise for new limit. There in all six sectors (1 to 6) and 10 units in new limit.



#### **Municipal (Development / Maintenance) Functions of the Department:**

- Layout Sanctioning
- DP Opinions in terms of reservations
- Government Correspondence – Modifications done to sanctioned DP/sanctioned DCR
- TDR (Certificate against Reserved Land)

#### **Existing Business Processes / Activities of Departments**

Following activities are performed in the department w.r.t. the above functions.

- Licensed Architects / Engineers / Various Departments within PMC send request to DP for Layout Sanction / DP Opinion.
- For Layout Sanction, after the regular scrutiny is filled (with appropriate documents) and is sent to the respective authority (as per jurisdiction area), the layout is sanctioned.

Version No: Draft	Pune Municipal Corporation	Page 31 of 181
	Requirement Assessment	

- For DP opinion with regards to road widening and reservations, DP opinion is sent to the concerned department as per request.

#### **Existing workflows – Intra & Inter-department:**

1. Requirement from Licensed Architects / Engineers / PMC Depts. → Scrutiny → Processing of Scrutiny form → Layout Sanction
2. Requirement for DP opinion → Processing → DP opinion given

#### **Inter-Departmental Workflows**

Development Plan gives information to all the departments under PMC, seeking information about reservations and proposed road widening plans in the requested area. The DP department also is approached by all the departments (especially Road department) for markings and Land Acquisition departments to get information about reservations.

#### **Existing Data / Information Details**

- Development Plan
- DP Gazette
- Circular book (To Suggest Concession against DC Rules)
- Development Control Rules (Guidelines)
- Government Directives

#### **Existing Data:**

- DP Map showing reservations
- Paper Maps (Old and New Limits)
- Sector-wise Maps (Old Limit) in Paper format (Work in progress to convert to CAD format)
- Unit-wise Maps (New Limit) in CAD format
- CTS Maps in Paper & CAD format
- Village Maps in Paper & CAD format

#### **Data Capture / Storage & Maintenance Methodology**

- AutoCAD
- Excel Sheets (Budgets, Billing Details, Estimates)
- Total Station Surveys (Existing Landuse)

The filed information is stored Case-wise and Sector-Wise in Office Files. Digital Maps are stores in

- Hard Disks (AutoCAD format)
- Compact Disks

Data is maintained case-wise/sector-wise as -

- Hard Copy Maps
- Photocopies

#### **Data Usage / Processing and Analysis**

- None
- Land use Planning (Proposed)

#### **Outputs / Results / Reports produced**

- Layouts
- Monthly Reports (No. of Inwards, No. of Sanctions and the likes)

**Existing Software / Applications / Systems:**

- AutoCAD 2006
- Microsoft Office 2005

**Existing Applications:**

- Auto DCR
- Pre-DCR

**Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset):**

Type	Limit	Hardcopy/Digital	Format	Scale
DP	Old	Hardcopy	Paper	1:2000
	New	Hardcopy	Paper	1:10000
Village	Old	Hardcopy	Paper	1:10000
	New	Hardcopy	Paper	1:10000
CTS	Old	Hardcopy	Paper	1:500 (ft/inch)
	New	Hardcopy	Paper	1:500 (ft/inch)
DP	Old	Digital	CAD	1:2000 (Work in Progress)
	New	Digital	CAD	1:10000
Village	Old	Digital	CAD	1:10000
	New	Digital	CAD	1:10000
CTS	Old	Digital	CAD	1:500 (ft/inch)
	New	Digital	CAD	1:500 (ft/inch)

**GIS Skillset available:** One

**Existing IT Infrastructure:**

- 5 Desktops (Pentium III)
- 5 Printers (Dot-Matrix)



### 2.5.7 Drainage- Old Limit

**Date:** 01/02/08

**Head of the Department:**

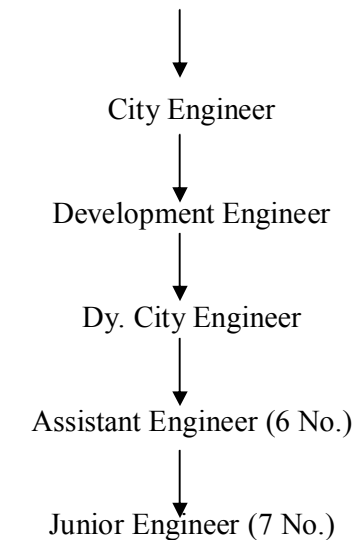
**Meeting Held with:** Mr. Rajesh Shinde

#### **Introduction:**

This department maintains the existing drainage lines in the old city limits.

#### **Existing Departmental Structure (Technical Staff):**

Add. Commissioner (Special)



#### **Municipal (Development / Maintenance) Functions of Department:**

Functions of the Department involve –

- New Drainage
- Maintenance of Drainage & Nalla's
- Construction and maintenance of Chambers.

#### **Existing Business Processes / Activities of Departments:**

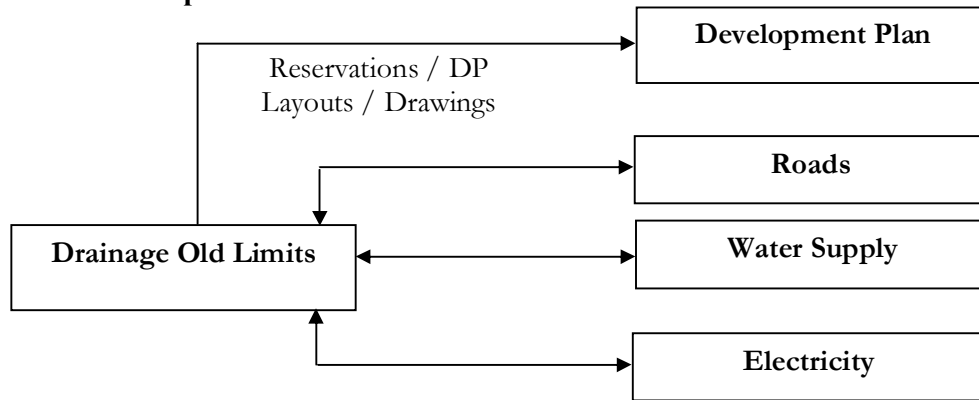
Following activities are performed in the department w.r.t. the above functions.

- To conduct Survey in the area of complainant
- Identify drainage network elements to be replaced
- Identify residents affected by maintenance works.
- Find length of drainage lines that will be replaced.
- Identify nearest main line.
- Identify assets of department like Roads, Water supply, Electricity, etc. which are affected by maintenance projects.
- Notify the departments regarding the maintenance projects affecting their assets.

#### **Existing workflows – Intra & Inter-department Workflows:**

Citizen Complaints → Field Survey → Existing and future development → Provision of Budget → Tender → Tender Sanction → Work Order → Payment

### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan:
- Roads: Identify roads affected by drainage maintenance works and notify the roads department regarding the same.
- Water Supply: Identify water supply lines affected by drainage maintenance works and notify the Water Supply department regarding the same.
- Electricity: Identify electricity lines affected by drainage maintenance works and notify the Electricity department regarding the same.

### Type Existing Data / Information Details:

- Hard Copy Maps of existing Drainage network

### Existing Data:

- Hard Copy Maps
- AutoCAD drawings

### Data Capture / Storage & Maintenance Methodology

- Complaints received from citizens
  - Field Survey
- Data Stored in:** AutoCAD Drawings

### Data Usage / Processing and Analysis

- Identify drainage lines needed to be replaced
- Identify the chambers between which the drainage line exists.
- Calculate the slope.

### Outputs / Results / Reports produced

- Notifications to Departments (Case basis)

### Existing Software / Applications / Systems: AutoCAD

### Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset):

Existing data is available in digital format for entire Pune City (Old Limits)

**GIS Skillset available:** One

**Existing IT Infrastructure:** Not Available at the time of meeting

### 2.5.8 Drainage- Project (Extended area)

**Date of Meeting:** 02/02/08

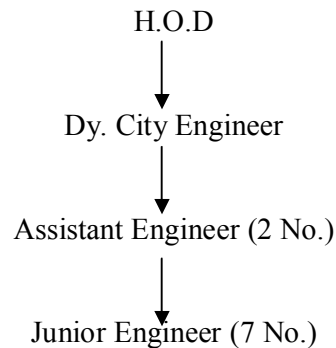
**Head of the Department:** Mr. Nirbhavne

**Meeting Held with:** Mr. Sanjay Gaikwad

#### **Introduction:**

This department takes up construction of new drainage lines in the extended area of Pune city. The department builds Sewerage line, Chambers (collection), Drainage Conveyance (nallas), Pumping Stations and Treatment Plants.

#### **Existing Departmental Structure (Technical Staff):**



#### **Municipal (Development / Maintenance) Functions of Department:**

The Functions of the Department involve construction of –

- Sewerage Line
- Sewerage Collection System
- Sewerage Conveyance (Nalla)
- Sump and Pump House
- Sewerage Treatment Plant (STP)

#### **Existing Business Processes / Activities of Departments:**

Following activities are performed in the department w.r.t. the above functions.

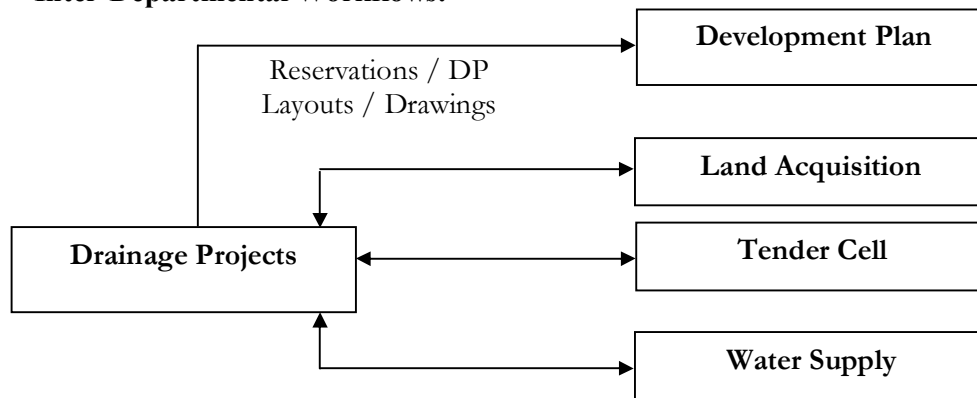
- Predict Sewerage needs of the city by means of studies such as Kirloskar Plan.
- Identify locations for developing drainage network through field survey.
- Request appropriate reservations in the Development Plan.
- Request Land Acquisition to acquire land area identified drainage projects.
- Floating tenders for drainage projects.

#### **Existing workflows – Intra & Inter-department:**

The stages involved in the Departments workflow are as under –

Identify Drainage Requirement → Plan Drainage Network → Make Reservations in DP → Provision of Budget → Tender → Tender Sanction → Work Order → Payment

### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan: Reservations are requested in the Development Plan. Identifying Proposed Road Lines from master plan.
- Land Acquisitions: Request for acquisition of land under Drainage Projects.
- Tender Cell:
- Water Supply:

### Existing Data / Information Details:

- Sewerage Demand Studies
- Hard Copy Maps
- Contour Maps
- Land Records

**Existing Data:** Hard Copy Maps and AutoCAD Drawings

### Data Capture / Storage & Maintenance Methodology:

- Development Plan Maps
- Field Survey

**Data Stored and maintained in:** AutoCAD Drawings

### Data Usage / Processing and Analysis:

- Calculate the slope
- Identifying Locations for STP near rivers.
- Planning conveyance lines towards STP.
- Planning capacity of drainage network. Roughly is 80% of water supplied.

### Outputs / Results / Reports produced:

- Reservations in DP
- Notifications to Land Acquisition department

### Existing Software / Applications / Systems/ Any other software used:

- AutoCAD

### Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset):

- AutoCAD drawings.

**GIS Skillset Available:** One

**Existing IT Infrastructure:** Information not available at the time of meeting.

### 2.5.9 Education Department

**Date of Meeting:** 10/03/08 & 11/03/08

**Head of the Department:** Mr. A. V. Kadamkar

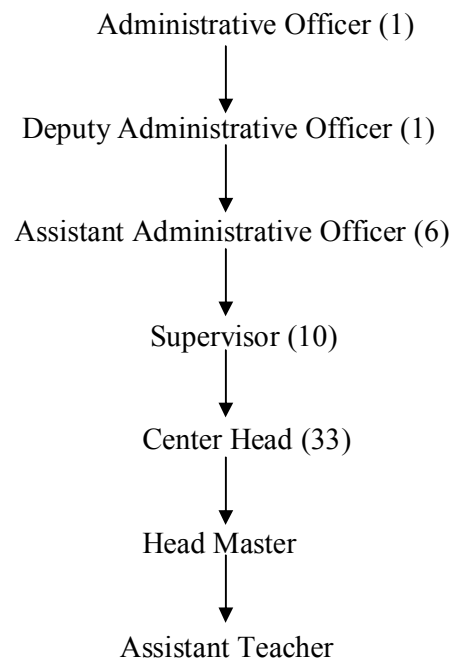
**Meeting Held with:** Mr. Vasudev Kurbet and Mrs. S. Deshmukh and Mr. D. Pardeshi

**Introduction:**

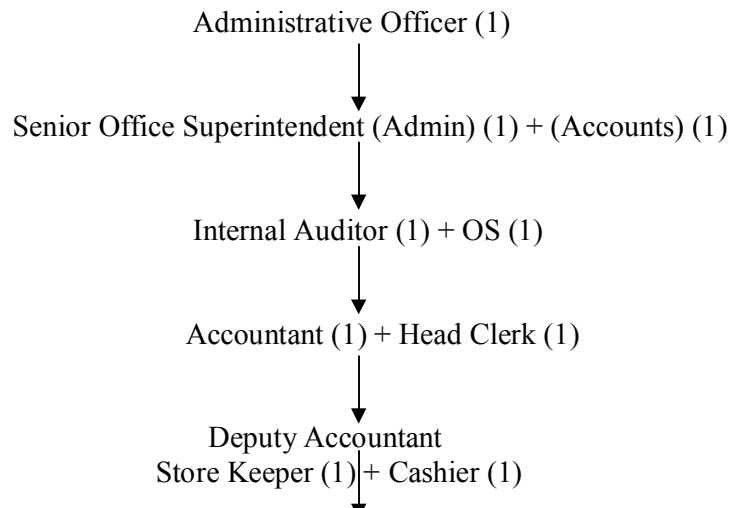
Education department under PMC is assigned the responsibility to provide primary education to all the students in the age- group of 6-14 years.

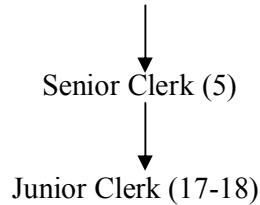
**Existing Departmental Structure:**

**a) Structure pertaining to School (Education Department)**

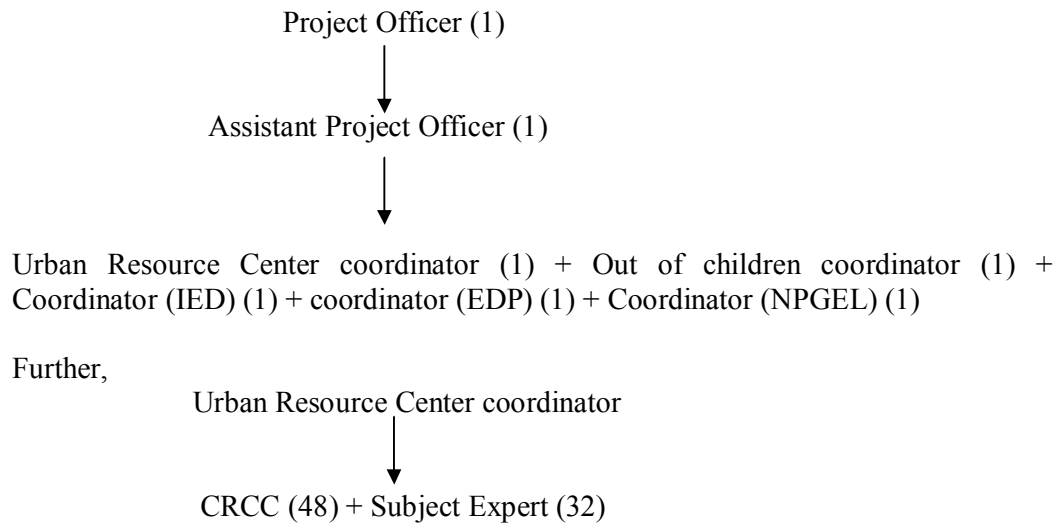


**b) Structure pertaining to Office (Education Department)**





**c) Structure Pertaining to SSA**



**Municipal (Development / Maintenance) Functions of the Department:**

The Education Department along with Sarva Shiksha Abhiyan (SSA) is actively involved in providing primary education to students in the age group between 6-14 years which includes special programs run for disable students, girl students and students out of school for several months and all the children dwelling in slum areas. Education department is also responsible for efficiently running and maintaining the schools owned by PMC. Also, training to teachers is imparted to enhance the level of education amongst the teaching community and to encourage the teachers to incorporate newer and innovative means to keep the students, interested in attending the school.

**Existing Business Processes / Activities of Departments:**

**For Education department:**

- Requirement in terms of uniforms, teaching materials, stationary, infrastructure and the likes is assessed.
- An estimate of the same is prepared and then the budget is approved from the standing committee.
- Following the tender process, the material is procured and is finally is distributed as decided to various schools and various sub-departments.

**For SSA:**

- Requirement in terms of uniforms, teaching materials, stationary, infrastructure and the likes is assessed at school level by Head Masters.

Version No: Draft	Pune Municipal Corporation	Page 39 of 181
	Requirement Assessment	

- This requirement is collated by the CRCC at the ward levels for all the schools falling under that ward. Further, this information is obtained at Prabhag (Section) Level by amalgamating the information obtained at ward levels.
- This information is then collected together for zones.
- Finally, a total city annual work plan and budget is prepared and is submitted to the State Government which is then submitted to the Central Government.
- Once sanctioned, the funds are allocated to the various sub-departments.

**Existing workflows – Intra & Inter-department:**

Requirement Assessment → Estimate → Sanction → Allocation of Funds → Execution

**Inter - Departmental Workflows:**

This Department seeks help from each of the following departments.

- Ward Office (Bhavan) - For maintenance Works pertaining to Buildings
- Electric Department - For maintenance Works pertaining to Electricity and providing new electric connection.
- Water Supply - For maintenance Works pertaining to Water Supply and providing new connection.
- Health - For Health check-up of the students.
- Garden - For Landscaping
- Sanitation
- Land and Estates - To get the possession of the buildings
- Slum Department

**Existing Data / Information Details:**

- Bombay Primary Education Act 1947
- Bombay Primary Education Rule 1949

**Existing Data:**

- Statistical Survey Reports pertaining to No. of Schools (Aided / Non-Aided), Students (Category-wise, age-group wise), No. of disabled students (Male / Female, type of Disability), No. of Teachers and Specializations, No. of Children out of School, Information pertaining to infrastructure etc.

**Data Capture / Storage & Maintenance Methodology:**

- On site survey

**Data Storage:**

- Office File Storage
- Hard Disks in excel format

**Data Maintenance:**

- For Education Department: The data is stored in terms of sub-departments viz. Establishments (Teacher, Students), Accounts, Building (Electric, Water supply, sanitation) Store Keeper, Private Schools (Primary, Secondary), PMC (Primary, Secondary), Purchase, Inward and Outward Department.
- For SSA Department: The data is stored URCC (Urban Resource Center Coordinator) and then CRCC-wise.

**Data Usage / Processing and Analysis:**

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 40 of 181</b>
	<b>Requirement Assessment</b>	

- Depending on the type and the number of the students falling in different age groups, Training Programs are chalked out for the teachers.
- Depending on the no. of disabled students residing in a particular (ward?), the facility of “Mobile- Teachers” is made available to such students who cannot visit centers.
- Statistical Reports are made available to various government organizations like no. of science teachers so on.

**Outputs / Results / Reports produced:**

The results are in the form of reports which are sent to MPSP, ZP, SCERT and Officer of Education (Govt. of Maharashtra) in terms of details of schools, teachers, infrastructure, no. of teachers for specialized subjects like science, mathematics, etc.

**Existing Software / Applications / Systems:** None

**Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset):**

- Statistical data pertaining to all the surveys carried out under SSA are available in MS Excel format

**GIS Skillset Available:** One

**Existing IT Infrastructure:**

- 8 Desktops (Windows XP, 2.80 GHz Processing Speed, 248 MB RAM, 80 GB HDD)
- 2 Printers (Laser)



### 2.5.10 Elections Department

**Date:** 01/02/08

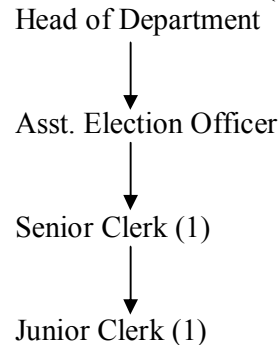
**Head of the Department:**

**Meeting Held with:** Mr. Rajesh Shinde

**Introduction:**

This department conducts and provides infrastructure for Bi-Elections and General-Elections.

**Existing Departmental Structure (Technical Staff):**



**Municipal (Development / Maintenance) Functions of Department:**

- Conducting Bi-Elections and General Elections
- Preparing / updating / maintaining Voters' List
- Accepting Election Nomination
- Polling
- Declaration of Polling Result

**Existing Business Processes / Activities of Departments:**

Following activities are performed in the department w.r.t. the above functions.

- Accepting Election Nomination
- Withdrawal of nomination
- List of Contestants
- Polling
- Vote counting and Result
- Preparation of voters list ward-wise
- Survey is done for planning polling booths locations. Polling booths are generally schools, colleges, or halls in the vicinity (not more than 1Km) of the residents.
- Voting list verification survey. Voting list is prepared based on ward boundary. To verify this list field survey is done with the help of ward boundary maps.

**Existing workflows – Intra & Inter-department:**

This department interacts with the Census Department for updated ward maps.

**Existing Data / Information Details:**

- Vidhan Sabha Voters List (Compact Disc)
- Ward maps hard copy

Version No: Draft	Pune Municipal Corporation	Page 42 of 181
	Requirement Assessment	

**Data Capture / Storage & Maintenance Methodology:**

- Voters List Survey
- Polling Booth Survey

**Data Stored in:** Office Files (Soft copy) which are printed after verification.

**Data Maintenance:** Surveys for voting list & polling both are conducted six months prior to elections.

**Data Usage / Processing and Analysis:**

- Resolve voter list issues such as non-existent names or addresses and voters name appearing in more than one list.
- Selecting schools, colleges & halls that are within 1Km of voters address.

**Outputs / Results / Reports produced:**

- Voters List

**Existing Software / Applications / Systems:** None

**Existing Status of GIS (GIS Data / Use of GIS / GIS Skillset):** None

**GIS Skillset available:** None

**Existing IT Infrastructure:**

- 2 pairs of Desktops and printers.

### 2.5.11 Electric

**Date of Meeting:** 31/01/08

**Head of the Department:** Mr. Choudhary (Additional C.E.)

**Meeting Held with:** Mr. C. K. Pawar

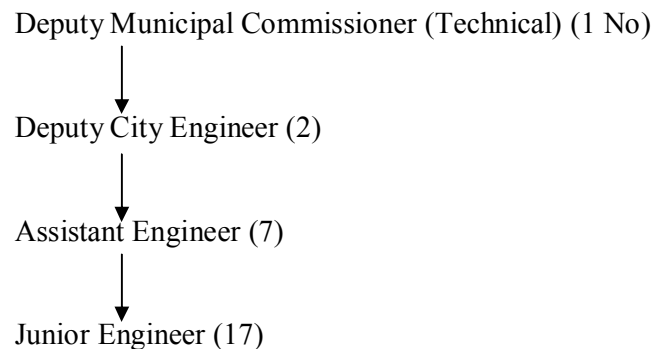
**No. of Expected Users:** 25 - 30

#### Introduction:

The department is actively involved in the provision and maintenance of services related to electrical works.

#### Existing Departmental Structure (Technical Staff):

The department comprises a team of 25-27 technical members. For this department, entire Pune city has been divided into 14 ward offices. There is one Deputy Municipal Commissioner (Technical) heading the team and there are two Deputy City Engineers. The Deputy City Engineer (I) handles 12 ward offices and Deputy City Engineer (II) handles two ward offices along with Central Store and also Projects. Two Assistant Engineers under Dy. CE-I have 6 ward offices each, One Assistant Engineer undertakes MSEB Billing. Two Assistant Engineers under Dy. CE -II undertake JNNURM works while the other two handles projects and 2 ward offices. There are in all 17 Junior Engineers.



#### Municipal (Development / Maintenance) Functions of the Department:

The department provides electrical services to structures and buildings owned by PMC and it maintains the electrical infrastructure for them. It also undertakes the MSEB billing activities for the same. One of the major activities carried out in this department is street lighting.

#### Departmental Activities:

- Requirements may come from all the Departments under PMC / Corporators / Citizens / NGOs
- Survey of the area under consideration for existing Electric Fittings
- Estimates are prepared and are sent for approval to the standing committee
- If the estimates are prepared, then the tendering process follows. Tenders are floated for the work with the help of the tender cell.
- Appointment of the contractor and the work-order is signed.
- On-site survey of the site by the contractor and markings are carried out.
- The material is procured and the work commences on-site

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 44 of 181</b>
	<b>Requirement Assessment</b>	

- Field books and the measurement books are maintained and the estimated billing amount, along with the measurements is sent to the audit department for bill payment.
- Under guarantee period the maintenance work is carried out by the contractor whereas after the guarantee period and in case of small works, the maintenance work is carried out by the respective ward offices but if the maintenance work is major then the tender is floated to carry out the same.

**Internal Departmental Workflows:**

Proposal / Requirement → Estimation → Tendering → Execution → Billing and Maintenance

**Inter-Departmental Workflows**

Electric Department seeks the requirement from all the departments under PMC for provision / maintenance of services. Apart from that following department are approached -

- Audit Department: For clearing the bills.
- Tender Cell (Works Management System): For preparing the tenders.
- Ward Offices: For carrying out the maintenance works.

**Type of Data / Information Used:**

- On-site Survey: To find out the area of the site under consideration for the purpose of lighting and the details of Natural lighting and Ventilation.
- Electrical Standards [Standards used to light a site (office, school etc.)]
- Demand and Load Calculations

**Existing Data:**

- Survey Reports

**Existing Method of Data Capture:**

- Surveys

**Existing Method of Data Storage:**

The information is stored in Office Files Tender Number

**Existing Data Processing / Analysis:**

- Survey Data obtained is studied and then the required fittings are suggested in coordination with the consultant.

**Existing Outputs / Results:**

The results are noted down phase-wise in

- Measurement Books (used to calculate the billing amount)
- On site progress reports
- QA / QC Reports

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** Street Light Billing Application

**Existing Digital Data Available:**

Budget related information available in MS Excel format.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 45 of 181</b>
	<b>Requirement Assessment</b>	

**GIS Skillset Available:** None

**Existing IT Infrastructure:**

- 4 Desktops (Pentium III)
- 3 Printers [Dot Matrix(2), Laser(1)]
- 9 Laptops

### 2.5.12 Electric Pole Shifting

**Date of Meeting:** 11/03/08

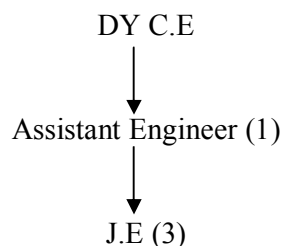
**Head of the Department:** Mr. Shrinivas Kundal

**Meeting Held with:** Mr. Ashok Kedari and Mr. Jalinder Singh Rajput

#### Introduction:

This department's task is to shift the existing electric poles of MSEB due to road widening projects. The department also undertakes works of converting overhead cables to underground cable.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of Department:

Functions of the Department involve –

- Shift MSEB Electric Poles based on notification from Roads department.
- Converting dangerous overhead electric cables to underground cable.

#### Departmental Activities:

Following activities are performed in the department w.r.t. the above functions.

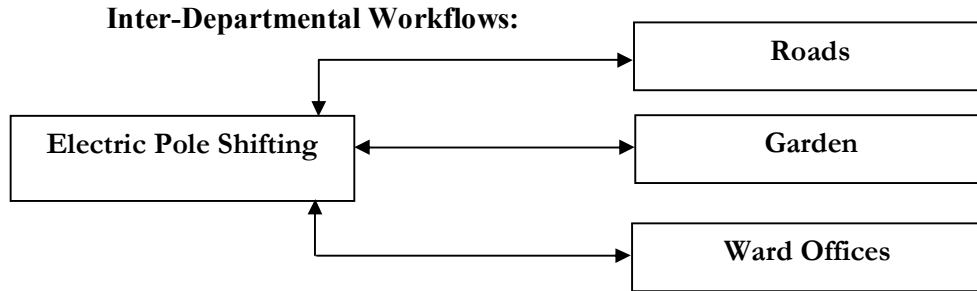
- Survey of Area: Electric Pole shifting department and MSEB personnel jointly carries out the survey where work is to be carried out.
- Prepare estimates.
- Send notifications to Ward office (for road maintenance) and Garden department (tree-cutting).

#### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

**Request from Corporator (for converting overhead electric cables to underground cables) → Field Survey for verification → Prepare Estimate → Float Tender → Work Order**

**Road widening notification to MSEB from Roads Dept. → Site Survey by PMC and MSEB Officials → Estimate by MSEB → Field Survey for verification → Prepare Estimate → Float Tender → Work Order**



This department has inter-linkages with the following departments:

- Roads: Receive roads list which will undergo road-widening.
- Garden: If tree cutting is required the department is notified.
- Ward Office: Maintenance of all the roads excavated during pole shifting works is carried out by Ward Offices.

**Type of Data / Information Used:**

- MSEB Estimates.
- Field Survey.

**Existing Data:**

- MS-Office Files.
- MSEB Estimates.
- Field Surveys.

**Existing Method of Data Capture:** Field Survey

**Existing Method of Data Storage:** Estimate Documents created per project.

**Existing means of Data Maintenance:** Tender Records.

**Existing Data Processing/Analysis:**

- Identify number of poles to be shifted
- Identify number of overhead cables to be converted to under ground cables.
- Tender Estimates.

**Existing Outputs / Results:**

- Notifications to Departments
- Tender
- Progressive Report
- Standing Committee Report

**Existing CAD / Any other software used:** None

**Existing Digital Data Available:** None.

**GIS Skillset Available:** None.

**Existing IT Infrastructure:**

- Pairs of Desktop & Printers
- 1 Laptop

Version No: Draft	Pune Municipal Corporation	Page 48 of 181
	Requirement Assessment	

### 2.5.13 Encroachment Department [as part of Dy. Municipal Commissioner (Special)]

**Date of Meeting:** 07/03/08

**Head of the Department:** Zonal Officer (Encroachment)

**Meeting Held with:** Mr. G P Jadhav

#### **Introduction:**

The department is deals with the Encroachments on Roads and Footpaths. These encroachments are often of temporary nature e.g. some small Tea stall or Pan Shop located on the roads or footpaths.

The roads on which encroachments are to be removed are identified primarily based on heavy traffic conditions. Such roads, which may have traffic congestions due to the encroachments, are identified for action. Also, the PMC has identified a list of 30 roads in Pune city which are declared as “No Hawkers” zones. This department takes of these roads mainly for removal of encroachments.

Earlier, the PMC had given about 7500 Hawkers’ Licenses till the year 1989. After this year, the licenses have been stopped.

#### **Existing Departmental Structure (Technical Staff):**

The Department is headed by Zonal Officer (Encroachments), who is followed by Chief Encroachment Inspector. There are 13 Encroachment Inspectors (for each ward / zonal office). These are assisted by 13 Assistant Encroachment Inspectors.

Zonal Officer (Encroachments) (1)



Chief Encroachment Inspector (1)



Encroachment Inspectors (13)



Assistant Inspectors (13)

#### **Municipal (Development / Maintenance) Functions of the Department:**

- Removal of Encroachments from Roads / Footpaths as per BPMC Act 1949, Section 231
- Collection of Removal Charges from Hawkers as per BPMC Act 1949, Section 438

#### **Departmental Activities:**

- Identifying Roads for undertaking removal of encroachments
- Prioritizing Encroachment Removal action based on Heavy Traffic conditions of Roads and / or the list of 30 roads identified as “No Hawkers” zones
- Planning and undertaking necessary action for removal of encroachments
- Storing the seized items in Godowns



Version No: Draft	Pune Municipal Corporation	Page 49 of 181
	Requirement Assessment	

- Recording the seized items in Central Register
- Collecting Removal Charges from Hawkers
- Releasing the seized items once Removal Charges are paid by the Hawkers

**Internal Departmental Workflows:**

Complaints received by Encroachment Inspector at Ward / Zonal Office → Site visit / Inspection by Asst. Inspectors → Negotiation with Hawker's Groups → Notification to other departments like (Police / Slum) about removal plan → carry out Removal of Encroachment

**Inter-Departmental Workflows**

The Department interacts following departments for opinions / NOC / notifications before carrying out necessary encroachment removal actions –

- City Engineer
- Building Control
- Health
- Slum
- Sky Signs

**Type of Data / Information Used:**

- BPMC Act 1949
- List of Roads declared as “No Hawkers” Zones
- Central Register for maintaining information about seized goods / items

**Existing Data:**

- Central Register for maintaining information about seized goods / items

**Existing Method of Data Capture:**

- Complaints received by Encroachment Inspectors at Ward / Zonal Office

**Existing Method of Data Storage & Maintenance:**

- Central Register (Hard Copy)

**Existing Data Processing / Analysis:**

- How many complaints have been received from a particular Ward / Zonal Office?

**Existing Outputs/Results:**

- How many roads are having encroachments?
- How many encroachments have been removed in a specific time period?

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** None

**GIS Skillset Available:** None

**Existing IT Infrastructure:** 1 Desktop

#### 2.5.14 Fire Brigade

**Date of Meeting:** 22/02/08

**Head of the Department:** Mr. Khanapure (Additional Municipal Commissioner)

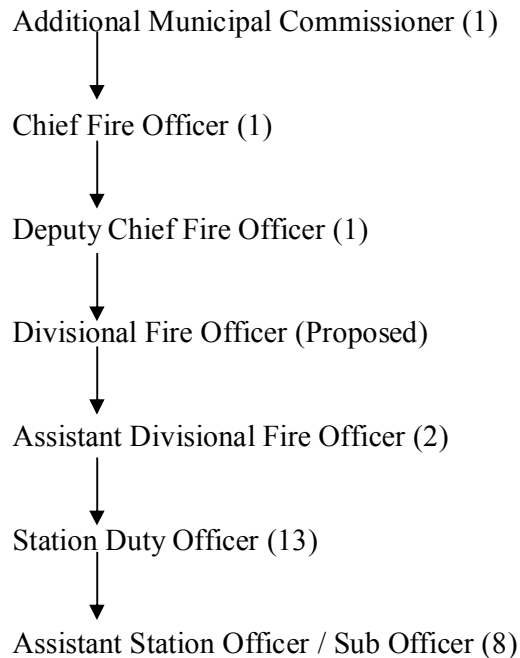
**Meeting Held with:** Mr. Sagvekar

**No. of Expected Users:** 25

##### **Introduction:**

Fire Brigade department under PMC is entrusted to provide protection to the lives and properties against fire.

##### **Existing Departmental Structure (Technical Staff):**



##### **Municipal (Development / Maintenance) Functions of the Department:**

- Administrative Functions:  
Additional Commissioner performs administrative functions and needs to accompany the troupe in case of severe accident and has to guide in events of emergency.
- Executive Functions
- Training
- VIP Arrangement
- Fair and Festival Management (Ex. Riverside)

##### **Departmental Business Processes:**

- Requirement comes from the citizens in terms of calls. These calls are categorized as –
  - Fire (House Callers for Evacuation)
  - Road Blocks (Blockages due to falling down of Trees etc.)
  - Accident Jobs (Ex. Machinery or Truck- Car etc.)
  - Catching of Snakes

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 51 of 181</b>
	<b>Requirement Assessment</b>	

Requirement may also come from residential societies, industries, malls, ward officers, additional municipal commissioner for the above said purpose or to provide training. Types of training provided by the Fire brigade department on request are as follows-

1. Mock Drills
  2. Evacuation Trainings
- On receiving call, Name and telephone number of the person who has called up is asked, address of the mishap, Landmark is asked.
  - On confirmation, of the telephone number, deployment of the vehicle and information to the police control room and also MSEB is sent via phone call in case of the fire.
  - On arrival of the vehicle, site survey is conducted and requirement of water is assessed. In case, fire is small, fire control room is informed so and the work is carried out but if the outbreak is huge then fire control room is informed about the same. Fire control room informs the water works department and makes arrangements to send all the required equipments and vehicles to the site simultaneously.
  - If casualties are found, then the arrangement is made with the help of police and citizens to send them to the nearest hospitals.
  - Once the on-site job is accomplished, the fire report is prepared recordings all the details of the event and then all such reports are sent to the standing committee per week.

#### **Internal Departmental Workflows:**

Requirement → Assessment of the type of requirement → Allocation of Manpower  
→ Execution

#### **Inter-Departmental Workflows**

This Department seeks / gives information from / to:

- MSEB for electric supply cut in the event of fire.
- Water supply department to fulfill the water requirement.
- Traffic Police Department to ensure for arrangements made to divert the traffic and also for mob control.
- Corresponding Ward offices are informed to get extra man power.
- Demolition department
- Garbage Depots\*
- Health Department approaches Fire Brigade dept. to seek for NOC for Hotels.
- Building Permission and Building Construction departments seek for NOC in terms of Permissible heights (if more than 15 m) and for special buildings like Hospitals, Mall, Industries etc.

#### **Type of Data / Information Used:**

- National Building Codes (For Hts., Lifts, Transformers etc.)
- BPMC Act 1949
- DSR (scheduled rates which are revised every year)

#### **Existing Data:**

- Site Plans
- Case particular data

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 52 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Method of Data Capture:** On site survey

**Existing Method of Data Storage:** Hard Disks

**Existing means of Data Maintenance:**

Any incident of fire is recorded in the department using a registration number and all the reports pertaining to the incident are stored in the department using that corresponding registration number.

**Existing Data Processing / Analysis:**

The reports prepared by the department (stating loss of property) in the case of fire accidents are provided to the affected party to claim for money against insurance or for court cases.

**Existing Outputs/Results:**

The results are in the form of reports-  
Annual Reports showing Loss of Department, Casualties (employees, citizens), equipments (functional/Non-functional)

**Existing CAD/Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:**

Digital data of all the cases in MS Excel format

**GIS Skillset Available:** None

**Existing IT Infrastructure:**

- Desktops (Windows 2000, 260 KB RAM, 40 GB HDD)
- 1 Printers(Dot-Matrix)
- 1 Laptop

### 2.5.15 Garden

**Dates of Meetings:** 06/02/08 & 07/02/08

**Head of the Department:** Mr. Y.S. Khaire

**Meeting Held with:** Mr. Bankar and Mr. Machale

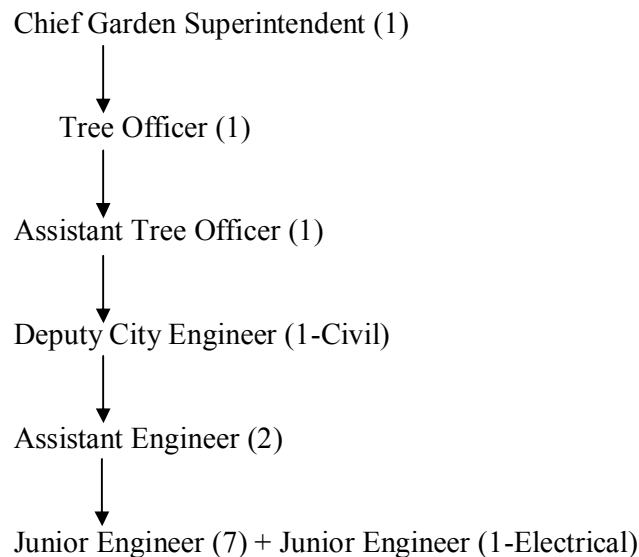
**No. of Expected Users:** 14-15

#### **Introduction:**

The department carries out the development and maintenance of gardens / playgrounds / parks.

#### **Existing Departmental Structure (Technical Staff):**

The department comprises a team of 14-15 technical members. For this department, entire Pune city has been divided into 14 ward offices. There is one Chief Garden Superintendent heading the team followed by a Tree Officer supervising the Assistant Tree Officer. Assistant Tree Officer supervises the Deputy City Engineer. There are two Assistant Engineers, one for River (East) region and the other one for River (West) region. Under each Assistant Engineer there are four Junior Engineers. Each Junior Engineer has been allocated 2 ward offices per head.



#### **Municipal (Development / Maintenance) Functions of the Department:**

- To develop new gardens / parks / playgrounds
- Maintaining existing gardens / parks and zoos
- Tree-cutting permissions
- Re-plantation

#### **Departmental Activities:**

- On the basis of the requirements sent by citizens / NGOs / Corporators and various departments within PMC, new gardens / parks and playgrounds are developed.
- Site survey conducted by J.E., A.E. and D.Y.C.E. for development of new gardens / parks / playgrounds

- DP opinion on reservations and open space
- Acquire land for development
- Notify water department, sanitation department and electric department for new connections.
- Identify areas and construct toilet blocks
- Identify locations to develop joggers track etc.
- Commencement of work of construction
- Report maintenance showing the status of work, hurdles in progress of the work etc.
- Audit Department for bill payment
- Identify existing gardens / parks and playgrounds to carry out the maintenance work.
- Generate annual report on amount utilised for slum development for submission to Statistics department

#### **Internal Departmental Workflows:**

Proposal/Requirement → Site-Visit → Estimation → Tendering → Execution → Billing & Maintenance

#### **Inter-Departmental Workflows**

Garden Department seeks/gives information from/to:

- Development Plan: To check for reservations in the term plans in the area under consideration
- Land Records and Estate: To check the ownership details of the land
- Land Acquisition Department: To check the status of the land. In case the land is not acquired then the department is notified to do so.
- Roads department sends a notification to the garden department to carry out the beautification and landscaping in and around the infrastructure developed
- Drainage Department / Water supply / Electric Department are sent notifications to provide new connections on the site
- Audit Department: For clearing the bills
- Traffic Police Department: To ensure for arrangements made to divert the traffic.
- Health and sanitation department in case of construction of new toilet blocks.
- Slum

#### **Type of Data / Information Used:**

- Survey Reports(Topography, Geological)
- DP Reservation
- Base Maps (Blue prints)
- Development Control Rules (Guidelines)
- DSR (Scheduled rates which are revised every year)
- Site Study Report on Natural Conditions which includes Strata, Topography, Water table and the likes.

#### **Existing Data:**

- Site Survey Reports
- Development Plan (Open Space, Marking) also available.
- Site photographs for visualizations of the site conditions.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 55 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Method of Data Capture:**

- Actual site survey using total stations (Topography, MSL, Length, Width)
- Excel Sheets (Budgets, Billing Details, Estimates)

**Existing Method of Data Storage:** The filed information is stored JE wise in –

- Files
- Plans
- Photographs

**Existing means of Data Maintenance:**

- The data here is stored case-wise and then J.E. wise.

**Existing Data Processing / Analysis:**

- Analysis is made on the survey reports as to whether joggers' park is required on not, placement of the fountains, etc.

**Existing Outputs / Results:**

The results are noted down phase-wise in:

- Measurement Books (used to calculate the billing amount)
- On site progress reports
- Reports showing Funds allocated, funds utilized, Work Completed (%), Reasons for slow progress etc.

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** None

**GIS Skillset Available:** One

**Existing IT Infrastructure:**

- Desktops
- Printers (1 Laser, 3 Dot Matrix)
- Laptops

## 2.5.16 Health

**Date of Meeting:** 20/02/08

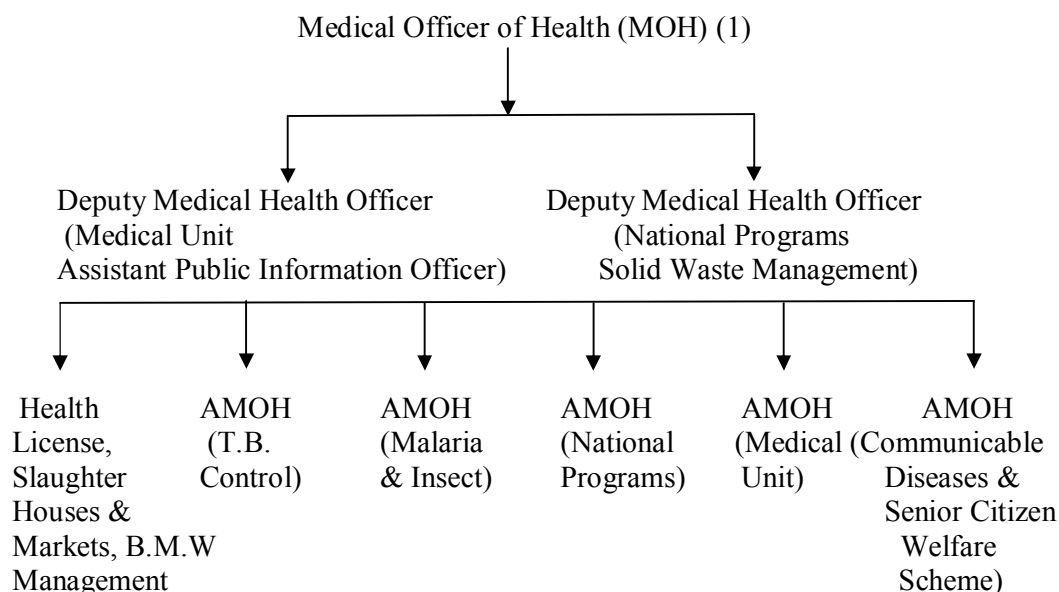
**Head of the Department:** Dr. Pramod Dhaygude

**Meeting Held with:** Dr. D. Chandakkar, Dr. Mrs. Wagh, Mr. S. Jagtap, Dr. Wavare

### Introduction:

The department is responsible for managing and providing Health Services to the people residing within the limits of Pune Municipal Corporation.

### Existing Departmental Structure (Technical Staff):



### Municipal (Development / Maintenance) Functions of the Department:

- Maintenance of Places for disposal of dead and disposing unclaimed dead bodies
- Public Vaccination
- Registration of Birth and Death
- Control of Communicable diseases
- Anti-Rabis Treatment to BPL families of PMC
- Provision of Maintenance of Lunatics and Lepers
- National Health Programs
- Malaria and Insect Control
- Management of Fairs and Festivals
- Prohibition of Stray Animals
- Contributory Health Scheme
- Senior citizen Welfare Scheme
- Sanitation
- Solid Waste Management

### Departmental Activities:



Version No: Draft	Pune Municipal Corporation	Page 57 of 181
	Requirement Assessment	

### 1. For Licensing-

- Application with relevant documents is made to the respective Ward Office by the Citizen (Depending upon the business up to 16 forms available to process it)
- CFC (Citizen Facilitation Centre) Operator at PMC receives it from the respective ward office and then the operator converts it into computerized format
- Divisional Site Inspector and Ward Medical Officer inspect the site on receiving the application and also verify the documents sent across to them with the application.
- The application is then sent to the AMOH for sanctioning.
- Once sanctioned by AMOH, the application is sent to the CFC where the citizen fills the challan and receives the receipt.
- The application along with the receipt is sent back to the AMOH who in turn issues the license book in the name of the applicant. This license book can be collected by the applicant from the CFC finally.

### 2. For Garbage Collection

- On-duty Sanitary Inspector monitors a new society coming up which is reported to the ward office and in turn to the Solid Waste department
- A letter is sent to the society chairman / secretary and to the ward office to make arrangements to provide the garbage to the bell trucks if the society is small and in-case it is large then the garbage to be disposed in vermin-compost pit.
- In both the cases, on-site investigation for DSI is done for garbage collection.
- The bell trucks then run over the predefined routes between garbage stations to garbage sumps then to bulk refuse carriers and finally to disposal lands.

**Internal Departmental Workflows:** Not Available at the time of Meeting

### Inter-Departmental Workflows

Health Department seeks/gives information from/to:

- Tax Department- To seek for the information pertaining to Property Tax NOC
- Building Permissions for Building Completion or Occupation Certificate
- Fire brigades- To seek for the information pertaining to Fire NOC in case of Hotels
- Bhavan
- Electric Supply
- Water Supply for Water NOC

### Type of Data / Information Used:

- Bio-Medical and Waste Management & Handling Rules 1998
- The preconception and prenatal diagnostic Techniques ( Prohibition of sex selection Act 2003)
- RNTCP Training Course Material
- BPMC Act
- Program Reports

**Existing Data:** Survey Reports

**Existing Method of Data Capture:**

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 58 of 181</b>
	<b>Requirement Assessment</b>	

- Surveys: Types of Surveys conducted are:
  1. Slum Survey
  2. Address Verification Survey for TB Programs
  3. Household Survey

**Existing Method of Data Storage:**

The filed information is stored in –

- Registers
- Files

**Existing means of Data Maintenance:**

- For TB Control Section: The data here is stored in PHI-wise (Peripheral Health Institute), TU-wise (TB Units) and finally city-wise.
- For all the departments the data is maintained City-wise.

**Existing Data Processing / Analysis:**

All the MIS reports available are used to chalk out efficient planning for next quarter.

**Existing Outputs / Results:** The results are noted down in:

- MIS Reports (For Family Planning, Birth and Death Registrations, For TB Control, For Malaria, For Insect Control and Family Welfare Programs, Health Licenses Issued) using the standard formats already in place.

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** Health License Module (Part of an application managed by Computer Section using JSP)

**Existing Digital Data Available:**

- Survey Reports Digital Maps in AutoCAD format
- MIS Reports

**GIS Skillset Available:** None

**Existing IT Infrastructure:**

- 12 Desktops (Windows XP, 2.40 GHz processing speed, 384 MB RAM, 40 GB HDD)
- 10 Printers
- 1 Laptop

### 2.5.17 JNNURM – BSUP

**Date:** 14/03/08

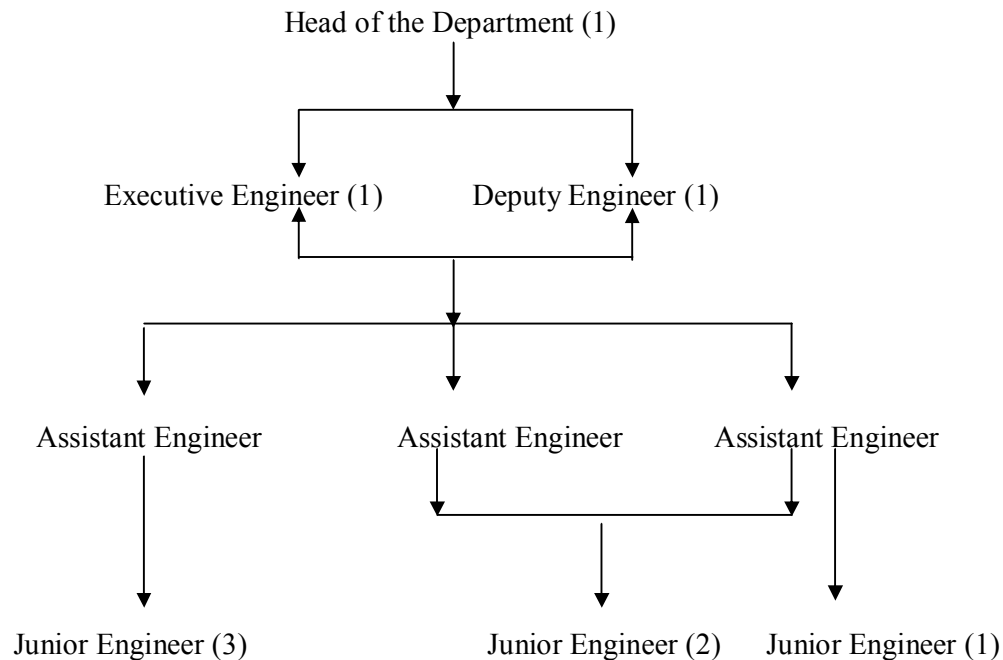
**Head of the Department:** Mr. V.R.Patil

**Meeting Held with:** Mr. C.G. Gaikwad

#### Introduction:

The department is responsible for the development of basic services for the urban poor.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of the Department:

1. Construction of Houses for Slum Dwellers living in unsafe zones such as Riversides and Hill Tops
2. Construction of Otta Markets for Street Vendors

#### Departmental Activities:

- To perform the above municipal functions, sites suitable for such development are identified.
- Reservations w.r.t. Economically Weaker Sections (EWS) to rehabilitate slum dwellers and Amenity Spaces for development of common market places for street vendors are sought for from the Development Plan. To check for if the land in question is acquired or not, the information is sought from the Land and Estates Department, in-case, the land is not acquired, the BSUP intimates the Land Acquisition Department to acquire the land.
- On acquisition of land, Detailed Project Report (DPR) is prepared with the help of external consultants in coordination with J.E.s from the BSUP department and under the supervision of concerned A.E.
- DPR is sent to Commissioner Office for Sanctioning

Version No: Draft	Pune Municipal Corporation	Page 60 of 181
	Requirement Assessment	

- Once Sanctioned, the DPR is sent to State Government and further to the Central Government for approval
- On approval from the central government, the funds are allocated to the Department for the said work.
- The Tendering process follows the Estimate preparation.
- Contractor signs the agreement and commences the work on obtaining the work order.
- Field books and measurement books are maintained and daily progress report of the work is given to the concerned A.E.
- On completion of the work, the bill payment is made through the Audit Department.
- For any kind of beautification work (if required), garden department is sent notification to carry out the same.
- Maintenance work is being allotted to NGO's through the tendering process.

#### **Internal Departmental Workflows:**

Requirement → Assessment of the type of requirement → Allocation of Manpower  
→ Execution

#### **Inter-Departmental Workflows**

This Department seeks/gives information from/to:

- DP for reservations pertaining to EWS and Amenity Spaces.
- Land and Estates Department and Land Acquisition Department to find out the ownership details and to acquire the land in question, in case it is not acquired.
- Drainage, Electricity and Water Supply departments to seek information on existing service lines in and around the site to check in-case shifting of these service lines is required and also for new connections
- Slum department to gather information on existing slums in the PMC limit
- Building Permission for plan sanctioning and to obtain the building completion certificate
- In-case FSI used per hut >1 then permission for the same is sought from the JNNURM-SRA department.
- Health Department for Garbage Collection
- Garden Department for beautification(if required)
- Audit department to make the bill payments
- Tender Cell

#### **Type of Data / Information Used:**

- Right to Information Act
- MRTP Act
- BPMC Act 1949
- DSR(scheduled rates which are revised every year)
- IS Codes

#### **Existing Data:**

- Site Plans
- Case particular statistical data
- DP(For Old and New Limits)

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 61 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Method of Data Capture:**

- On site total station survey to capture the information like ground level information, existing trees, nallas, existing water lines, drainage lines

**Existing Method of Data Storage:**

- Hard Disks in Excel sheet formats

**Existing means of Data Maintenance:**

- The data here is stored in case-wise.

**Existing Data Processing/Analysis:**

The captured survey data is used to -

1. Check for Encroachment
2. Confirm the availability of site and actual area for development
3. To confirm the impacted service lines departments

**Existing Outputs/Results:**

The results are in terms of MIS reports showing the allocation of funds, usage of funds and the work progress.

**Existing CAD/Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** Case-specific survey data in MS Excel format

**GIS Skillset Available:** None

**Existing IT Infrastructure:**

- Desktops (Windows Vista, 1013 MB RAM, 80 GB HDD 1.8 GHz processing speed)
- Printers(Laser)

### 2.5.18 JNNURM- Roads

**Date:** 29/01/08 & 02/02/08

**Head of the Department:** Mr. Vinaykumar Despande

**Meeting Held with:** Mr. Sanjay Dharav

**No. of Expected Users:** 18-20

#### **Introduction:**

The department is actively involved in development of roads and related infrastructure under the projects funded by Central Government.

#### **Existing Departmental Structure (Technical Staff):**

The department comprises a team of 20-22 technical members. For this department, entire Pune city has been divided into several zones. Here, Officer on Special Duty (OSD) heads the team for the upcoming Commonwealth Youth Games (CYG). Under the direct supervision of OSD there is another OSD (Technical Director). There are 3 Deputy City Engineer and are supervising 16 Junior Engineers. Each Junior Engineer has been allocated a particular area.

Officer on Special Duty (OSD)-CYG



OSD (Technical Director)



Deputy City Engineer (3)



Junior Engineer (16)

#### **Municipal (Development / Maintenance) Functions of the Department:**

The functions performed by the department include Road Infrastructure Development (Roads, Footpath, Culverts and the likes.)

#### **Departmental Activities:**

- IRDP Roads Network is prepared by Corporators
- DPR is prepared by external consultants in coordination with the J.E. under the supervision of the concerned A.E.
- DPR is sent to JNNURM
- DPR approved by JNNURM and the budget is sanctioned
- Appointment of consultants from the appointed panel
- Estimates are prepared by the consultants
- Estimates are approved by the Technical Sanction Committee of Project Management
- Estimates sent to City Improvement Committee of PMC
- Estimates are then sent to the General Body of PMC

Version No: Draft	Pune Municipal Corporation	Page 63 of 181
	Requirement Assessment	

- Tender process commences
- Tender once approved by the standing committee, work order is issued to the contractor
- Work Commences
- Initial Survey work is started by the contractor under the guidance of the consultants and the development engineers
- PERT-CPM programming is planned and then the actual work commences on the site
- Service lines are shifted as per requirement or the service line departments are notified to undertake the work
- Bill Payment through JNNURM in phases as stated in the agreement.
- On work completion, the work is either handed over to PMC for maintenance
- After the guarantee period is over, the security deposit is returned to the contractor.

#### **Internal Departmental Workflows:**

Proposal/Requirement → Estimation → Tendering → Execution → Billing & Quality Control

#### **Inter-Departmental Workflows**

This department seeks/ gives information from/to:

- Land Acquisition Department to check the status of the property if it is acquired or not. In case the land is not acquired then the department is notified to do so.
- Development Plan to check for reservations in the term plans in the area under consideration and to check for any suggested road widening and marking.
- Drainage Department/ Water supply/ MSEB/ Telecom/ Electric Department are sent notifications before preparing estimates to check if any department has got any service lines in the area under consideration and to decide the pipeline conduit diameters.
- Audit Department for clearing the bills.
- Garden Department/BOT cell to carry out the landscaping in and around the infrastructure developed.
- Tender Cell (Works Management System) for preparing the tenders.
- Ward Offices to carry out the maintenance works.
- Encroachment Department to check for any encroachments in the area under consideration.
- Traffic Police Department to ensure for arrangements made to divert the traffic.

#### **Type of Data / Information Used:**

- Service Line Networks(not directly but through concerned department)
- Base Maps
- Google Imageries(For each area)
- Area Maps
- MORTH Standard Specification
- MOST Guidelines
- MRTP Act (Maharashtra Regional Town Planning Act)

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 64 of 181</b>
	<b>Requirement Assessment</b>	

- BPMC Act
- Development Control Rules (Guidelines)
- IS Codes (for RCC, Steel etc.)
- DSR(scheduled rates which are revised every year)

**Existing Data:**

- DP Map
- Paper Maps(Old Limit) with scale 1:5000
- Digitized Map(New Limit) scale 1:5000 in CAD format
- Primove Consultants Survey Reports (Storm Water, Nallas, Natural-Water flows, Catchment Area etc.)

**Existing Method of Data Capture:**

- AutoCAD
- Excel Sheets(Budgets, Billing Details, Estimates)
- Google Earth
- Cadastral Survey
- Total Station Survey
- Theodolite Traversing

**Existing Method of Data Storage:**

The filed information is stored Case-wise and Sector-Wise in-

- Office Files
- Digital Maps are stores in
- Hard Disks( AutoCAD format)
  - Compact Disks

**Existing means of Data Maintenance:**

Data is stored Work-package wise (Group of a number of small works)-

- Hard Copy Maps
- Office Files

**Existing Data Processing/Analysis:**

- Through Consultants (Construction of new bridges/culverts, Cross-Drainage works, Storm water lines)

**Existing Outputs/Results:**

- MIS Reports(Status of Work/Hurdles In work/Item-wise progress)
- Pie Charts/Bar Charts
- Excel Sheets
- QA/QC Reports

**Existing CAD/Any other software used:**

- AutoCAD 2006
- Microsoft Office 2005

**Existing Applications (if any):**

- None



Version No: Draft	Pune Municipal Corporation	Page 65 of 181
	Requirement Assessment	

**Existing Digital Data Available:**

- Maps in AutoCAD format (PMC New Limits)
- Budget Reports
- QC Reports

**Existing GIS Skillset:** Four

**Existing IT Infrastructure:**

- 8 Desktops (RAM 2GB; HDD 80GB; Operating System Windows XP, Processing Speed 3.2 GHz)
- 5 Laptops(RAM 2GB; HDD 110GB; Operating System Windows XP, Processing Speed 3.2 GHz)
- 4 Printers (2 Laser; 2 Dot-Matrix)

### 2.5.19 JNNURM- SRA

**Date of Meeting:** 06/02/08

**Head of the Department:** Mr. Dilip Gawade

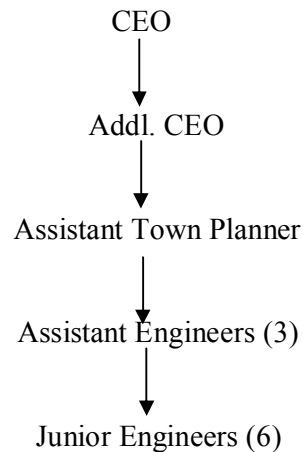
**Meeting Held with:** Mr. Prashant Patil and Mr. Khadatkhar

**No. of Expected Users:** 12-15

#### Introduction:

JNNURM-SRA (Slum Rehabilitation Authority) is involved in sanctioning the Slum Rehabilitation Schemes and is also involved in monitoring slums.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of Department:

- Approval of Slum Rehabilitation Schemes
- Monitoring of Slum Rehabilitation Schemes

#### Departmental Activities:

Following activities are performed in the department w.r.t. the above functions.

- Selection of Hutment dwellers on the basis of pre-defined criteria to find the eligible people for rehabilitation
- Notification to ward offices and the Slum under consideration before the list of people to be rehabilitated is finalized
- Passing Slum Clearance Order and notifying the concerned groups
- Moving eligible hutment dwellers to transit camps
- Building plan approval by the builder from the SRA office
- Passing orders to commence the construction
- Issue Plinth Checking Certificate once the construction of the plinth is completed
- Issue Completion Certificate after the completion of construction
- Monitor the transition of slum dwellers from transit camp to pakka house

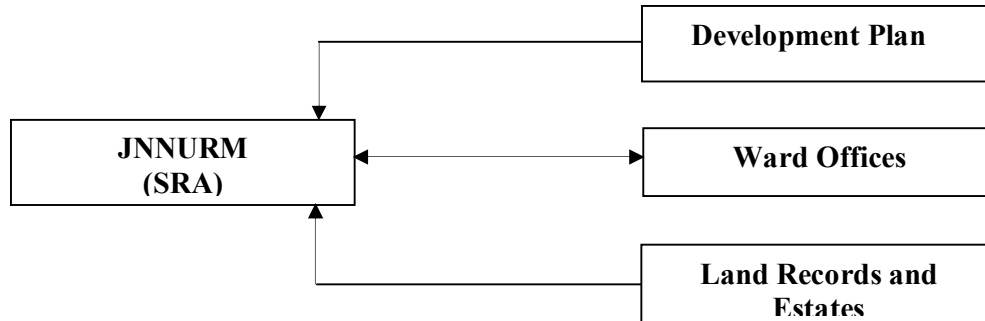
#### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

Proposal from builders through Licensed Architect / License Engineer →  
Selection of Eligible hutment dwellers → Notifications to concerned people →

Slum Dwellers sent to Transit Camp → Execution of Work → Issue of Completion Certificate on work completion → Monitoring transition of slum dwellers to pakka houses

#### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan: This department notifies of existing reservations on slum areas.
- Land Acquisition: This department acquires land for rehabilitation of slum dwellers.
- Ward Offices: Information on slum dwellers and also to gather the information on any objections or suggestions w.r.t. the slum dwellers liable to rehabilitation is collected from ward offices.

#### Type of Data / Information Used:

- Slum Act 1976
- Socio-economic details of slums
- MRTP Act
- Development Control Rules

#### Existing Data:

- Shelter Association (socio-economic)
- Mashall NGO survey data. (statistical)
- Cadastral Survey Reports

#### Existing Method of Data Capture:

- Field Survey (Cadastral Survey Reports)

#### Existing Method of Data Storage:

- Office File Storage

#### Existing Method of Data Maintenance:

The records are stored J.E. wise.

#### Existing Data Processing/Analysis:

The Slum residents in the slum under consideration are eligible / non-eligible for rehabilitation program.

Version No: Draft	Pune Municipal Corporation	Page 68 of 181
	Requirement Assessment	

**Existing Outputs / Results:**

MIS Reports (Status of the work in progress, no. of rehabilitation schemes undertaken / pending in the current financial year)

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:**

- Shelter Association data
- Data Developed by Mashall (Total Survey Reports- Cadastral survey)

**GIS Skillset Available:** None

**Existing IT Infrastructure:**

- 8 desktops
- 3 printers

## 2.5.20 JNNURM (SRA)

**Date:** 06/02/08

**Head of the Department:** Mr. Dilip Gawade

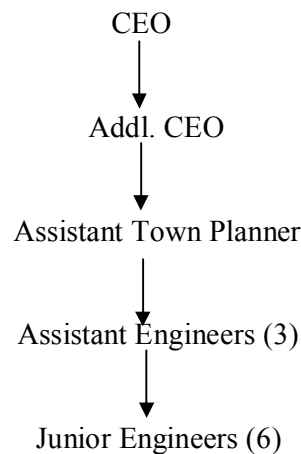
**Meeting Held with:** Mr. Prashant Patil and Mr. Khadatkhar

**No. of Expected Users:** 12-15

### Introduction:

JNNURM-SRA (Slum Rehabilitation Authority) is involved in sanctioning the Slum Rehabilitation Schemes and is also involved in monitoring slums.

### Existing Departmental Structure (Technical Staff):



### Municipal (Development / Maintenance) Functions of Department:

- Approval of Slum Rehabilitation Schemes
- Monitoring of Slum Rehabilitation Schemes

### Departmental Activities:

Following activities are performed in the department w.r.t. the above functions.

- Selection of Hutment dwellers on the basis of pre-defined criteria to find the eligible people for rehabilitation
- Notification to ward offices and the Slum under consideration before the list of people to be rehabilitated is finalized
- Passing Slum Clearance Order and notifying the concerned groups
- Moving eligible hutment dwellers to transit camps
- Building plan approval by the builder from the SRA office
- Passing orders to commence the construction
- Issue Plinth Checking Certificate once the construction of the plinth is completed
- Issue Completion Certificate after the completion of construction
- Monitor the transition of slum dwellers from transit camp to pakka house

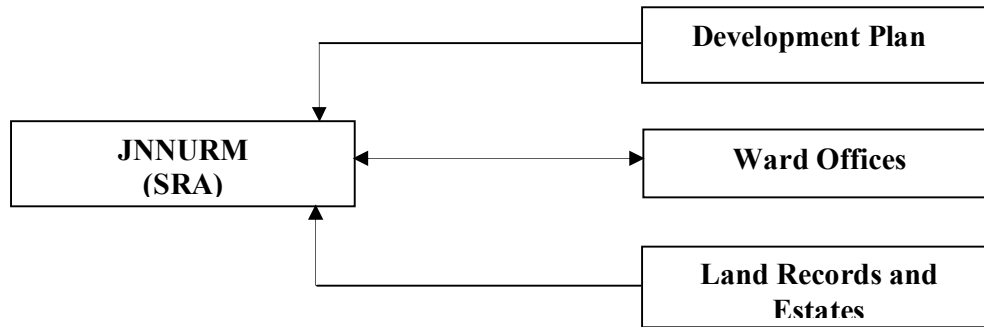
### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

Proposal from builders through Licensed Architect / License Engineer →  
Selection of Eligible hutment dwellers → Notifications to concerned people →

Slum Dwellers sent to Transit Camp → Execution of Work → Issue of Completion Certificate on work completion → Monitoring transition of slum dwellers to pakka houses

#### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan: This department notifies of existing reservations on slum areas.
- Land Acquisition: This department acquires land for rehabilitation of slum dwellers.
- Ward Offices: Information on slum dwellers and also to gather the information on any objections or suggestions w.r.t. the slum dwellers liable to rehabilitation is collected from ward offices.

#### Type of Data / Information Used:

- Slum Act 1976
- Socio-economic details of slums
- MRTP Act
- Development Control Rules

#### Existing Data:

- Shelter Association (socio-economic)
- Mashall NGO survey data. (statistical)
- Cadastral Survey Reports

#### Existing Method of Data Capture:

- Field Survey (Cadastral Survey Reports)

#### Existing Method of Data Storage:

- Office File Storage

#### Existing Method of Data Maintenance:

The records are stored J.E. wise.

#### Existing Data Processing/Analysis:

The Slum residents in the slum under consideration are eligible / non-eligible for rehabilitation program.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 71 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Outputs / Results:**

MIS Reports (Status of the work in progress, no. of rehabilitation schemes undertaken / pending in the current financial year)

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:**

- Shelter Association data
- Data Developed by Mashall (Total Survey Reports- Cadastral survey)

**GIS Skillset Available:** None

**Existing IT Infrastructure:**

- 8 desktops
- 3 printers

### 2.5.21 Kothi Karyalaya Development Engineer

**Date of Meeting:** 14/03/08

**Head of the Department:** Mr. S. Choudhary

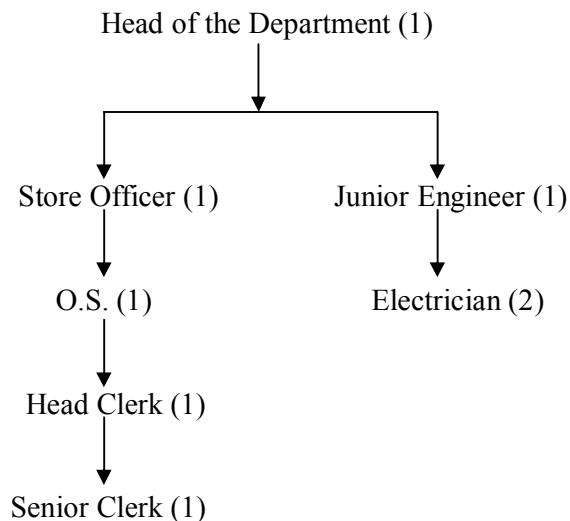
**Meeting Held with:** Mr. Mali

**No. of Expected Users:** (None)

#### Introduction:

The department is responsible for providing Stationary, equipments and other office infrastructure to all the departments under PMC.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of the Department:

The department is involved in fulfilling all the sanctioned demands of all the departments under PMC.

#### Departmental Activities:

- After sanctioning of demands from the Commissioner Office, the respective demands from all departments under PMC are sent to the Central Store Department.
- The Central Store Department commences the process by floating the tender for all the required material through the Tender Cell.
- On tender opening, annual demand for some regular items viz. stationary etc. is sanctioned directly by purchase committee, however, demands for some specific items is confirmed after consulting the concerned department.
- The order is sent to Audit Dept. for sanctioning and then the work order is issued.
- An agreement is signed between the Store Officer and the Contractor. 5% of the total amount is taken as a security deposit from the contractor for a said period as stated in agreement.
- Material is procured and tested if it is as per specifications and is sent to the respective departments.



<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 73 of 181</b>
	<b>Requirement Assessment</b>	

- Bill is submitted to the store office and then to the audit department to issue the check to the supplier.
- Security deposit is returned to the supplier after a minimum period of 3 months or as stated in the agreement, once the department and the store issues a NOC for the supplied material.

**Internal Departmental Workflows:**

Requirement → Tendering → Issue of WO → Material Procurement → Inspection → Billing

**Inter-Departmental Workflows**

This department caters to the needs of all the departments and hence the requirement comes from all the departments.

**Type of Data / Information Used:**

- BPMC Act 1949
- DSR(scheduled rates which are revised every year)
- IS Codes

**Existing Data:**

- Statistical Data about the Inventory

**Existing Method of Data Capture:**

- Manual Entry

**Existing Method of Data Storage:** Registers

**Existing means of Data Maintenance:**

- The data here is stored in material and year-wise format

**Existing Data Processing / Analysis:** None

**Existing Outputs/Results:**

Annual Reports (Quantity Balance in stock per item)

**Existing CAD/Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** None

**Existing GIS Skillset:** None

**Existing IT Infrastructure:**

- 2 Desktops

## 2.5.22 Land Acquisition

**Date:** 27/02/08

**Head of the Department:**

**Meeting Held with:** Mr. Duduskar

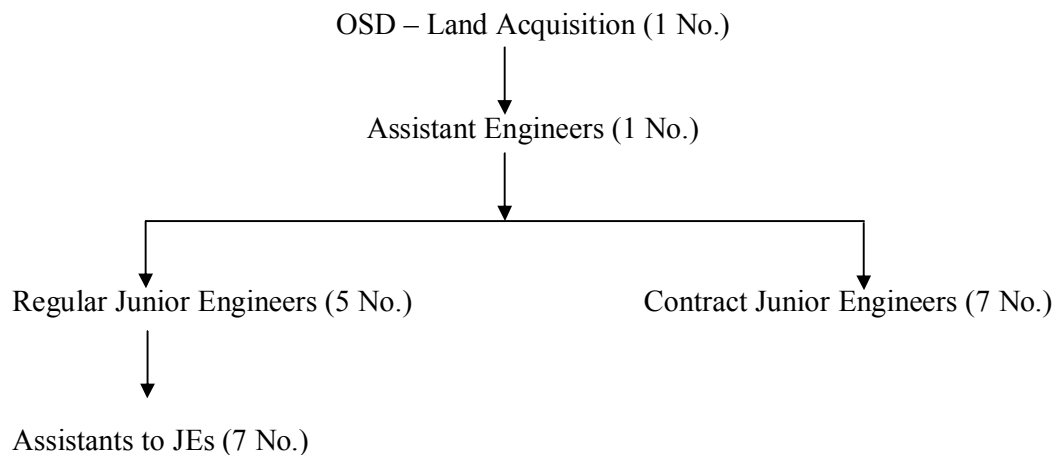
### Introduction:

This department is entrusted with the task of acquiring Land for the Corporation's Development Plan which includes reservations for Roads, Sewage & Water Treatment Plants, Gardens, spaces for amenities and parking, etc.

The department which requires land to be acquired gives a requisition to the Land Acquisition Department. Land is acquired by the department through Individual Negotiation.

All the Coordination & administrative works related to land acquisition are done by this department.

### Existing Departmental Structure (Technical Staff):



This department is headed by an Officer on Special Duty (OSD) who is assisted by an AE. There are Five JEs to assist the AE. The entire PMC area has been divided among these five JEs. All the types of Land Acquisition cases are received by these JEs for further processing. There are seven Assistants to JEs who are primarily helping them in field activities such as marking of plots or road boundaries as defined by this department.

### Municipal (Development / Maintenance) Functions of Department:

The primary function of this department is 'Forced Acquisition of Land' (as per Development Plan reservations) and as deemed necessary by this department OR the Standing Committee to acquire land for PMC.

### Departmental Activities:

There are several activities that are performed in the department w.r.t. Land Acquisition.

Version No: Draft	Pune Municipal Corporation Requirement Assessment	Page 75 of 181
----------------------	--	----------------

These are -

- Provide opinion on the Decision taken by the Standing Committee to acquire land
- Submit Land Acquisition proposal to the Collector – Pune
- Resolution of conflicts before the award of compensation to the land owner
- Requisition to the OSD – Land Acquisition for making necessary budgetary provisions before the Budget
- Possession of open land - for which Land Acquisition is proposed - through the OSD (this involves demolition of existing building if any and removing material from the land)
- Register the Lands acquired and notify the ‘Land and Estates’ department for further necessary processing and actions
- Notify the concerned departments about the land acquired for further processing
- Define Rents of buildings owned by PMC with due approval from the CE
- Provide opinions to the various departments of PMC regarding Land Acquisition
- Demarcation of Roads pertaining to the Land Acquisition department
- Court Cases – attend court cases, provide affidavits and ‘Say’ on the cases
- Undertake action for possession - vide Article 213 - of Roads that have been demarcated by the Development Plan vide Article 205
- Change (decrease / increase) existing Road width vide Article 210 (1A & 1B)
- Provide compensation for the area of acquired land vide Article 216
- Undertake collective measurement lands - for which acquisitions have been proposed to the Collector – through the staff of OSD-Land Acquisition, Land Acquisition and Land & Estates Departments.
- Recover 10% Interest and 5% surcharge on the Awarded Compensation amount – after due approval from the Commissioner – in cases where FSI / TDR is offered to the land owner

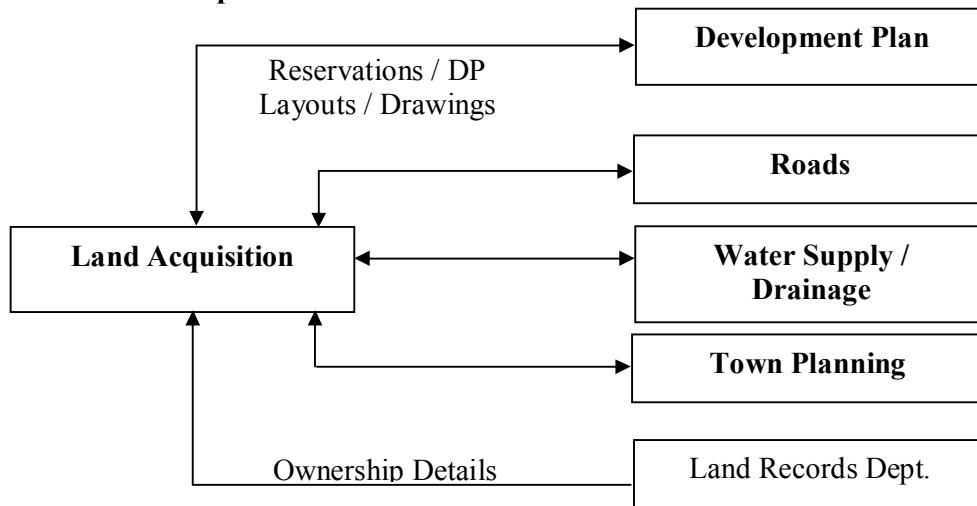
#### **Internal Departmental Workflows:**

There are essentially two types of workflows are as under –

Proposal by the Department → Standing Committee → Decision by Standing Committee → Administrative Approval by the Municipal Commissioner

Standing Committee → Decision by Standing Committee → Intimation to the Land Acquisition Department about Decisions taken by Standing Committee → Proposal by the Department → Administrative Approval by the Municipal Commissioner

### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- **Development Plan:** on account of Layouts / Development Plan drawings to refer the reservations marked in the Development Plan and to provide opinions to the DP Dept. Also, Road reservations from the DP are referred for possible change to the width of the proposed roads as defined by Land Acquisition department.
- **Roads:** This department gives requisitions to the department for land(s) to be acquired for the purpose of road widening or construction of roads, etc. The Land Acquisition department utilizes existing road network along with the proposed road network to assess the accessibility to certain lands to be acquired. This helps them in prioritization of lands to be acquired.
- **Water Supply & Drainage Departments:** The Land Acquisition department utilizes existing and proposed water and drainage network to assess whether any roads need to be re-aligned as per the Water & Drainage network. Also, LA department provide opinions to these departments for land acquisition.
- **Town Planning:** The Land Acquisition department seeks information about Town Planning schemes from this department (in terms of layout maps, etc.)
- **Land Records:** The ownership details of the lands to be acquired are sought from this department.

### Type of Data / Information Used:

- Development Plan Reservations and their types
- Survey No.s
- Revenue Village Maps (Hard Copy) in 1:10,000 scale
- Ownership Records from Land Records

### Existing Data:

- Maps showing updated widths of DP Roads as defined by the department
- Register maintaining data about lands acquired

### Existing Method of Data Capture: NA

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 77 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Method of Data Storage:**

- Paper maps – showing change in Road widths as defined by this department
- Office File Storage
- Register to maintain records of acquired lands

**Existing means of Data Maintenance:**

- As per above
- Office File based maintenance

**Existing Data Processing / Analysis:**

- Which survey no.s are likely to be affected due to acquisition
- Identifying which lands are to be acquired, retrieving the ownership details of such lands, calculating and verifying exact area of the lands to be acquired
- Identifying which lands have already been acquired out of the requested lands to be acquired
- Budgetary provisions for Land Acquisition in the Annual Budget

**Existing Outputs / Results:**

- Notifications to owners (depends on priority of cases)
- Notifications to Departments (Case basis)

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:**

- Data pertaining to Lands Acquired, which is stored in Register is being digitally captured

**Existing GIS Skillset:** One Personnel

**Existing IT Infrastructure:**

- 3 desktops
- Network connectivity (LAN) available

### 2.5.23 Land and Estates

**Dates of Meeting:** 22/01/08 and 30/01/08

**Head of the Department:**

**Meeting Held with:** Mr. Anil Wadile & Mr. Amit Bhondave

**Introduction:**

This department is entrusted with the task of acquiring Land for the Corporation's infrastructure projects, which involve Roads, Sewage & Water Treatment Plants, Gardens, spaces for amenities and parking, etc.

The department which requires land to be acquired gives a requisition to the Land Acquisition Department. Land is acquired by the department through Individual Negotiation. All the Coordination & administrative works related to land acquisition are done by this department.

In addition, the department is entrusted with the responsibility of 'Estates' owned by PMC. The categories of PMC owned estates include Open Spaces and Constructed Structures. The Structures are categorized based on their usage as Residential and Commercial. These include several types such as –

- Commercial Complexes
- Residential flats / Apartments
- Community Halls
- Libraries
- Temples / Religious places
- Sports Complexes
- Vegetable Markets, etc.

These estates come under PMC ownership through Land Acquisition OR through TDR – wherein part of the constructed structure is obtained through reservations as per R7 Proposal of the DC Rules. The estates – Open Spaces / Constructed structures – are often leased out or allowed to be used for short term / long terms occupation and usage.

**Existing Departmental Structure (Technical Staff):**

Dy. Commissioner (1 No.)



Ward Officer (1 No.) / A.E.s (2 No.)



Junior Engineers (2 No.)



Maintenance Surveyors (16 No.)

[The Revenue 'Peths' are distributed among these THREE Officials)

Version No: Draft	Pune Municipal Corporation	Page 79 of 181
	Requirement Assessment	

### **Municipal (Development / Maintenance) Functions of Department:**

- Acquisition of Land by negotiation (as per Development Plan reservations)
- Transfer of Development Rights (TDR) Opinions along with other departments like Development Plan, Legal, etc. and the Municipal Commissioner.

### **Departmental Activities:**

- Receive requisition from departments regarding land to be acquired
- Review the Development Plan layouts and drawings w.r.t. to the requisitions
- Field survey in some specific cases to verify and inspect actual site conditions
- Get Ownership details in the form of 7/12 extract from Talathi Office
- Identification of Survey no.s likely to be impacted due to acquisition
- Calculation of Area to be acquired
- Working out the compensation and the mode of the same for the land to be acquired such as additional FSI, TDR or monetary benefits
- Seek Administrative approvals  
(Once the Field survey reports are prepared, they are given to AE where sanctions / approvals are allowed for some cases. In other cases / in case of TDR opinions the cases are sent for approval to Dy. Municipal Commissioner or Municipal Commissioner)
- Intimation / Notification to the owners
- Seek NOC from owner for acquisition
- Send intimation / notification to the concerned department that had sent the requisition

For Estates –

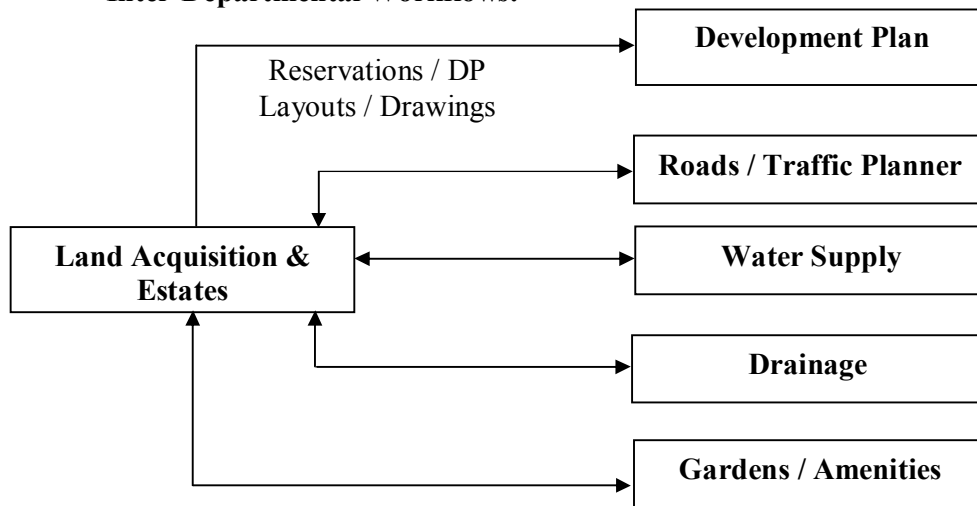
- Maintain records of all the estates owned by PMC
- Review how many estates are being used, how many are not being used
- Maintain details of Allotments of PMC estates – to whom these estates have been allotted, Rent details (payment, etc.)

### **Internal Departmental Workflows:**

The stages involved in the Departments workflow are as under –

**Requisition from Departments → Field Survey → Reports → A.E. (for sanctions) → Addl. M. C. (Approval) → Municipal Commissioner (For final Approval)**

### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan: on account of Layouts / Development Plan drawings to refer the reservations marked in the Development Plan
- Roads / Traffic Planner: These departments give requisitions to the department for land(s) to be acquired for the purpose of road widening or construction of roads, etc. The Land Acquisition and Estate department takes opinions from these departments about TDR and notifies them after land has been acquired.
- Water Supply & Drainage Departments: These departments give requisitions to the department for land(s) to be acquired for the purpose of constructing Water Treatment Plants or Sewage Treatment Plants, etc. The Land Acquisition and Estate department takes opinions from these departments about TDR and notifies them after land has been acquired.
- Gardens / Amenities: These departments give requisitions to the department for land(s) to be acquired for the purpose of gardens and spaces for Amenities / Parking, etc. The Land Acquisition and Estate department takes opinions from these departments about TDR and notifies them after land has been acquired.

### Type of Data / Information Used:

- Development Plan Reservations
- Survey No.s
- Revenue Village Maps (Hard Copy) in 1:10,000 scale
- Ownership Records from City Survey

### Existing Data:

- Hard Copy paper maps are available in 1:10,000 scale for Revenue Village boundaries (Revenue Peths are identified on the maps)
- Development Plan – paper map is available for the extended area
- Digital maps are available for the acquired lands in AutoCAD format

**Existing Method of Data Capture:** Field Survey & Reports on Site Conditions / availability of ownership documents



<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 81 of 181</b>
	<b>Requirement Assessment</b>	

- City Survey No.s – captured from City Survey to check which survey no.s are affected due to acquisition
- Development Plans – acquire DP maps from the DP departments for verifying reservations

**Existing Method of Data Storage:**

- Data / Information on Acquired Lands is available in digital form (maps as well as other related information) through a Software (Name not available)
- Office File Storage

**Existing means of Data Maintenance:**

- As per above. The data stored through the software is re-used when required.
- Office File based maintenance

**Existing Data Processing/Analysis:**

- Which survey no.s are likely to be affected due to acquisition
- Identifying which lands are to be acquired, retrieving the ownership details of such lands, calculating and verifying exact area of the lands to be acquired
- Identifying which lands have already been acquired out of the requested lands to be acquired

**Existing Outputs / Results:**

- Notifications to owners (depends on priority of cases)
- Notifications to Departments (Case basis)

**Existing CAD / Any other software used: AutoCAD**

**Existing Applications (if any):**

- Software for storing data on lands already acquired

**Existing Digital Data Available:**

- Existing data is available in digital format for extended area (Development Plan 2020)

**Existing GIS Skillset: Two Personnel**

**Existing IT Infrastructure:**

- 2 desktops
- 2 printers
- 1 Machine on network

Version No: Draft	Pune Municipal Corporation	Page 82 of 181
	Requirement Assessment	

#### 2.5.24 Nagar Wasti Vikas Yojana

Note: \* Indicates Information not available at the time of meeting

**Date of Meeting:** 06/02/08

**Head of the Department:** Mr. Shaik

**Meeting Held with:** Mr. Dilip Pote

##### **Introduction:**

This department is involved in running various welfare programs for the Urban Poor. These programs tackle two main reasons for unemployment which are illiteracy and inefficiency in work due to lack of training. Under this program seven lac huts within five hundred and twenty five slums are covered.

##### **Existing Departmental Structure (Technical Staff) \***

##### **Municipal (Development / Maintenance) Functions of Department:**

###### Welfare Schemes for Backward Classes

- Study Room Facility
- Library
- Education Help for Children of PMC Sweepers
- Earn and Learn facility for College Students
- Bicycle Gift (if college is beyond 2Kms from home)
- Varied Job Training for unemployed youth
- Grant for self-employment
- Grant for Group Enterprise
- Grants for Latrine per house, Water connection, Repairs and Electric connection in slums
- Childcare and Welfare centre for children from age 6 to 13
- School outfits and materials for school children in PMC schools
- Grant for private class fees for students of VII to X

###### Welfare Schemes for Woman and Children – Training for Woman

- Industrial training workshops
- Floating funds for SHGs
- Computerization of SHGs
- Grant aid for various projects in Community Group Scheme.
- Grant aid for fees of private classes.
- Grant aid for girls opting for higher technical training
- Grant aid for Group Enterprise
- Earn and Learn facility for college girls
- Financial aid for enterprise, grant if undergoing training, and grant for various educational aids and instrument for the disabled.

###### Rajiv Gandhi Self Employment

- Youth welfare scheme
- Self-employment scheme
- Professional job training
- Facility centre
- Centre for de-addiction with help from Mukhtangan

Version No: Draft	Pune Municipal Corporation	Page 83 of 181
	Requirement Assessment	

#### Scheme for Empowerment of Woman

- Financial aid in case of sudden widowhood
- Guidance & Counseling for family disputes and estrangements
- Research and development
- Crèche
- Hostels for working women

#### Special Employment Schemes launched on the occasion of Golden Jubilee.

- BPL Scheme sponsored by central government
- Training
- Loans and Grants through banks
- Floating capital for SSGs
- Group monitor in neighborhood group to be given special training
- Smart Service Centre in regional office.
- Pragati Mahila Industrial Co-operative Institute
- PMC's Community Development Society

#### New Schemes:

- Yogasana Classes
- SHG for men
- Medical help, grant for women in SHG
- 18 years Bonds from UTI if undergone vasectomy after one or two daughters.
- Savitri Bachat Gat Mahasangha Corporation
- Co-operative Institutes for garbage collectors, rag pickers organization.

#### Departmental Activities:

- Survey for identifying slums.
- Survey for identifying requirement of various schemes
- Starting and maintaining Savings group (Bachat Gath)
- Running other schemes within slums.

#### Internal Departmental Workflows:

#### Inter-Departmental Workflows:

The department works independent of other departments.

#### Type of Data / Information Used:

- Survey Data
- Photo Pass Identity Card

**Existing Data:** Survey done by NGO's like Mashall.

**Existing Method of Data Capture:** Field Survey

**Existing Method of Data Storage:** Records are maintained as office files.

**Existing means of Data Maintenance:** None.

Version No: Draft	Pune Municipal Corporation	Page 84 of 181
	Requirement Assessment	

**Existing Data Processing/Analysis:** Identify scheme qualifying slums.

**Existing Outputs / Results:**

Annual Report of total schemes executed, number of slums and number of people under schemes and number of people benefited by schemes.

**Existing CAD / Any other software used:** None.

**Existing Applications (if any):** None

**Existing Digital Data Available:**

Existing data is available as surveyed by NGO's Mashall

**Existing GIS Skillset:** None

**Existing IT Infrastructure:** One Desktop and Printer

### 2.5.25 Octroi

**Date of Meeting:** 31/01/08

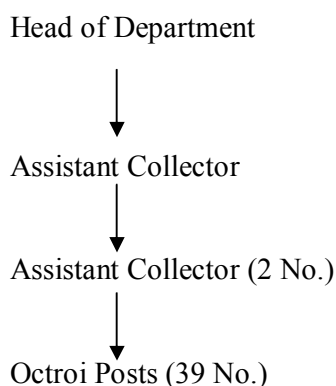
**Head of the Department:** Mr. Kundlik Karkar

**Meeting Held with:** Vijaya Rathod

#### Introduction:

This department is responsible for collection of Octroi from all the vehicles bringing in articles/goods for consumption. The Octroi department consists of Octroi posts (39) and Collection department. Both the Octroi posts and the Collection Department are connected through the internet. Thus centralised accounts are maintained.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of Department:

- Create/Maintain Company Accounts (Khatedar)
- Refund
- Flying Squad
- Accounts of Octroi
- Collection and Billing of Octroi

#### Departmental Activities:

- Checking Vehicles and their goods at Octroi Posts
- Issue appropriate pass
- Process shift challan (Total Collection) for all three shifts.
- Challan collection (Cash to bank)
- Submit details to Treasury department
- Generate daily collection report which is sent to Commissioner and Additional Commissioner (General).

#### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

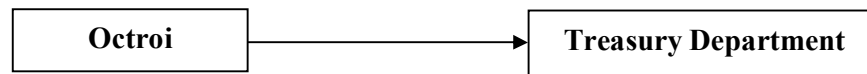
Collection at Octroi Posts

**Vehicle Checking → Issue proper pass → Collect Challan if there is no Company Account**

Transfer funds

**Challan collected by bank → Duplicate Challan to Bank and Original Challan to Ayatkar Bhavan → Authenticate Accounts (if difference found between challan and amount collected verify) → Generate Reports → Submit Reports to Commissioner and Add. Commissioner (General)**

#### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Treasury Department: Accounts of Treasury department are updated.

#### Type of Data / Information Used:

- Daily Challan Collection shift wise
- Date of Difference between Hard Copy Challan and Database
- Monthly Collection report
- Target Collection vs. Actual Collection

#### Existing Data:

- Statistical Data
- All reports are generated through existing MIS.
- Centralised Database – All Octroi post and Ayatkar Bhavan are interconnected.

#### Existing Method of Data Capture: MIS

#### Existing Method of Data Storage: Central Database

#### Existing means of Data Maintenance: MIS.

#### Existing Data Processing/Analysis:

- Octroi post lagging in target collection
- Octroi post having difference in challan amount and actual amount deposited to bank.
- Octroi post with maximum instances of difference (As mentioned above).

#### Existing Outputs / Results:

- Report showing difference between Actual challan collections vs. amount deposited.
- Daily Shift and Monthly percentage collection of all Octroi post against total collection.
- Progressive Annual collection month wise against expected collection.

#### Existing CAD / Any other software used: None

#### Existing Applications (if any): MIS

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 87 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Digital Data Available:** Collection Data only.

**Existing GIS Skill set:** None

**Existing IT Infrastructure:**

- Desktops and printers at all Octroi posts
- Server
- Centralised Database.

## 2.5.26 PMPML

**Date:** 01/02/08

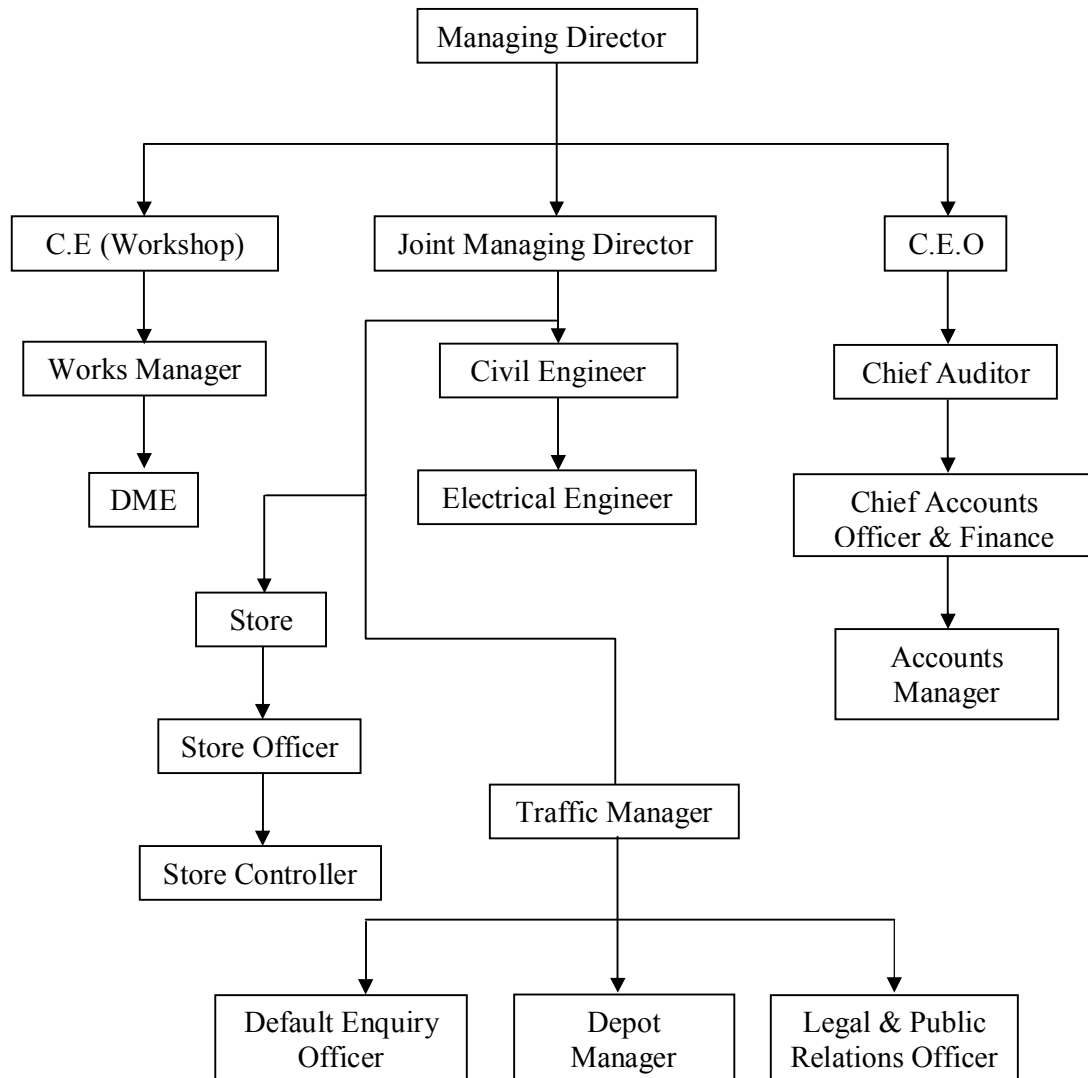
**Head of the Department:** Mr. Sunil Gavali

**Meeting Held with:** Mr. Gobare

### Introduction:

This department provides transport facility. This facility includes buses, bus-stands/ bus-stops and depots. This department also maintains provisions like bus pass centers. Maintenance and scheduling are other important functions of the department. The department plans bus routes for new developed areas.

### Existing Departmental Structure (Technical Staff):





**Municipal (Development / Maintenance) Functions of Department:**

- Provide Transport facility
- Verify request as well as carry out field surveys for new Bus stops, Bus depots and Bus stands.
- Scheduling and routing of Buses based on population distribution.
- Bus maintenance at depots.
- Build Pass centre operated on BOT basis.

**Departmental Activities:**

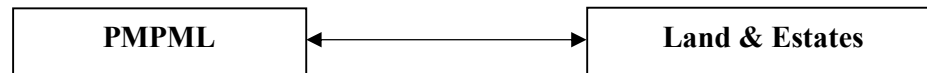
- Define Bus Routes and Schedule Timings for Bus-trips.
- Run Buses on pilot routes to gauge response.
- Review requests from Citizens Groups / Public Representatives for additional OR new bus-stop / bus-stand / bus-Depot
- Conduct Route surveys for additional OR new bus-stop / bus-stand / bus-Depot
- Bus maintenance.

**Internal Departmental Workflows:**

The stages involved in the Departments workflow are as under –

**Request from Citizen / Public Representative → Field Survey → Report → Verification by Traffic Manager → Approval by Joint M.D. → Approval by M.D.**

**Inter-Departmental Workflows:**



This department has inter-linkages with the following departments:

- Land & Estates: Transfer of acquired land for construction of bus-stop, bus-depot or bus-stand.

**Type of Data / Information Used:**

- Bus Trips Schedule
- No. of Buses on road and off-road (under maintenance)
- Bus Routes

**Existing Data:**

- Bus Trips Schedule
- No. of Buses on road and off-road (under maintenance)
- Bus Routes

**Existing Method of Data Capture:** Field Survey

**Existing Method of Data Storage:** MS Excel Files

**Existing means of Data Maintenance:** Manual Records

Version No: Draft	Pune Municipal Corporation	Page 90 of 181
	Requirement Assessment	

**Existing means of Data Maintenance:**

- Pilot bus routes to be made permanent based on public response.

**Existing Outputs / Results:**

- Monthly Statistical Report
- Annual & Half yearly Statistical report.

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** None

**Existing GIS Skillset:** None

**Existing IT Infrastructure:**

- Desktop available but exact number not communicated.

### 2.5.27 Property Tax

**Date of Meeting:** 27/02/08

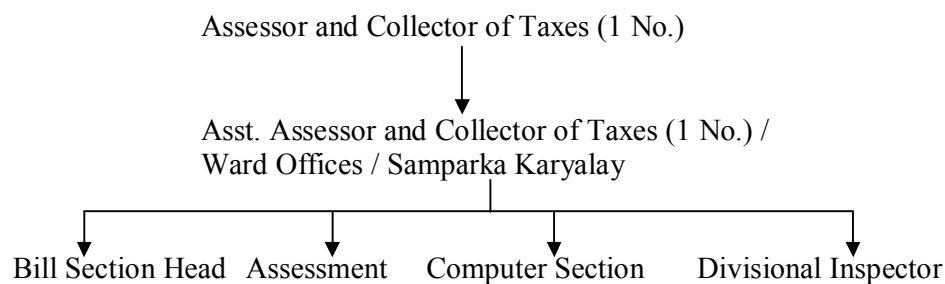
**Head of the Department:**

**Meeting Held with:** Mr. Sonkamble

#### Introduction:

The department is entrusted with the task of collection of Property Tax, Property entry (Dakhla), Transfer of property, Change of use, Updating Property Records, Tax Adjustments and Cancellation of duplicate entries are the other functions performed by this department.

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of Department:

- Property Record Entry (Dakhla)
- Annual Property Tax Bill generation
- Transfer of Property
- Updating Records
- Change of Use
- Bill Adjustments
- Cancellation of Double Entries

#### Departmental Activities:

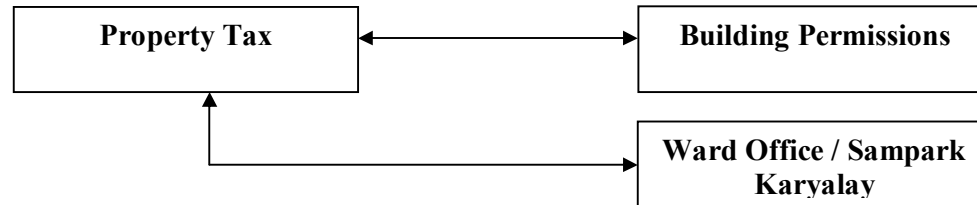
- Receive request for property entry from citizen, builder (property developer), Tax Inspector or from Building Permissions department.
- Annually calculate Rateable Value based on area, type of plot and type of construction.
- Generate annual bills accordingly and forward it to Ward Offices (Sampark Karyalay in some cases) for further distributions.
- Process transfer of property cases.
- Process property change of use cases.
- Provide NOC (No Objection Certificate) for property.

#### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

**Citizen / Builder / Tax Inspector / Building Permissions → Property Tax Assessment done by Inspector → Property Entry (Dakhla) by Computer Section → First bill generated is forwarded to Ward Office / Sampark**

**Karyalay  
Inter-Departmental Workflows:**



This department has inter-linkages with the following departments:

- Building Permissions
- Ward Offices / Sampark Karyalay

**Type of Data / Information Used:** Property Entry Records (Database Records)

**Existing Data:** Digitised Maps are available but are not used.

**Existing Method of Data Capture:**

- Field Survey by Tax Inspectors
- Database entries (Records from 1970 are available as digital database)

**Existing Method of Data Storage:** SQL Database

**Existing means of Data Maintenance:** Records are updated in SQL Database

**Existing Data Processing/Analysis:**

- Identify Tax Defaulters
- Reports generated for Tax arrears and demand. These reports are generated types of tax wise and ward wise.

**Existing Outputs / Results:**

- Reports such as Collection against Dues for Property Tax, Water Tax, Fire Brigade Tax, Tree Conservation Tax, Education Tax, etc.

**Existing CAD / Any other software used:**

- VB-SQL programs are available to aid data entry and annual bill generation.

**Existing Applications (if any):**

- Customised web application for online property tax collection.

**Existing Digital Data Available:**

- Existing data is available as database records for entire Pune City.

**Existing IT Infrastructure:**

- Database Server with Oracle 10g
- Desktops

**Existing GIS Skillset:** None

### 2.5.28 Roads

**Date:** 25/01/08 & 28/01/08

**Head of the Department:** Mr. Vivek Kharwadkar (Additional C.E.)

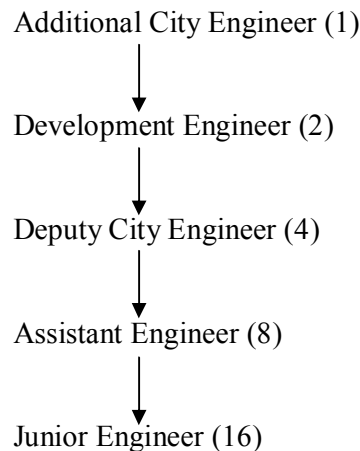
**Meeting Held with:** Mr. S. Karpe and

**Introduction:**

The department is actively involved in the development and maintenance of the road and road related infrastructure.

**Existing Departmental Structure (Technical Staff):**

The department comprises a team of 25-30 technical members. For this department, entire Pune city has been divided into 14 ward offices. There is one Additional City Engineer heading the team. There are two Development Engineers, one for East region and the other one for West region. Under each Development Engineer there are two Deputy City Engineers and each deputy city engineer there are two Assistant Engineers. Assistant Engineer supervises two Junior Engineers. Each Junior Engineer has been allocated 2-4 ward offices per head.



**Municipal (Development / Maintenance) Functions of the Department:**

The department is involved in the construction of new roads, bridges, culverts, footpaths, road dividers and cycle tracks. The department undertakes laying down storm water lines and pipeline conduits to facilitate the service line agencies. In addition, track and lane markings are undertaken by the dept. Maintenance of the existing roads is also done which includes resurfacing of the roads and the likes. Other in-house activities include preparation of budget, management of hot mix plants and also production of hot mix.

**Departmental Activities:**

- To construct Roads / bridges / culverts / footpaths and other road related infrastructure
- To carry out maintenance of existing roads & related infrastructure

**Internal Departmental Workflows:**

Proposal/Requirement → Estimation → Tendering → Execution → Billing

Version No: Draft	Pune Municipal Corporation	Page 94 of 181
	Requirement Assessment	

### **Inter-Departmental Workflows**

Roads Department seeks/gives information from/to:

- Land Acquisition Department: To check the status of the land - on which road is to be constructed - if it is acquired or not. In case the land is not acquired then the department is notified to do so.
- Development Plan: To check for reservations in the term plans in the area under consideration and to check for any suggested road widening.
- Drainage Department / Water supply / MSEB / Telephone / Electric Department are sent notifications before preparing estimates to check if any department has got any service lines in the area under consideration and to decide the pipeline conduit diameters.
- Audit Department: For clearing the bills.
- Garden Department / BOT cell: To carry out the landscaping in and around the infrastructure developed.
- Tender Cell (Works Management System): To preparing the tenders.
- Ward Offices: To carry out the maintenance works.
- Encroachment Department: To check for any encroachments in the area under consideration.
- Traffic Police Department: To ensure for arrangements made to divert the traffic.

### **Type of Data / Information Used:**

- Service Line Networks (not directly but through concerned department)
- Base Maps (Blue prints)
- Google Imageries (Clipped for each ward on which potholes along with the proposed work is marked)
- MORTH Standard Specification
- MOST Guidelines
- MRTP Act (Maharashtra Regional Town Planning Act)
- BPMC Act
- Development Control Rules (Guidelines)
- IS Codes (for RCC, Steel, etc.)
- DSR (Scheduled rates which are revised every year)

### **Existing Data:**

- The AutoCAD data pertaining to Pune available.
- Paper Maps for those areas also available.
- Development Plan (paper map and digitized map) also available.

### **Existing Method of Data Capture:**

- AutoCAD format
- Google Earth (To roughly estimate the area)
- Excel Sheets (Budgets, Billing Details, Estimates)
- Total Station Surveys

Types of Surveys conducted are:

- Topography Survey
- Storm Water Line Direction
- Gradian Correction Survey

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 95 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Method of Data Storage:**

The filed information is stored JE wise in –

- Files, Tracing Papers, Blue Prints
- Hard Disks( AutoCAD format)
- Compact Disks

**Existing means of Data Maintenance:**

- Ammonia Prints
- Hard Copy Maps
- Tracing Papers
- The data here is stored case-wise and the work carried out is available with the department and audit department (billing).

**Existing Data Processing / Analysis:**

- To set priority with respect to construction of roads (e.g. National Highway, State Highways, etc.)
- To set priority in terms of maintenance works (e.g. Roads, bridges, culverts, etc.) needs maintenance work to be done with an immediate effect, is analyzed by an onsite survey by the J.E.s.
- While undertaking Pavement Management an activity carried out before the estimation of the project work is done to decide upon the structural design of the roads
- Site suitability analysis is done to find out the appropriate location for the bridges and culverts are decided by analyzing the catchment areas, rainfall and runoff in the area under consideration (done with the help of external consultant). Also, the size of the bridges and culverts is estimated using such analysis.
- Five year defect liability period analysis is done.

**Existing Outputs / Results:**

The results are noted down phase-wise in:

- Measurement Books (used to calculate the billing amount)
- On site progress reports
- QA / QC Reports
- MIS Reports
- Reports showing Funds allocated, funds utilized, Work Completed (%), Reasons for slow progress etc.

**Existing CAD / Any other software used:**

- AutoCAD
- Microsoft Office 2005

**Existing Applications (if any):** None

**Existing Digital Data Available:**

- Digital Maps in AutoCAD format
- Digitized Development Map (Digital data is being prepared)
- Budget related information available in excel format
- Clipped Google Imageries of all the wards.

Version No: Draft	Pune Municipal Corporation	Page 96 of 181
	Requirement Assessment	

**Existing GIS Skillset:** One Personnel

**Existing IT Infrastructure:**

- 10 Desktops
- 5 Printers
- 10 Laptops



Version No: Draft	Pune Municipal Corporation	Page 97 of 181
	Requirement Assessment	

### 2.5.29 Sky Signs Department

**Date:** 10/03/08

**Head of the Department:** Mr. Wakchaure

**Meeting Held with:** Mrs. Dhawale

#### **Introduction:**

The department is involved in providing permits / licenses for mounting Advertising Boards / Signs and permits for machinery (small / petty businesses).

The PMC has created a Fee Schedule (Rates) for Machinery Permits which is approved by the Standing Committee or through General Body Meetings. For the Advertising Boards, there are Rules & Regulations prescribed by the State Government (in year 2003) which are used for providing permits / licenses.

#### **Existing Departmental Structure (Technical Staff):**

This department includes 2 Chief Permit / License Inspectors followed by 14 Permit / License Inspectors as per Ward / Zonal Offices.

The technical staff is assisted by other Administrative staff that includes 3 Sr. Clerks and 4 Jr. Clerks.

Chief Permit / License Inspectors (2)



Permit / License Inspectors (14)

#### **Municipal (Development / Maintenance) Functions of the Department:**

- Providing Licenses / Permits to mount Advertising Boards
- Providing Machinery Permits for small / petty businesses

#### **Departmental Activities:**

- Receiving Applications for Permits / Licenses for Advertisement Boards / Machinery
- Interacting with departments of PMC such as Gardens, Tax, Health, Slum, City Engineer and others like Police Department for No Objection Certification (NOC)
- Reviewing Structural Stability Reports, location map and other pre-requisite documents with the application
- Conducting Site Inspection and create Site Inspection Report
- Seeking Approval from Head of the Department for an application
- Making necessary communications to authority like MSEB and applicants
- Reviewing Structural Stability Report after mounting of Advertising Boards
- Seeking final approval from Addl. Municipal Commissioner
- Assigning Indicative No. to the Advertising Board

Version No: Draft	Pune Municipal Corporation	Page 98 of 181
	Requirement Assessment	

### **Internal Departmental Workflows:**

#### **License for Advertising Boards:**

Application for Advertising Board (Citizen) → Seek NOC from PMC Depts. (City Engineer / Garden / Fire Brigade / Health / Slum) → Review Location map / Structural Stability Report / other Pre-requisite documents → Site Visit for Inspection → Site Inspection Report / Application to HOD → Necessary Communication to MSEB (in case of illuminated roads) / Applicant → Structural Stability report (after Construction) from applicant → Proposal to Addl. Municipal Commissioner for Final Approval → Indicative No. to Advertising Board

#### **Machinery Permits:**

Application for Machinery (Citizen) → Check for Owner's Permission / Tax Receipt / Seek NOC from PMC Depts. (City Engineer / Garden / Fire Brigade / Health / Slum) → Guarantee Letter from Applicant → Approval from HOD

### **Inter-Departmental Workflows:**

The Department interacts following departments for opinions / NOC / notifications before carrying out necessary encroachment removal actions –

- City Engineer
- Garden
- Health
- Slum
- Fire Brigade

#### **Type of Data / Information Used:**

- Fee Schedule (Rates) for Machinery Permits approved by the Standing Committee or through General Body Meetings.
- Rules & Regulations prescribed by the State Government (in year 2003) for Advertising Boards

#### **Existing Data:**

- Central Register for maintaining information about seized goods / items

#### **Existing Method of Data Capture:**

- Complaints received by Encroachment Inspectors at Ward / Zonal Office

**Existing Method of Data Storage:** Central Register (Hard Copy)

**Existing means of Data Maintenance:** Central Register (Hard Copy)

#### **Existing Data Processing / Analysis:**

- How many complaints have been received from a particular Ward / Zonal Office?

#### **Existing Outputs/Results:**

- How many roads are having encroachments?
- How many encroachments have been removed in a specific time period?

Version No: Draft	Pune Municipal Corporation	Page 99 of 181
	Requirement Assessment	

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** None

**Existing GIS Skillset:** None

**Existing IT Infrastructure:** 1 Desktop

### 2.5.30 Slum

**Date:** 01/02/08

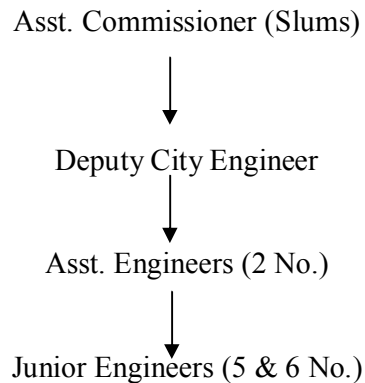
**Head of the Department:**

**Meeting Held with:** Mr. Kulkarni

#### **Introduction:**

The department carries out development works in slums. These works involve construction of concrete roads, drainage, toilet blocks and rehabilitation slum dwellers.

#### **Existing Departmental Structure (Technical Staff):**



#### **Municipal (Development / Maintenance) Functions of Department:**

- Drainage development and maintenance
- Building RCC roads
- Construction of toilet blocks
- Rehabilitation of Project affected slum dwellers
- Construction of community hall (Samajh Mandir)
- Placing Garbage Disposal units

#### **Departmental Activities:**

- Create new drainage lines based on request from slum dwellers or Corporators.
- Repair broken or choked drainage lines.
- Build drainage chambers
- Identify and connect the drainage line to the drainage main line.
- Build RCC roads.
- Identify areas for toilet blocks and construct the blocks.
- Identify slum area coming under development projects.
- Notifying slum dwellers affected by development projects.
- Acquire land for rehabilitation.
- Construct dwellings for rehabilitated slum dwellers.
- Construct community halls.
- Identify permanent slum dwellers based on issued photo pass identity (Permanent Slum dwellers qualify for rehabilitation programs).
- Identify and place garbage disposal units for easy collection of garbage.
- Identify similar slum development projects carried by Ward offices.

- Generate annual report on amount utilized for slum development for submission to Statistics department.

#### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

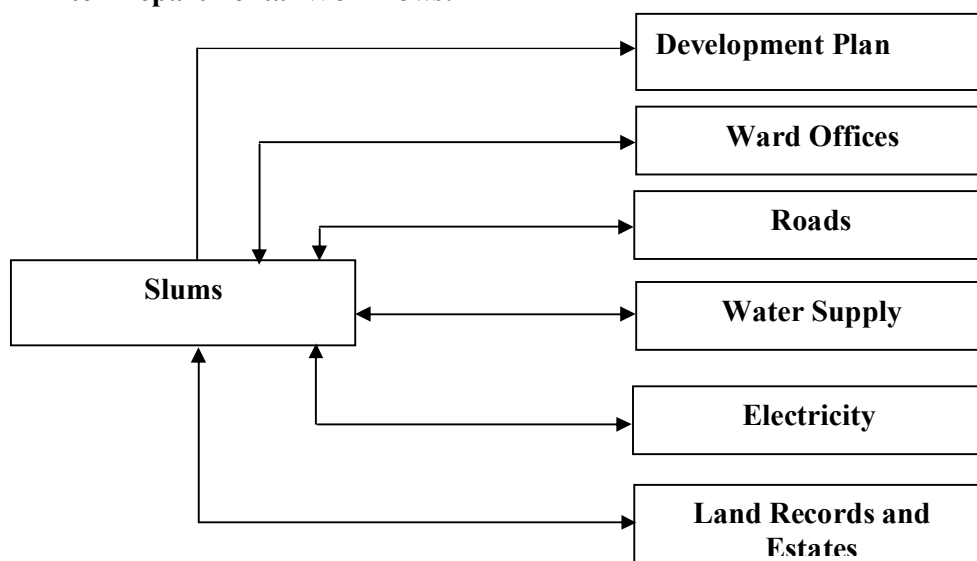
Slum Development Projects:

**Request from slum dwellers/ Corporator / survey → Survey → Estimate → Estimate sanction by appropriate body → Tender → Tender sanction by appropriate body → Work Order → Payment on completion (if work completed is not within the budget arrears are handled)**

Rehabilitation Projects:

**Identify slum dwellers affected by development project (photo pass identity) → calculate number of families → send requisition request to the Land Records and Estates department → tender for dwelling construction.**

#### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Development Plan: This department notifies of existing reservations on slum areas.
- Land Acquisition: This department acquires land for rehabilitation of slum dwellers.
- Roads department: In road development projects like road widening if slum area is affected, then it notifies the slum department to take appropriate measures. The slum department conducts a field measurement survey and identifies residents for rehabilitation.
- Water Supply: If water lines are to be affected by slum development projects an appropriate notification is sent to the water supply department. If new proposed water lines are passing through slum areas.
- Electricity: This department is notified when its assets (Light poles, under ground cable, etc.) are to be affected by development projects by slum department.
- Ward Offices:

Version No: Draft	Pune Municipal Corporation	Page 102 of 181
	Requirement Assessment	

**Type of Data / Information Used:**

- Field Survey measurements
- Photo Pass Identity
- Socio-economic details of slums
- Existing status of infrastructure (water / drainage / electricity) in slums

**Existing Data:**

- Hard Copy paper maps
- Shelter Association (socio-economic) Data of 211 slums in GeoMedia format.
- Mashall NGO survey data. (statistical)
- Photo Pass Identity Card issued by ward offices

**Existing Method of Data Capture:** Field Survey

**Existing Method of Data Storage:** None.

**Existing Method of Data Storage:** None.

**Existing Data Processing/Analysis:**

- Slum residents who have been issued the photo pass identity card are eligible for rehabilitation program.

**Existing Outputs / Results:**

- Notification to slum dwellers affected by DP projects.
- Identifying area for rehabilitation
- Notification to Land Records and Estates regarding required area for rehabilitation.

**Existing CAD / Any other software used:** None.

**Existing Applications (if any):** None

**Existing Digital Data Available:** Shelter Association data (as discussed above)

**Existing GIS Skillset:** One Personnel

**Existing IT Infrastructure:**

- 2 desktops
- 2 printers

### 2.5.31 Traffic Planner

**Date of Meetings:** 24/01/08 & 25/01/08

**Head of the Department:** Shrinivas Bonala (Additional C.E. - Projects)

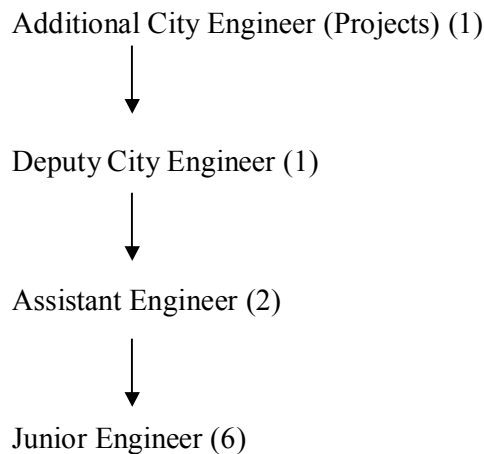
**Meeting Held with:** Mr. Mangesh Dighe

**Introduction:**

The department is actively involved in the construction of traffic-related infrastructure.

**Existing Departmental Structure (Technical Staff):**

The department comprises a team of 12-15 technical members. For this department, entire Pune city has been divided into two regions viz. Western and Eastern. One A.E. is assigned the Western Region and the other is assigned the Eastern Region. Each A.E. has 3 J.E.s. These Junior Engineers have demarcated their areas by a word of mouth. One J.E. has been assigned the work of maintenance as well.



**Municipal Functions of the Department:**

The department is involved in the construction of Road Dividers, Junction Islands, Multi-Storied Parking Complexes, Pedestrian Subways, Signal System construction and Maintenance and the likes. Also, this department is responsible for carrying out Traffic related Studies (sometimes with the help of external consultant). For example: Preparation of Detailed Project Reports (DPR) for Metros, Sky bus, BRTS, and Tram etc.

**Departmental Activities:**

**Internal Departmental Workflows:**

Proposal/Requirement → Estimation → Tendering → Execution → Billing

**Inter-Departmental Workflows**

Traffic Planning Department seeks / gives information from / to:

- Land Records: To check if the land is a property of PMC or not.
- Land Acquisition Department: To acquire the land from the concerned party.

Version No: Draft	Pune Municipal Corporation	Page 104 of 181
	Requirement Assessment	

- Development Plan: To check the proposed long term / short term plans in the area under consideration.
- Traffic Police / Road department: The request / proposal might come from this department
- Drainage Department / Water supply / MSEB / Telecom / Electric Department are sent notifications before preparing estimates to check if any department has got any service lines in the area under consideration.
- Audit Department: For clearing the bills
- Garden Department / BOT cell: To carry out the landscaping in and around the infrastructure developed.
- Tender Cell (Works Management System): To prepare the tenders.
- Ward Offices: To carry out the maintenance works.

#### **Type of Data / Information Used:**

- Development Plan
- Plain Table Survey Reports
- Topography Survey Reports
- Service Line Networks (not directly but through concerned department)
- Region / Zones / Wards (At present which are not demarcated but by mutual understanding)
- Traffic Engineering Guidelines
- Indian Road Congress Manual
- IS Codes (for RCC, Steel, etc.)
- Traffic Related Study Reports

#### **Existing Data:**

- The AutoCAD data pertaining to the areas on which the project was carried out.
- Paper Maps for those areas also available.
- Development Plan (paper map) also available.

#### **Existing Method of Data Capture:** Field Survey

Types of Surveys conducted are:

1. Topography survey
2. Traffic Related Surveys
  - Traffic Volume Count
  - Origin and Destination Survey- Traffic Flow
  - Household Survey
  - GPS Survey etc.

#### **Existing Method of Data Storage:**

The filed information is stored JE wise in –

- Files
- Hard Disks( AutoCAD format)
- Compact Disks

#### **Existing means of Data Maintenance:**

- Ammonia Prints
- Hard Copy Maps



<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 105 of 181</b>
	<b>Requirement Assessment</b>	

- The data here is stored case-wise and the work carried out is available with the department and audit department (billing), the work carried out is not updated anywhere.

**Existing Data Processing / Analysis:** No such analysis is done here.

**Existing Outputs / Results:**

The results are noted down phase-wise in

- Measurement Books (used to calculate the billing amount)
- On site progress reports
- MIS Reports

**Existing CAD/Any other software used:**

- AutoCAD 2000 software
- Microsoft Office 2003

**Existing Applications (if any):**

- Intelligent Traffic System (Under Development)

**Existing Digital Data Available:**

- Digital Maps in CAD format of specific areas
- Survey reports
- Pie Charts (people using buses, local trains etc.)

**Existing GIS Skillset:** One + One Draftsmen

**Existing IT Infrastructure:**

- 1 Desktop
- 1 Printer
- 3 Laptops

### 2.5.32 Up- Aayukta Karyalay (Ward Office)

**Date of Meeting:** 21/02/08

**Head of the Department:**

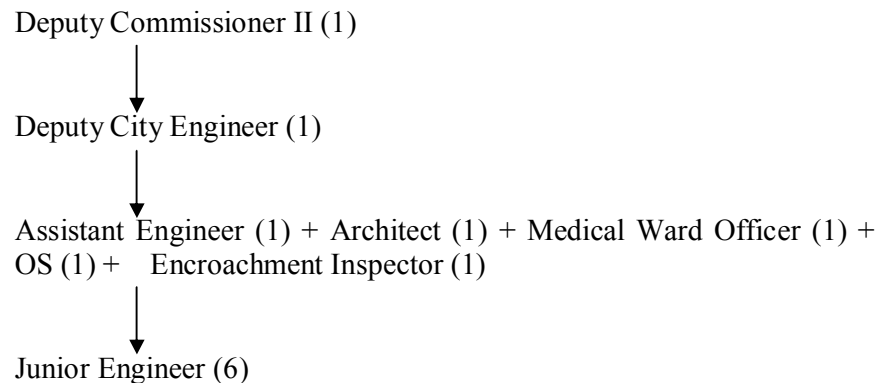
**Meeting Held with:** Mr. D. B. Gojare

#### **Introduction:**

There are in all 14 ward offices under the jurisdiction of PMC. Each of these ward offices is responsible to carry out the development work up to Rs. 10 Lac and also to undertake the maintenance of all the infrastructure and facilities covered under Roads, Water Supply, Drainage, Slum, Bhavan and Electric Department.

#### **Existing Department Structure (Technical Staff):**

There are in all 6 Junior Engineers, one each for Roads, Water Supply, Drainage, Slum, Bhavan and for Electric Department.



#### **Municipal (Development / Maintenance) Functions of Departments:**

The department is involved in all the development works (Up to Rupees 10 Lac) and maintenance functions pertaining to the following departments-

##### **Road**

- Maintenance of all the roads (below 12 m),
- Construction of all footpaths, road dividers, roads
- Fixing all traffic sign boards,
- Giving permission to lay cables
- Road cutting permission and then reinstating all the excavated parts
- Issuing NOC for new buildings.

##### **Water Supply**

- Maintenance of all lines up to 6 inch diameters including cleaning all these lines
- Cleaning of Nallas (Open drains)
- Providing (½ inch) water connections
- Collection of water tax (only from slums)

##### **Drainage**

- Providing drainage connections and completion certificates.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 107 of 181</b>
	<b>Requirement Assessment</b>	

### **Slum**

- Issuing NOC for light connection
- Giving Permission for renovation of slums up to 225 sq. foot
- Collection of Service Tax

### **Building Constructions**

- Maintenance of all PMC owned and managed buildings which includes civil works as well as furniture and the likes

### **Electricity**

Maintenance of -

- All street poles
- All electrical wiring and
- Street lights on the roads

### **Garbage collection**

### **Departmental Activities**

- Requirement / Complaint may come from citizens, Corporators or from Mohalla Committee
- Inspection of the site is done by the concerned engineer
- Once discussed the requirement is finalized by the A.E., and WO (for maintenance work / construction work)
- If the work to be carried out is within the entitlement of the Ward Office then the work is executed in-house. However, in-case of works that require higher expenditure than the entitlement; a budgetary provision is made and is then sent for approval to the Standing committee Once approved estimates are prepared and finally the tenders are floated for private contractors to undertake the job for PMC ward office.
- All the jobs undertaken are submitted to Assistant Engineer by the concerned Junior Engineers in terms of Weekly Reports (which includes Type of the Complaint dealt with, Date of Complaint, Labor allotted for the same and Compliance to the work)
- Other forms of report maintained are the MIS reports which are submitted to the Commissioner department in the soft copy format.

The activities performed to issue drainage connection sanctions and also seeking NOC from other departments include -

- The property holder / property builder submits the files with required documents to the Ward Office for applying for new drainage connection.
- Junior Engineer (Drainage) inspects the site for existing PMC facility such as Roads (It is verified whether NOC from Roads dept. is issued or not).
- Site is inspected to check if there exists any drainage line passing through the nearby area or not. If yes, then diameter of the existing line along with the location of chambers is checked. The type of property (whether Commercial / Residential / Mixed) is also checked during the visit.
- After the site inspection; compliance of all the submitted documents is verified. On verification, a Challan is issued for new connection and also for road cutting charges.

Version No: Draft	Pune Municipal Corporation	Page 108 of 181
	Requirement Assessment	

- After payment of challan, work order is issued to the concerned plumber or the property holder.
- Once the work is completed, a letter is sent to corporation stating the work is completed and as per specifications by the property holder.
- If the A.E. / J.E. find no problem on site visit, Completion Certificate / NOC is issued to the property holder.

The activities performed to issue Road NOC are -

- Submission of application for Road NOC
- Inspection of the site by J.E.(Road)
- Preparation of estimates for road widening area and then sanctioning of the same is done as per rights viz. up to 1 Lac, A.E. has the authority to approve it, from 1-3 lacs, Ward Officer has the authority to approve the proposal, from 3-5 lacs, Prabhag Samiti and from 5-10 lakhs Zonal Commissioner has the authority to approve it.
- Challan (for the charges to be paid by the property owner for the development of the particular road portion as per estimates) is prepared and is issued to the concerned property owner.
- After the Challan charges are paid, Road NOC is issued to by the property owner.

The activities performed to issue Light Meter and Renovation NOC-

- Submission of the proposal with the relevant docs (Habitation documents before 1995 and service tax Challan)
- On verification of the documents, the light meter and Renovation NOC, depending on requests is issued.

The activities performed to collect garbage from a new area are as follows-

- On duty sanitary inspector monitors for a new society coming up which is reported to the ward office.
- A letter is sent to the society chairman / secretary and to the ward office to make arrangements to provide the garbage to the garbage collector van if the society is small and in-case it is large, the garbage is to be disposed in vermin-compost pit.
- In both the cases, on-site investigation for DSI is done for garbage collection.
- The garbage collector vans then run over the predefined routes between garbage stations to garbage sumps then to bulk refuse carriers and finally to disposal lands.

#### **Internal Department Workflows:**

In case of works requiring more than Rs. 10 Lac -

Requirement → Inspection → Estimation → Tendering → Execution → Billing & report submission

In case of small works-

Requirement → Inspection → Allotment of Man-Power → Execution → Report Submission

Version No: Draft	Pune Municipal Corporation	Page 109 of 181
	Requirement Assessment	

### **Inter-Department Workflows:**

Ward Office Department seeks / gives information from / to:

- Land Records: To check if the land has been acquired by PMC or not.
- Land Acquisition Department: To acquire the land for PMC, for demarcation and also to check for any suggested road widening.
- Development Plan: To check the proposed long term / short term plans in the area under consideration (with respect to reservations) and also to check for zoning and check for any suggested road widening.
- Drainage Department / Water supply / Road / Building Constructions/ Electric Department are sent notifications before undertaking any new project to check if the concerned main department has got any similar projects to be undertaken in the same area.
- JNNURM-SRA department seeks information from the Ward Office for the final lists of the eligible slum dwellers.
- Ward office department seeks info from Building construction (Bhavan) department with regards to NOC for a building.
- Audit Department: For clearing the bills which are done phase-wise as might be suggested in the tender document in case of large projects.
- Tender Cell (Works Management System): For preparing the tenders for large maintenance projects.

### **Type of Data / Information Used:**

- Development Plan
- Election Map (Ward Offices) with well defined boundaries
- Total Station Survey Reports
- Service Line Networks (water lines and drainage lines with information pertaining to pipe diameters.)
- Traffic Engineering Guidelines
- Development Control Rules (Guidelines)
- IS Codes (for RCC, Steel, etc.)
- DSR (scheduled rates which are revised every year)

### **Existing Data:**

- The AutoCAD data pertaining to water, drainage is available in digital format. The scale used is 1:2000.
- Survey Report of hut-men dwellers is available in excel format.
- Paper Maps for those areas also available.

### **Existing Method of Data Capture:** Field Survey

Types of Surveys conducted are:

- Household survey
- Topography survey
- Water-line survey
- Road width
- Drainage line
- Nallahs falling under old limits have also been surveyed

### **Existing Method of Data Storage:** The filed information is stored in –

- Files
- Hard Disks (AutoCAD format) and Compact Disks

Version No: Draft	Pune Municipal Corporation	Page 110 of 181
	Requirement Assessment	

**Existing means of Data Maintenance:**

The data here is stored ward-wise.

**Existing Data Processing / Analysis:**

- The data that is available with the department is used to locate valves in case of drainage lines and water pipe-lines.
- Contour maps are used to plan laying of storm water lines
- Existing Outputs / Result: (In terms of reports, etc.)

The results are noted down phase-wise in -

- MIS Reports
- Weekly Reports showing Funds allocated, funds utilized, Work Completed (%), Reasons for slow progress etc.

**Existing CAD / Any other Software used:** AutoCAD 2000

**Existing Applications (if any):** None

**Existing Digital Data Available:**

- Digital Maps in CAD format of drainage lines and water lines

**Existing GIS Skillset:** Two

**Existing IT Infrastructure:**

- 2 Desktops
- 2 Printers( 2 Laser printers, 2 Dot-matrix)

**Specifications:**

Operating Systems used: Windows 98

RAM: 127 MB

HDD: 40 GB (Desktop)

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 111 of 181</b>
	<b>Requirement Assessment</b>	

### **2.5.33 Vehicle Depot**

Required information was not available from the Department and upon discussion with the department it was observed that the operational activities of this department are not directly relevant to the application of GIS.

#### 2.5.34 Water supply

**Date of Meeting:** 22/01/08

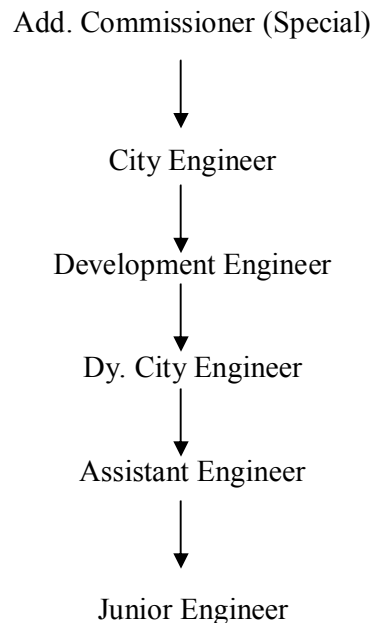
**Head of the Department:**

**Meeting Held with:** Mr. R. Bhutkar

**Introduction:**

The water supply department is involved with supplying of water from the reservoir to the consumer.

**Existing Departmental Structure (Technical Staff):**



**Municipal (Development / Maintenance) Functions of Department:**

- Water Supply
- Maintenance of existing water network
- Augmentation of existing water network
- New Water connections
- Colony Line
- Floating work tenders
- Construction & Maintenance of Reservoirs (Elevated/Ground)
- Water Quality Check laboratory
- Pumping and Electrical

**Departmental Activities:**

- Survey / Inspect the area of complaint
- Water supply schedule based on demand
- Maintenance of existing water network. This involves repair and replacement of pipes (main, supply, and connection), valves, pumping station, reservoir. Depending on the scope of work this function is delegated to an external body through a tender or is executed by the department



- Augmentation of existing water network. This function involves expanding the existing water supply network to newer areas or based on increased demand increase the water connectivity in existing area
- Construction of colony lines
- Issuing license to plumber
- Maintenance of reservoir by timely cleaning and repairing damages
- Water quality checks carried out to maintain drinking quality
- Maintenance of pumping and electrical equipment

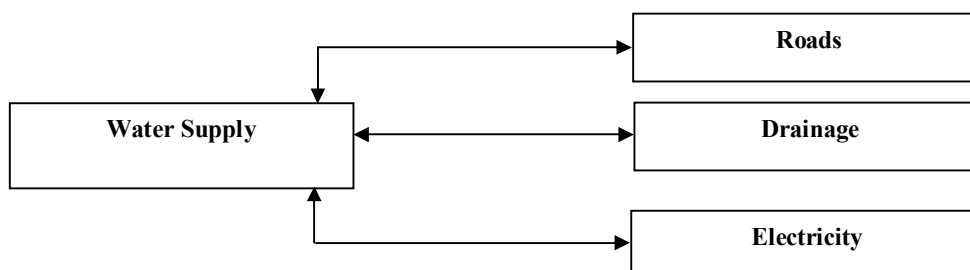
#### Internal Departmental Workflows:

The stages involved in the Departments workflow are as under –

**Citizen request for new colony line → Check documents such as Colony Line Certificate, Building Permission, Property Tax, Application by Licensed Plumber → Identify Colony Line → Issue Work Order**

**Builder Request for Colony Line → Check for Commencement Certificate, Plan, Demarcation, Property Tax, Licensed Plumber application, Power of Attorney / Owner → Estimate of Colony Line → Letter to Plumber**

#### Inter-Departmental Workflows:



This department has inter-linkages with the following departments:

- Roads: Identify roads affected by water supply works and notify the roads department regarding the same.
- Drainage: Identify drainage lines affected by water supply works and notify the Drainage department regarding the same.
- Electricity: Identify electricity lines affected by water supply works and notify the Electricity department regarding the same.

#### Type of Data / Information Used:

- AutoCAD drawings

#### Existing Data:

- AutoCAD drawings

#### Existing Method of Data Capture:

- Field Survey
- Inputs from Licensed Plumber.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 114 of 181</b>
	<b>Requirement Assessment</b>	

**Existing Method of Data Storage:**

- Manual Forms
- AutoCAD Drawings

**Existing means of Data Maintenance:**

- Newly laid pipelines are updated in the AutoCAD drawings after verification from the licensed plumber who has laid the pipeline

**Existing Data Processing/Analysis:** None

**Existing Outputs / Results:** None

**Existing CAD / Any other software used:** AutoCAD (Single License)

**Existing Applications (if any):** AutoCAD

**Existing Digital Data Available:**

- Existing data is available in AutoCAD format for entire Pune City (Old Limits).
- Some amount of Data is available as shape files with limited attributes.

**Existing GIS Skill set:** One

**Existing IT Infrastructure:** None

### 2.5.35 Water supply-Project (Extended area)

**Date of Meeting:** 21/01/08

**Head of the Department:**

**Meeting Held with:** Mr. Kedar Sathe

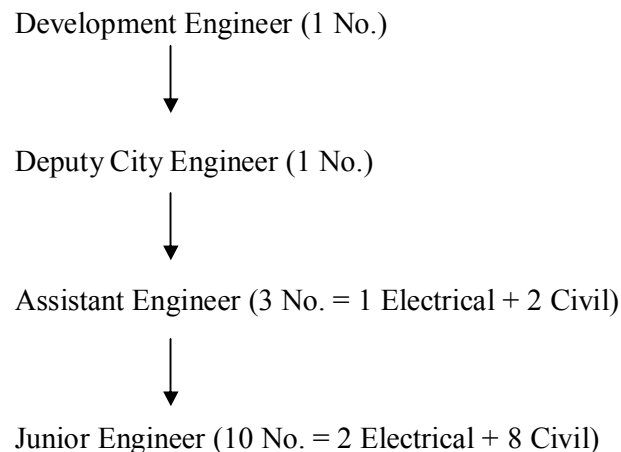
#### Introduction:

The department is actively involved in the implementation of the “Pune Water Supply and Sewerage Project”. The project is divided in three phases as per the Master Plan- 2025. The project came into being with the merger of the PMC old city limits with the Cantonment area, Khadki Cantonment area and 36 surrounding villages in September 1997. As on date, the Phase I of the project has been completed and the Phase II of the project is in progress.

The entire PMC area is categorized in following five zones w.r.t. Water Supply (Projects) Department:

- Parvati
- Warje
- Wadgaon
- Cantonment
- Holkar

#### Existing Departmental Structure (Technical Staff):



#### Municipal (Development / Maintenance) Functions of Department:

The department is involved in the execution of the Water Supply projects as per the master plan 2025.

#### Departmental Activities:

The activities carried out in the department include planning, designing, estimating and executing water supply related projects for the extended limits,

Version No: Draft	Pune Municipal Corporation	Page 116 of 181
	Requirement Assessment	

also, operation and maintenance of the same is partly being carried out. Initially all the projects were carried out but now the processes are outsourced to third parties.

Water Supply projects are executed for –

- **Water Intakes** - Raw water is drawn from a water resource (Khadakvasla Lake) and is brought to the water treatment plant (WTP) through water main.
- **Rising Mains** - This treated water is then pumped to Service Reservoirs (SR's) by pipelines-pumping main lines (Rising Mains) or by Gravity Mains (GM's).
- **Water Treatment Plants**
- **Pumping Machineries**
- **Service Reservoirs**
- **Distribution Network and Service Points** - The distribution network from the SR's sends the treated water to the service points (the consumers).

The quantity of water supply required is assessed based on the projected population of the planning area and the per capita per day demand of water supply. Population is projected by studying population trends in the past and likely growth pattern. The growth pattern is visualized is based on existing land-use, provisions in development plan, land availability for further growth and limiting population density.

The water facilities have been sized as per phase-wise requirement.

At present, Water Treatment Plants are located at following locations:

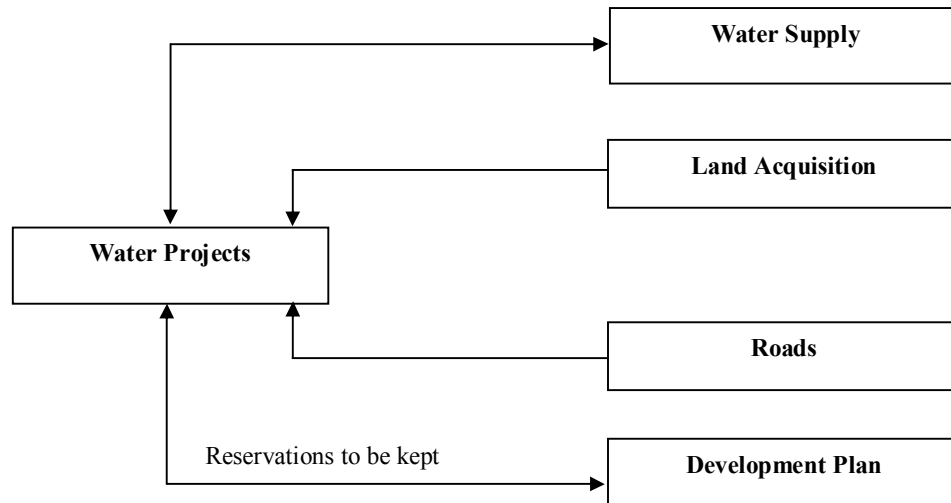
- **Parvati**
- **Cantt.**
- **Warje**
- **Pashan**
- **Holkar**
- **Vadgaon**

#### **Internal Departmental Workflows:**

The stages involved in the Departments workflow are as under –

**Estimation ---> Tendering ---> Execution**

### Inter-Departmental Workflows:



Water Supply (Projects) department has inter-linkages with the following departments:

- **Land Acquisition Department:** on account of the land to be used / acquired for laying down of the distribution network.
- **Water Supply:** Regarding the existing water supply network, availability of existing resources
- **Roads department:** Regarding existing Road network to assess accessibility, to study existing alignment of roads and regarding Road reservations kept for the proposed Road network
- **Development Plan:** department by supplying the information based on areas to be kept as 'Reserved' for future water project development

### Type of Data / Information Used:

- **Water Distribution / Pipeline Network (Existing / Planned or Proposed)**
- **Locations of existing Sources of Water Supply, Water Treatment Plants, Reservoirs**
- **Water Distribution Zones / Areas**
- **Existing capacity of water supply sources and service reservoirs**
- **Demand of water supply based on projected population and per capita demand**
- **Information** on losses occurring in the existing distribution network

### Existing Data:

- **The AutoCAD data of water supply network pertaining to Warje Zone**
- **Paper Maps** of water supply network for all areas

**Existing Method of Data Capture:** Field Survey

Version No: Draft	Pune Municipal Corporation	Page 118 of 181
	Requirement Assessment	

**Existing Method of Data Storage:**

- Office File Storage
- AutoCAD Drawings

**Existing means of Data Maintenance:** AutoCAD Drawings

**Existing Data Processing / Analysis:** Office File Storage

**Existing Outputs / Results:** To be Discussed

**Existing CAD / Any other software used:** None

**Existing Applications (if any):** None

**Existing Digital Data Available:** Digital Maps in CAD format

**Existing GIS Skillset:** Two Personnel

**Existing IT Infrastructure:**

- 4 desktops
- 1 printer/desktop

Version No: Draft	Pune Municipal Corporation	Page 119 of 181
	Requirement Assessment	

## 2.6 Problem Statement

There are certain major issues in front of the PMC that need to be addressed so as to progress on the Action Plans for implementing e-Governance and GIS based Property Tax Information System. These are –

- **Inter-departmental Coordination:**

Inadequate and inefficient communication / exchange of ‘valuable’ information between various departments of the corporation

- **Independent (asynchronous) IT Initiatives of departments:**

Various departments have taken some IT initiatives for creating databases / automation of their activities

- **Heterogeneity of Systems / applications implemented by Individual Departments**

There is a need to adapt a common / universal platform for developing IT systems / applications and databases. However, those initiated by departments are on different platforms and not in sync with each other. Hence, exchange of digital data across these systems is also not effective.

- **Distributed Data base creation, Storage, Maintenance and Administration**

The digital data being captured by various departments is non-centralized, distributed and is administered individually leading to in-efficiency in Database Management.

The other issues that could be identified with respect to GIS Implementation are –

- Inadequate Data / Information with the departments
- Most of the departments do not use have enough data to be processed or analyzed or for some of them, the analysis is not done at all.
- GIS based analysis could be immensely helpful in terms of Annual Planning or Budgets of the departments, however at present there is no scientific basis for making budgetary provisions for the departmental needs.
- Inadequate IT Infrastructure – Several departments have just one or two desktops, sometimes with just one printer and one of the desktops connected over network.
- Couple with such inadequacy of infrastructure, there is highly inadequate IT trained staff with very few personnel using the desktops available
- Lack of GIS Skillset – Personnel with awareness and knowledge of GIS are very few throughout the organization – with just one / two personnel from all the departments
- No common software / tools being used by the departments.
- Non-standardized data storage and maintenance methods. Departments use traditional hardcopy records, registers, maps, ammonia prints, etc. or some of them use AutoCAD, MS Excel to store data. There is no standardized platform, pattern, or mechanism for data storage and maintenance.
- Last but not the least, no department uses GIS for any of its operational activities barring a few which use digital AutoCAD files for printing of DP maps, etc.

A detailed analysis of Problems and issues with the existing status of the Departments shall be included in the SRS Document.

### 3. Stakeholder and User Descriptions

#### 3.1 Stakeholder Summary

The sub-section lists all the stakeholders identified after the rigorous requirement assessment process carried over the period of time at the PMC campus.

The key stakeholders include-

- Citizens
- Decision Makers such as the Municipal Commissioner, Deputy & Additional Municipal Commissioners, Heads of the Departments, etc. and
- All the departments under PMC. The list of such departments is as listed below-

# No	Department Name
1	Bhavan
2	BSUP- Basic Services for Urban Poor
3	Building Permission (Fast Track)
4	Building Permission / Control
5	Census Department
6	Computer Department
7	Development Plan
8	Drainage- Old Limit
9	Drainage- Project (Extended area)
10	Education Department
11	Elections Department
12	Electric
13	Electric Pole Shifting
14	Encroachment Department
15	Fire Brigade
16	Garden
17	Health
18	JNNURM- Roads
19	JNNURM- SPD
20	JNNURM- SRA
21	Land Acquisition
22	Land and Estates
23	Nagar Wasti Vikas Yojana
24	Octroi
25	PMPML
26	Property Tax
27	Roads
28	Sky Signs Department
29	Slum
30	Traffic Planner
31	Ward Offices
32	Water supply
33	Water supply-Project (Extended area)

Upon assessment it has been found that the following two departments in their operational process involve no relevant activity to provide GIS functionality.



Version No: Draft	Pune Municipal Corporation	Page 121 of 181
	Requirement Assessment	

- Kothi Karyalaya Development Engineer
- Vehicle Depot

### 3.2 User Summary:

A user is responsible to effectively execute the sub-process of the system in a regular interval as per system definition. These users possess domain specific functional knowledge of the system and are responsible for success / failure of the system. Such a situation prompts the creation of department and process specific users as well as user groups for all the stakeholders / target users under PMC to efficiently process the departmental activities. The SRS document would contain detailed information on the creation of all the required user groups and assigning relevant rights and privileges to them.

It is observed that User Groups would be need to be created for all the Departments considering the hierarchical structure within each department based on specific user rights and privileges as per the hierarchical levels of the departments.

Apart from the Departmental User Groups, other Groups which require to be created are:

- Administrator User Group (Application, System and Database)
- Senior Officials (Decision Makers such as the Municipal Commissioner, Deputy & Additional Municipal Commissioners, Heads of the Departments, etc)
- General User (For Citizens)

### 3.3 Stakeholder / User Needs

Requirements of the Stakeholder Departments are discussed in this section. The subsections are created Department wise, wherein the requirements are perceived from the point of view of an Enterprise GIS Implementation. These are categorized into –

- **High Level Requirements of GIS based System**
- **GIS Data Requirements**
- **GIS based Functional Requirements**

### 3.4 High Level Requirements of GIS based System

Below are some of the key factors for effective usability of the GIS in enterprise business domain, which have been summarized based on the requirement analysis study:

- 1) Functionality
- 2) Performance
- 3) Supportability
- 4) Benefits envisaged

### 3.4.1 Functionality

Requirement	Facilities / objectives	Priority (High / Medium / Low)
Centralized Database Administration and Management	Effective / Efficient Database Management	
Uniform / homogeneous platform	Consistency / Uniformity in various modules of the application through out the organization	
Standardization / Coding Schemes		
Monitoring	Co-centric work monitoring process at various levels in the organization.	High
Authentication	Will acquire the central position of whole work processes	High
Archiving	This will certainly increase the efficiency of the PMC processes	Medium
Accuracy of spatial datasets	Should be capable of building rule based topology for error minimization.	High
Interfacing	Interfacing required with various systems like Oracle and existing e-Governance system.	High
Web capabilities	The proposed system should have web publishing capabilities to facilitate users to view the spatial and non-spatial data using Internet explorer anywhere.	High
Reporting	Should be capable of creating a report from the predefined queries.	High

### 3.4.2 Performance

Requirement	Priority (High / Medium / Low)
Recovery time	High
Response time	High

### 3.4.3 Supportability

Some of the supportability requirements are addressed in the “Functionality” section above. Others are listed below:

Requirement	Facilities / Objectives	Priority (High / Medium / Low)
Adaptability	A new system can be adopted if the system is adaptable to various functionalities mentioned above and should be easy to make interface with existing RDBMS and / or the existing systems.	High
Configurability	Should be easy to configure	Low
Install ability	Installation procedure should be easy and simple	Low
Maintainability	Maintenance should be affordable and up-gradation too.	Medium
Scalability	The proposed system should be capable of handling a larger volume of data and users. It should be scalable to adapt to future needs of the corporation vis-à-vis changes and advancements in technology.	High

#### 3.4.4 Benefits envisaged

- Currently used system for Property Tax can be GIS enabled to monitor Tax collections from the various wards of PMC and use it as a Decision Support System to take necessary actions for improving collections of Property Tax.
- Improvement in provision of services and efficient redressal complaints received by Citizens by bringing in more transparency in the system (through sharing of information with citizens) and encouraging citizens' participation.
- Efficient Management of various other Municipal services like building permissions, water connections, Planning and Designing of Roads, Drainage and storm water Networks, etc.
- PMC Departments shall be more effective with availability of centrally managed and administered spatial data. The exchange of information between the departments shall be quicker (less time consuming) by implementing a GIS centric web-based system.
- Seamless integration between various PMC departments shall be possible since they shall refer to and use a common spatial database.
- Planning shall be more effective in departments like Water, City Engineer, Garden, Health, Municipal Properties, etc.
- Consistency and uniformity in the overall structure of PMC departments, where all departments shall use and refer a central repository of spatial and statistical information; they shall be on the same platform using a single application rather than developing individual systems / applications for automation or data entry.

These are some of the immediate benefits that are identified from the GIS implementation. Hence the SRS Study.

### 3.5 GIS Data and Functional Requirements:

#### 3.5.1 Bhavan: (Building Constructions)

##### 3.5.1.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Development Plan	Reservations, Type of Reservation, and Area of land, Marking	Yes. Available for specific areas	CAD
2	Existing Landuse	Amenity space/Open Space available, Area	No	No
3	Ward Boundary(Polygon)	Ward Boundary, Ward Name, Area	Yes	Google Imagery
4	Survey No. s map(Polygon)	Ownership Details	No	
6	Existing Waterlines (Line)	Pipeline ID, Pipeline Type(Main/Branch/Artillery), Pipeline Pressure	No	
7	Existing Railway Lines (Line)	City Survey No., Gauge, Name, Type, Length, Width	No	
8	PMC Boundary(Polygon)	PMC Boundary, Area	No	
9	Sector Boundary (Old Limit)(Polygon)	City Survey Grid ID, Name, Area, ID	No	
10	Unit Boundary (New Limit)(Polygon)	Planning Unit No., Village Name , City Survey No. , Name, Area, ID	No	
11	Existing Drainage Lines(Surface)/ Storm Water (Line)	City Survey No., Type(Natural/Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length	No	
12	Existing Drainage Lines (Underground)(Line)	City Survey No., Type(Natural/Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type(Primary, Secondary)	No	
13	Existing Telephone Network (Point)	City Survey No., Line ID, Cable Type, Authorization (BSNL/MTNL/TATA/AT &T/Others)	No	
14	Existing Educational	City Survey No., Name,	No	

	Institutes	Type(Pre-Primary/Primary/Secondary/Higher Secondary/College), Run by(Private/Government), Ownership status, No. of Students, Electrical Connection(Yes/No), Water Connection(Yes, No), Playground (Yes, No), No. of Toilets		
15	Existing Hospitals	City Survey No., Name, Type(Nursing Home/Primary Health center/Hospital/Clinic), Ownership status (Government/Private), Carpet Area, No. of Permanent Doctors, No. of Visiting Doctors, No. of Nurses, No. of Beds, No. of Toilets	No	
16	Existing Fire Stations	City Survey No., Name, Area	No	
17	Existing Gardens/Playgrounds	Boundary of existing gardens, area, City Survey no.s	No	
18	Public Utility	City Survey No. ,Name, Type( Banks /Shops Educational Institutions /Sports Complex/ Auditorium/ PMC Offices and Public Toilets/ Pathology Labs / Pharmacy /Telephone Exchange /Commercial Complex/ Playgrounds, Cremation Grounds), Plinth Area, No. of Floors/ Levels, Road ID	No	

### 3.5.1.2 GIS Data Requirements

- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing works and also for monitoring status / progress of all the works under development. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 126 of 181</b>
	<b>Requirement Assessment</b>	

- The department requires to overlay the maps pertaining to various infrastructure and service line network such as roads, water lines, telecom lines, drainage lines, etc. on Development plan and / or City survey no.s to –
  - Identify the reservation(if any) and the type of reservations in the area under consideration
  - Identify service lines which fall in the area under consideration (service which will be impacted due to project work)
  - Identify the land has been acquired or not
  - Identify existing facilities like schools/hospitals/cremation grounds and the likes.
- GIS could be utilized for the above purpose to perform overlay analysis, spatial queries and attribute queries.
- GIS could be utilized to search existing facilities in the area under consideration within a suggested buffer area to analyze the need to develop a new facility.
- GIS based application could be used to send standard notifications (in case applicable) to impacted departments.

### 3.5.2 Building Permission (Fast Track)

#### 3.5.2.1 GIS Data Requirements

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	PMC Boundary	PMC Boundary, Area	Yes	CAD
2.	Ward Boundary	Existing Boundary of the Wards, Ward Name, Area	Not Known	Ward Boundary
3.	Unit Boundary (New Limit)	Planning Unit No., Village Name , City Survey No. , Name, Area, ID	Yes	CAD
4.	Development Plan	City Survey No. , Revenue Village Name, Area, ID, Sector No., Type of Reservation (Existing Features / Zoning Proposals / Reservation for Government & Semi-Government Organizations / RTO / Fire Brigade / Housing Project / Traffic and Transportation / Open Spaces / Educational / Health / Commercial) Area, Reservation Sub-Type, ID, Reservation No, Owned by	Yes (New Limit) Old(In Progress)	CAD
5.	Modified DP	Modifications to the sanctioned DP, Area	No	
6.	Buildings	Building No. / Property ID, Name, Plot No., Address, No. of Floors, Sanction / Registration no., Date of Sanction, Commencement Certificate Date, Date of Completion of Construction, Date of Occupancy Certificate		
7.	Plot Boundaries	Plot No., Owner Name, Date of Allotment, Layout No. / Scheme Name (Any other Details)		
8.	Water Bodies	City Survey No. Name, Area, ID, Type, Capacity	Yes (New Limit) Old(In Progress)	CAD

9.	Railway Lines	City Survey No., Gauge, Name, Type, Length, Width	Yes (New Limit) Old(In Progress)	CAD
10.	Roads	City Survey No., Name, ID, Type, No of Lanes, Usage Type ( NH / SH / Major / Minor / Lane / Slum-Road / 205 / 210), Length, Width	Yes	CAD
11.	Village Boundary	Boundaries of revenue villages, name, ownership details of villages	Yes	CAD
12.	Landuse	City Survey No. , Usage Type, Area	No	
13.	Survey No.s map	Boundary of Survey no., Survey No., Hissa No., sanctioned layouts, Ownership Details	Not Known	
14.	Gardens / Playgrounds	Boundary of existing gardens, area, City Survey no	No	
15.	Waterlines	Pipeline ID, Pipeline Type (Main / Branch / Artillery), Pipeline Pressure		
16.	Educational Institutes	City Survey No., Name, Type (Pre-Primary / Primary / Secondary / Higher Secondary / College), Run by (Private / Government), Ownership status, No. of Students, Electrical Connection (Yes / No), Water Connection (Yes, No), Playground (Yes, No), No. of Toilets	No	
17.	Hospitals	City Survey No., Name, Type (Nursing Home / Primary Health center / Hospital / Clinic), Ownership status (Government / Private), Carpet Area, No. of Permanent Doctors, No. of Visiting Doctors, No. of Nurses, No. of Beds, No. of Toilets	No	
18.	Fire Station	Name, Coverage Area	No	

### 3.5.2.2 GIS Functional Requirements

- The department could use GIS to view above listed layers so as to visualize the overlay of maps showing various infrastructure and service line network such as roads, water lines, telecom lines, drainage lines, etc. on Development plan along with the Buildings and Plot Boundaries.
- GIS can thus provide to view open plots along with their details when the Dept receives applications for Building Permissions
- GIS could be used to verify the location of plot over the Development Plan
- The dept. could use GIS to search plots or buildings with specific search criteria.
- GIS could be used to view the Town planning schemes and their details for plot allotments, view attributes related to construction activity on plots, etc.



### 3.5.3 Building Permission / Control

#### 3.5.3.1 GIS Data Requirements

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	PMC Boundary	PMC Boundary, Area	Yes	CAD
2.	Ward Boundary	Existing Boundary of the Wards, Ward Name, Area	Not Known	Ward Boundary
3.	Unit Boundary (New Limit)	Planning Unit No., Village Name , City Survey No. , Name, Area, ID	Yes	CAD
4.	Development Plan	City Survey No. , Revenue Village Name, Area, ID, Sector No., Type of Reservation (Existing Features / Zoning Proposals / Reservation for Government & Semi-Government Organizations / RTO / Fire Brigade / Housing Project / Traffic and Transportation / Open Spaces / Educational / Health / Commercial) Area, Reservation Sub-Type, ID, Reservation No, Owned by	Yes (New Limit) Old(In Progress)	CAD
5.	Modified DP	Modifications to the sanctioned DP, Area	No	
6.	Buildings	Building No. / Property ID, Name, Plot No., Address, No. of Floors, Sanction / Registration no., Date of Sanction, Commencement Certificate Date, Date of Completion of Construction, Date of Occupancy Certificate		
7.	Plot Boundaries	Plot No., Owner Name, Date of Allotment, Layout No. / Scheme Name (Any other Details)		
8.	Water Bodies	City Survey No. Name, Area, ID, Type, Capacity	Yes (New Limit) Old(In Progress)	CAD
9.	Railway Lines	City Survey No., Gauge, Name, Type, Length, Width	Yes (New Limit) Old(In Progress)	CAD

10.	Roads	City Survey No., Name, ID, Type, No of Lanes, Usage Type ( NH / SH / Major / Minor / Lane / Slum-Road / 205 / 210), Length, Width	Yes	CAD
11.	Village Boundary	Boundaries of revenue villages, name, ownership details of villages	Yes	CAD
12.	Landuse	City Survey No. , Usage Type, Area	No	
13.	Survey No.s map	Boundary of Survey no., Survey No., Hissa No., sanctioned layouts, Ownership Details	Not Known	
14.	Gardens / Playgrounds	Boundary of existing gardens, area, City Survey no	No	
15.	Waterlines	Pipeline ID, Pipeline Type (Main / Branch / Artillery), Pipeline Pressure		
16.	Educational Institutes	City Survey No., Name, Type (Pre-Primary / Primary / Secondary / Higher Secondary / College), Run by (Private / Government), Ownership status, No. of Students, Electrical Connection (Yes / No), Water Connection (Yes, No), Playground (Yes, No), No. of Toilets	No	
17.	Hospitals	City Survey No., Name, Type (Nursing Home / Primary Health centre / Hospital / Clinic), Ownership status (Government / Private), Carpet Area, No. of Permanent Doctors, No. of Visiting Doctors, No. of Nurses, No. of Beds, No. of Toilets	No	
18.	Fire Station	Name, Coverage Area	No	

### 3.5.3.2 GIS Functional Requirements

- The department could use GIS to view above listed layers so as to visualize the overlay of maps showing various infrastructure and service line network such as roads, water lines, telecom lines, drainage lines, etc. on Development plan along with the Buildings and Plot Boundaries.
- GIS can thus provide to view open plots along with their details when the Dept receives applications for Building Permissions
- GIS could be used to verify the location of plot over the Development Plan
- The dept. could use GIS to search plots or buildings with specific search criteria.

### 3.5.4 Census Department [Office of the Assistant Municipal Commissioner]

#### 3.5.4.1 GIS Data Requirements

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	PMC Boundary	PMC Boundary, Area	No	
2	Ward Boundary	Ward Boundary, Ward Name, Area, Population, Name of the Corporator	No	
3	Ward Offices	Name, Name of Ward Officer, Area under jurisdiction	No	
4	Survey No.s map	Ownership Details	No	
5	Block Boundary	City Survey No. , No. of Households, No. of People in the Age group of (Ex: 0-3, 3-6, 6-14 etc.), No. of Males, No. of Females, Income Sources, Income- Group, Total Population, Educational Details, Religion Details, Property Ownership, No. of Cattle, Type of Cattle, Age of Cattle, Milk Yielding (Yes / No), PMC employees details, etc.		
6	Roads	Name of Road, No. of Lanes, Dividers (Yes / No), Width of the road, Length of the road	No	
7	Buildings	Name of the building, Type of the building (Commercial / Residential), No. of floors, City Survey No, Owned By, Managed By	No	
8	Landmarks	Name, City Survey No., Ward Name	No	

#### 3.5.4.2 GIS Functional Requirements

- GIS could be used to generate a block boundary depending upon the criteria used to sub-divide a ward office into a block viz. No. of households specified by the government to create a block.
- Division of Wards into blocks OR aggregation of blocks to form new wards would need de-allocation OR allocation of their related Census information such as population, male-female ratio, literacy levels, etc. This de-allocation / allocation could be effectively achieved through the use of GIS geoprocessing functions.
- Using the various Census parameters, PMC could generate several thematic maps that could be used for Decision Making e.g. the population data for each ward / block can be used to generate 'Population Density' map. This resultant map could be overlaid with other layers pertaining to socio-physical infrastructure such as Public Utilities, Educational Institutes OR Water supply lines, Roads, etc. to analyze adequacy of such

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 132 of 181</b>
	<b>Requirement Assessment</b>	

resources in the wards / blocks.

- Similarly, based on Population data, thematic maps showing per capita demand such as that of water could be generated (based on standard per capita per day consumption of water for domestic / industrial use). This thematic map could be overlaid with Water Supply related layers such as Supply lines, Reservoirs, Sources of Water supply, etc. to assess the adequacy of water supply infrastructure and identify need for provision of the same where found inadequate.
- The Census data could be used very effectively to visualize the spatial distribution of various socio-economic parameters, which becomes an important input for Decision Making Processes.

### 3.5.5 Development Plan

#### 3.5.5.1 GIS Data Requirements

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	PMC Boundary	PMC Boundary, Area	Yes	CAD
2.	Sector Boundary (Old Limit)	City Survey Grid ID, Name, Area, ID	Yes	CAD
3.	Unit Boundary (New Limit)	Planning Unit No., Village Name , City Survey No. , Name, Area, ID	Yes	CAD
4.	Development Plan	City Survey No. , Revenue Village Name, Area, ID, Sector No., Type of Reservation (Existing Features / Zoning Proposals / Reservation for Government & Semi-Government Organizations / RTO / Fire Brigade / Housing Project / Traffic and Transportation / Open Spaces / Educational / Health / Commercial) Area, Reservation Sub-Type, ID, Reservation No, Owned by	Yes (New Limit) Old(In Progress)	CAD
5.	Water Bodies	City Survey No. Name, Area, ID, Type, Capacity	Yes (New Limit) Old(In Progress)	CAD
6.	Railway Lines	City Survey No., Gauge, Name, Type, Length, Width	Yes (New Limit) Old(In Progress)	CAD
7.	Roads	City Survey No., Name, ID, Type, No of Lanes, Usage Type ( NH / SH / Major / Minor / Lane / Slum-Road / 205 / 210), Length, Width	Yes	CAD
8.	Village Boundary	Boundaries of revenue villages, name, ownership details of villages	Yes	CAD
9.	Landuse	City Survey No. , Usage Type, Area	No	

10.	Survey No.s map	Boundary of Survey no., Survey No., Hissa No., sanctioned layouts, Ownership Details	Not Known	
11.	Gardens / Playgrounds	Boundary of existing gardens, area, City Survey no	No	
12.	Waterlines	Pipeline ID, Pipeline Type (Main / Branch / Artillery), Pipeline Pressure		
13.	Educational Institutes	City Survey No., Name, Type (Pre-Primary / Primary / Secondary / Higher Secondary / College), Run by (Private / Government), Ownership status, No. of Students, Electrical Connection (Yes / No), Water Connection (Yes, No), Playground (Yes, No), No. of Toilets	No	
14.	Hospitals	City Survey No., Name, Type (Nursing Home / Primary Health center / Hospital / Clinic), Ownership status (Government / Private), Carpet Area, No. of Permanent Doctors, No. of Visiting Doctors, No. of Nurses, No. of Beds, No. of Toilets	No	
15.	Fire Station Network	City Survey No., Name, Area	No	
16.	Modified DP	Modifications to the sanctioned DP, Area	No	
17.	Ward Boundary	Existing Boundary of the Wards, Ward Name, Area	Not Known	
18.	Public Utility	City Survey No. ,Name, Type ( Banks / Shops Educational Institutions / Sports Complex / Auditorium / PMC Offices and Public Toilets / Pathology Labs / Pharmacy / Telephone Exchange / Commercial Complex / Playgrounds, Cremation Grounds), Plinth Area, No. of Floors / Levels, Road ID	No	

### 3.5.5.2 GIS Functional Requirements

- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing Urban Land Use zones / reservations. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- The department requires to overlay the maps pertaining to various infrastructure and service line network such as roads, water lines, telecom lines, drainage lines, etc. on Development plan and / or City survey no.s to –

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 135 of 181</b>
	<b>Requirement Assessment</b>	

- Identify the reservation (if any) and the type of reservations in the area under consideration
- Identification of infrastructure and facilities (existing / proposed) viz. roads, water lines, existing schools and the likes on the map with corresponding information.
- GIS could be utilized for the above purpose to perform overlay analysis and attribute queries.
- GIS could be used for Landuse planning.
- GIS could be used to perform search operations to find the requested features.
- GIS based application could be used to send DP opinions to the concerned departments.

### 3.5.6 Drainage - Old Limit

#### 3.5.6.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Drainage Network	Line Type (Drainage Lines, Branch Line, Main Line, Trunk Line), Diameter, YOI, MR	Yes. Available for Pune City – Old Limit	AutoCAD
2	Treatment Plant			
3	Chambers	Reduce Level (RL), Type (Round/Square), YOI, MR	Yes. Available for Pune City – Old Limit	AutoCAD
4	Drainage Conveyance (Nalla)	Length, width, capacity.	No	-
5	Contour Map	Calculate Slope	No	-
6	River			
7	Development Plan			
8	Land Records	Survey No, Residents Information	No	-
9	Roads	Road Name	No	-
10	Water Supply	Pipe Line ID, Length	No	-
11	Electricity	Line ID, Length	No	-

#### 3.5.6.2 GIS Data Requirements:

- GIS data which would indicate the drainage lines, manholes and chambers and all such entities in the drainage network, needs to be developed with necessary attribute information as indicated in the table above
- Once GIS data is developed, tools and functions of GIS could be used for –
  - Condition based retrieval of information about drainage lines and displaying the same on digital map
  - Searching particular drainage features as required by using attribute information
  - Visualizing the alignment of drainage lines along with other utility networks like water supply, roads, electricity
  - Viewing drainage lines overlaid with plot / building boundaries, DP reservations or any other required information
  - Viewing drainage lines with different color / symbol as per their types



<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 137 of 181</b>
	<b>Requirement Assessment</b>	

- GIS based tools could be used for spatial queries to find out total length of drainage lines for a selected ward. This could be used in relation to ward wise allocation of funds for maintenance of drainage lines.
- 
- In case any complaints are received w.r.t. drainage lines, the status of such lines could be indicated through GIS maps. This would give a visual representation of all complaints received on the map along with their corresponding drainage lines. Such a view could be useful in prioritizing action plans for resolution of complaints.
- 
- Temporal data w.r.t. to when a drainage line was repaired OR when any maintenance work had been carried out on drainage lines could be managed through GIS. This would help generate GIS based reports such as 'show all the drainage lines on which maintenance work was carried out during the last month'. Similar queries specifying a required time period could be performed through GIS and reports could be generated. This activity would help in monitoring progress of work and allocation of funds for maintenance works.

### 3.5.7 Drainage- Project (Extended area)

#### 3.5.7.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Drainage Network	Status(Existing/Proposed), Line Type (Drainage Lines, Branch Line, Main Line, Trunk Line), Diameter, YOI, MR	Yes. Available for Pune City – Old Limit	AutoCAD
2	Treatment Plant	Status(Existing/Proposed), Capacity, YOI, MR	No	-
3	Chambers	Status(Existing/Proposed), Reduce Level (RL), Type (Round/Square), YOI, MR	Yes. Available for Pune City – Old Limit	AutoCAD
4	Drainage Conveyance (Nalla)	Status (Existing/Proposed), Length, width, capacity.	No	-
5	Pumping Station	Status(Existing/Proposed), Capacity, YOI, MR	No	-
6	Contour Map	Calculate Slope	No	-
7	River		No	-
8	Development Plan	Reservations	Yes	AutoCAD
9	Land Records	Survey No, Residents Information	No	-
10	Water Supply	Pipe Line ID, Length	No	-
11	Roads	Road Name	No	-

#### 3.5.7.2 GIS Functional Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- GIS could be used Plan (i.e. edit/mark the DP Layer) proposed locations to be reserved for drainage projects.
- GIS could be used to intimate Land Acquisition departments regarding the land plots to be acquired under drainage projects. Status of required acquisition can also be displayed using GIS map.
- GIS could be used to drainage network elements based on the following criteria:
  - Slope of the area. (Contour Layer)
  - STP near a river.
  - Drainage Network along proposed road network.
- GIS could be used to track progress of ongoing projects. Classification of such projects depending on the percentage completion can be displayed on the map.

### 3.5.8 Education Department

#### 3.5.8.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	Development Plan	Reservation areas, Types of reservations	No	
2	PMC Boundary	PMC Boundary, Area, Population	No	
3	Ward Boundary	Ward Boundary, Ward Name, Area, Population	No	
4	Ward Offices	Ward Offices Name, Area under jurisdiction	No	
5	Survey No.s map	City Survey No. and Ownership details	No	
6	Roads	Name of Road, No. of Lanes, Dividers (Yes/No), Width of the road, Length of the road	No	
7	Educational Institutes	Name of the School, School No., Address, No. of Classrooms, Type (Pre-Primary / Primary / Secondary / Higher Secondary / Technical), Run By (Private / PMC), Govt. Accreditation (Yes / No), No. of Students, No. of Teachers, No. of Girls, No. of Boys, Library (Yes / No), Water for Drinking Purposes (Available / Non-Available), Water for Sanitary Purposes (Available / Non-Available), No. of Toilets, No. of Urinals, Compound Wall Exists (Yes / No), Playground Exists (Yes / No)	Yes. Data about PMC-owned schools available.	
8	Slum	Name, Address, City Survey No., No. of households, No. of Males, No. of Females, No. of Children(Based on Age group), Income Sources, Family Income Caste Details, Population	Yes	
9	Fire Stations	Name, Address, Capacity, Ward Name	No	
10	Hospitals	Name, Type, Ward Name, Owned By, Managed By	No	

#### 3.5.8.2 GIS Functional Requirements:

- The department requires to view the maps pertaining to various infrastructure on Development plan and / or City survey no.s to –
  - Identify the reservation (if any) and the type of reservations in the area under consideration for proposing new schools.
  - Identification of PMC owned schools in a particular Ward with corresponding information.
- GIS could be used for finding out nearest hospital or fire station to a particular educational institute in the event of any mishap using the proximity analysis.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 140 of 181</b>
	<b>Requirement Assessment</b>	

- GIS could be used to perform search operations to find the requested educational institute or to find out all the schools owned by PMC etc.
- Thematic Maps using GIS could be generated for the number of children enrolled in schools in the age group of 6-14 years per ward and total number of students in the age group of 6-14 years in the entire city per ward etc. Such maps could help in assessing the type of programs to be incorporated to achieve the mission of SSA.
- GIS based application could be used to generate reports such “Show all the girls in the age group of 6-14 years in a ward” against “all the girls in the age-group of 6-14 years, enrolled in any school in the same ward” and the likes.  
Such kind of analysis could give an insight of the ground situation and can lead to drafting of an efficient plan at a faster pace to achieve the desired results.

### 3.5.9 Elections Department

#### 3.5.9.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Ward Maps	Name of Elected Member, Address of Elected member, Political Party Name, Population, Boundary Description.	No	-
2	Educational Institutions	Name	No	-
3	Public Utility	Name, Type (Mangal Karyalay / Ceremony Hall, etc.)		

#### 3.5.9.2 GIS Functional Requirements:

- Voters list survey errors like name duplication generally occur at ward boundaries. GIS can be used to resolve these survey errors arising in voters list.
- GIS can be used to display polling results.
- GIS can be used to identify facilities to be used as polling booths.

### 3.5.10 Electric

#### 3.5.10.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	Existing Roads	Name, Width, Length, Type of Road (Flexible Pavement / Concrete), Street Lights (Yes / No), Street Lights (Sides / Center)	No	
2.	HT Electrical Lines	Location, Length, Type	No	
3.	Street Light Network	Location, Road, Pole Type, Fitting Type, Arrangement Type, Bracket Type, Type (Street Light / Mast Pole), Fitting Wattage, Owned by, Maintained By	No	
4.	Development Plan	Proposed Roads	No	
5.	Ward Boundary	Ward Boundary, Ward Name, Area	No	
6.	Electrical Sub-station	Electrical Sub-station, Base Station, Transformer Locations	No	

#### 3.5.10.2 GIS Functional Requirements:

- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing works and also for monitoring status / progress of all the works under development. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- The department requires to view the maps pertaining to various infrastructure and service line network such as water lines, telecom lines, drainage lines, etc. on Development plan and / or City survey no.s to –
  - Identify the existing roads / Street lights / electrical sub-stations / electrical line network with corresponding information.
- GIS could be used to ‘Search’ a street light / electrical sub-station under scrutiny using spatial query.
- Reports such as ‘Show all the functional and non- functional street lights in a specified ward’ or ‘Show all the non-functional street lights in the entire city’ could be generated using GIS.
- Other GIS based reports could be generated using specific attributes of the street lights such as Pole Type, Fitting Type, Arrangement Type, Bracket Type, Type (Street Light / Mast Pole), Fitting Wattage, Owned by, Maintained By, etc. This could provide accurate information using combined queries to find out - for example, how many number of Poles; of what fitting / arrangement / bracket / type; are non-functional? A GIS based report would show locations of such poles (to be identified with a specified condition) along with their associated information.

### 3.5.11 Electric Pole Shifting

#### 3.5.11.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Ward Boundary	Ward Boundary	No	-
2	Road	Road Network, Proposed Road Widening.	No	-
3	Development Plan	Proposed Road Widening.	No	-
4	Garden	Area	No	-
5	Electric Poles	Location, No., Height		
6	Street Lights	Road Name, Pole Type (MS / GI), Fitting Type (Tube light / Sodium Vapour Lamp), Arrangement Type (Overhead / Underground), Bracket Type (Single / Double), Type (Street Light / Mast Pole), Fitting Wattage (70W/150W/250W/400W), Installation Date, Cost, Pole Ownership (PMC / MSEB), Maintained by (If owned by PMC), Last Painted Date		

#### 3.5.11.2 GIS Functional Requirements:

- GIS can provide the length information for preparation of estimate.
- An Overlay analysis of Development Plan can help to identify proposed road widening projects.
- GIS based application could be used to send standard notifications (in case applicable) to impacted departments.
- Identify service lines affected by pole shifting works.
- Identify type of road (Concrete / Tar).

### 3.5.12 Encroachment Department [as part of Dy. Municipal Commissioner (Special)]

#### 3.5.12.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	Roads	City Survey No., Name, ID, Type, No of Lanes, Usage Type ( NH / SH / Major / Minor / Lane / Slum-Road / 205 / 210), Length, Width	Not known	-

#### 3.5.12.2 GIS Functional Requirements:

- GIS could be used to view and identify the Roads with heavy traffic conditions or those declared as “No Hawkers” Zones
- A GIS based ‘Search’ facility could be used to locate such roads
- Complaints can be marked on map to show the exact location of encroachments on a selected road, which can be viewed by the Department staff at HO
- Locational details / information about encroachments can be stored in GIS such as when was the last removal of encroachment from this location, which hawkers’ group is involved at this location, etc.
- GIS based reports could be generated to show locations of all complaints received or where removal action has been taken in a specific time period, etc.



### 3.5.13 Fire Brigade

#### 3.5.13.1 GIS Functional Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	DP	Reservation areas, Types of Reservations	No	
2	PMC Boundary	PMC Boundary, Area	No	
3	Ward Boundary	Ward Boundary, Ward Name, Area	No	
4	Ward Offices	Ward Offices Name, Area under jurisdiction	No	
5	Survey No. s map	Ownership Details	No	
6	Traffic Signal	Traffic Signal Location ID, Road ID, City Survey No. Junction ID	No	
7	Flyovers	Name	No	
8	Roads	Name of Road, No. of Lanes, Dividers (Yes / No), Width of the road, Length of the road	No	
9	Fire Stations	Name, Capacity, Equipments Available, Manpower available, Vehicles available	No	
10	Water Hydrants	ID, Capacity, Existing Water Pressure	No	
11	Rivers (Water Bodies)	Name, Capacity, Existing Water level	No	
12	Well	ID, capacity, Existing Water level	No	
13	Tanks	ID, capacity, Existing Water level	No	
14	Industry	Name, Type of Industry, Raw Material used, Flammable Liquids used, Type of Machinery Used, Height of building, Industrial Area	No	
15	Landmarks	Name	No	
16	Hospitals	Name, Type, Height, Area, No. of Beds, Owned By, Managed By	No	
17	Commercial Complexes	Name, Height, Area, No. of Floors Owned By, Managed By	No	

#### 3.5.13.2 GIS Functional Requirements:

- GPS System Proposed
- The department requires to view the maps pertaining to various infrastructure on Development plan and / or City survey no.s to –
  - Identify the reservation (if any) and the type of reservations in the area under consideration for proposing new fire station locations.
  - Identify whether land required for road construction has been acquired or not
  - Identification of roads on the map, landmarks, water hydrants, hospitals, malls, flyovers and the likes with corresponding information.
- GIS could be used for locating / citing of fire stations using the site suitability analysis.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 146 of 181</b>
	<b>Requirement Assessment</b>	

- GIS could also be used to find out the nearest fire station to the site under consideration using the closest facility analysis. Similarly, the nearest hospital to place of accident can also be found using the same analysis.
- The most optimum route to the site could be suggested using the network analysis functionality in GIS.
- GIS could be used to locate the nearest water sources using the proximity analysis to cater to water requirements.
- The name of the ward in which the site under consideration exists could be easily identified by overlaying the survey map over the ward map.

### 3.5.14 Garden

#### 3.5.14.1 GIS Functional Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	PMC Boundary	PMC Boundary, Area	No	
2	Development Plan	Reservation areas, Type of Reservations	No	
3	Ward Boundary	Ward Boundary, Ward Name, Area	No	
4	Survey No. s map	Ownership Details	No	
5	Land use	City Survey No. , Usage Type, Area	No	
6	Waterlines	Pipeline Type (Main / Branch / Artillery), Pipeline Pressure	No	
7	Surface Drainage (Storm Water)	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length	No	
8	Drainage Lines (Underground)	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type (Primary, Secondary)	No	
9	Open Spaces	Name, Area, Equipments Available, Jogging Track (in kms.), Cultural center (Yes/No), Art Gallery (Yes/No), Pagoda (Yes/No), No. of toilet blocks, Species of trees / plants	No	
10	Playground	Name, Area, Equipments Available, Jogging Track (in kms.), No. of toilet blocks	No	
11	Gardens	Name, Area, Type, Species of trees/plants, Jogging Track (in kms.), Cultural center (Yes/No), Art Gallery(Yes/No), Pagoda(Yes/No), No. of toilet blocks	No	
12	Zoos	Name, Area, Type, Species of animals/reptiles, Species of Trees/Plants Cafeteria (Yes/No), No. of toilet blocks, Drinking Water(Yes/No)	No	

#### 3.5.14.2 GIS Functional Requirements:

- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing works and also for monitoring status / progress of all the works under development. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 148 of 181</b>
	<b>Requirement Assessment</b>	

- The department requires to view the maps pertaining to various infrastructure on Development plan and / or City survey no.s to –
  - Identify the reservation (if any) and the type of reservations in the area under consideration
  - Identify service lines which are near to the area under consideration to analyze the need to take a new connection from drainage department, electric department and water connection.
  - Identify whether land required for landscaping and beautification has been acquired or not.
  - Identification of gardens/playgrounds/open-spaces on the map (existing / proposed) with corresponding attribute information.
- GIS could be used to perform ‘Search’ operations to find the requested garden/ playground or open-space.
- GIS could be used to perform the analysis based on the existing terrain and existing land development whether joggers track development is possible or not.
- GIS could be used to generate reports like- ‘Show all the gardens developed between a specified duration’ or ‘Show all the gardens with a joggers track in the requested area’. These reports would show all the locations on the map with all the requested statistical data pertaining area under consideration. Such kind of queries would allow the engineers to propose development of a new garden/ open-space or a playground.

### 3.5.15 Health

#### 3.5.15.1 GIS Functional Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Development Plan	Reservation areas, Type of Reservations	No	
2	PMC Boundary	PMC Boundary, Area	No	
3	Ward Boundary	Ward Boundary, Ward Name, Area	No	
4	Survey No. s map	Ownership Details	No	
5	Hospitals	Name, Address, City Survey No. Owned By (PMC / Private), Managed By (PMC / Private), No. of Beds, No. of Doctors, Specialists, Population covered	Yes	Excel
6	T Units	Population Covered, New Sp Positive Cases, New Sp Negative Cases, Total TB cases, Pretreatment cases, Cure Rate (in %), Defaulter Rate (in %), Screening of Chest, SP Positivity, Number of Patients on DOT, Death Rate	Yes. Data is maintained per Quarter	Excel
7	Medical Colleges	Name, Address, City Survey No. Owned By, Managed By, No. of Beds, No. of Doctors, Specialist in,	Yes	Excel
8	Community Bins/	Bin ID, Ward Name, Location, Capacity	Yes	Excel
9	Slaughter Houses	Name, Address	No	
10	Slum	Name, No. of Households, No. of family members, income sources, income group	Yes	Excel
11	Roads	Name, Width, Length	No	

#### 3.5.15.2 GIS Functional Requirements:

- Network Analysis in GIS could be efficiently used to plan the optimum route between all the community bins across the city to the disposal sites so as to reduce the dead mileage and to cover the entire area effectively.
- GIS could also be used to generate the thematic maps to estimate the spread and concentration of the communicable diseases like TB and AIDS. Such maps could be used to develop a plan of action to keep the spread of diseases in check and also to precisely assess the requirement of drugs for the forthcoming quarter.
- GIS could be used to perform spatial query operations to locate the ward with maximum number AIDS patients or to perform attribute query to find out the total number of senior citizens per ward. Such queries could be found helpful in planning the activities for the next quarter.

### 3.5.16 JNNURM – BSUP

#### 3.5.16.1 GIS Data Requirement:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	DP Map	Reservations (EWS and Amenity Space)	No	
2	PMC Boundary	PMC Boundary, Area	No	
3	Survey No. s map	Ownership Details	No	
4	Water Supply Network	Pipeline ID, Pipeline Type (Main / Branch / Artillery), Pipeline Pressure	No	
5	Drainage (Surface) / Storm Water	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length,	No	
6	Drainage (Underground)	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type (Primary, Secondary)	No	
7	Roads	Name of Road, No. of Lanes, Dividers (Yes/No), Width of the road, Length of the road	No	
8	Slums	No. of Households, No. of family members per family	No	
9	Amenity Space	City Survey No., Area (in sq. m)	No	
10	Rivers	Name, Capacity, Existing Water level	No	
11	Encroachments	Area (in sq. m)	No	

#### 3.5.16.2 GIS Functional Requirement:

- Digital map layers for each of the above stated map layers with corresponding information as attribute information could be developed using GIS.
- According to the department, overlaying of DP map layer with other map layers could be useful to identify the following details-
  - The reservation (if any) and the type of reservations in the area under consideration
  - To identify if the land for the new venture has been acquired or not
  - To identify all the impacted service lines department
- GIS could be used for identifying locations suitable for construction of new societies for the urban poor and 'Otta' markets using the site suitability analysis.
- The 'Search' functionality in GIS could be used to locate all the available amenity spaces or EWS or slum areas across the city limits.

### 3.5.17 JNNURM- Roads

#### 3.5.17.1 GIS Data Requirement:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	PMC Boundary	PMC Boundary, Area	Yes	CAD
2.	Sector Boundary (Old Limit)	City Survey Grid ID, Name, Area, ID	Yes	CAD
3.	Unit Boundary (New Limit)	Planning Unit No., Village Name , City Survey No. , Name, Area, ID	Yes	CAD
4.	Development Plan	Reservation areas, Type of Reservations	Yes (New Limit) Old(In Progress)	CAD
5.	Survey No. s map	Ownership Details	Not Known	
6.	Existing Landuse	City Survey No. , Usage Type, Area	No	
7.	Existing Roads	Name of Road, Width of Road, Length of Road, Type of Road (Flexible Pavement / Concrete), Storm Water Line (Yes / No), Drainage Line (Yes / No), Water Line (Yes / No), MSEB Poles (Yes / No), MSEB Cables (Yes / No), Telephone Lines (Yes / No), Trees (Existing), Trees (Proposed), Dividers (Yes / No), Dividers Height, Dividers Width, Culvert (Yes / No), Bridges (Yes / No), Footpath (Yes / No), Footpath (One / Both sides), Footpath Width, Lane Marking(Yes/No), Cycle Track (Yes / No), Street Lights (Yes / No), Street Lights (Sides / Center), No. of Lanes (Yes / No), Date / Year of Contract, Resurfacing Date / Year, Name of Contractor (New), Name of Contractor (Resurfacing), Name of Concerned authority (JE), Name of Concerned authority (DYCE), Name of concerned authority (DE), Name of concerned authority (Add. CE), Name of concerned authority (Add. CE), Status (Existing / Proposed)	No	

9.	Waterlines	Pipeline ID, Pipeline Type (Main / Branch / Artillery), Pipeline Pressure	No	
10.	Railway Lines	Gauge, Name, Type, Length, Width	No	
11.	Traffic Signal	Traffic Signal Location ID, Road ID, Junction ID	No	
12.	Drainage Lines (Surface)/ Storm Water	Type(Natural/Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length,	No	
13.	Drainage Lines (Underground)	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type (Primary, Secondary)	No	
14.	Manholes	Type (Chamber / Manhole), Diameter, Depth	No	
15.	Bridges / Flyovers / Culverts / Sub-Ways	Name, Type (Railway / Road Bridge / Flyover / Over Bridge / Culvert / Sub-Way	No	
16.	Telephone Network	Line ID, Cable Type, Authorization (BSNL/MTNL/TATA/AT&T/Others)	No	
17.	Telephone Mobile Towers	Tower Location (Open-Land / Building), Building Name, Agency Name (Reliance / Tata / Hutch / BPL, etc.)	No	
18.	Gardens / Playground	Name, Area, Type	No	
19.	Encroachment	Encroachment Area, Type	No	

### 3.5.17.2 GIS Functional Requirement:

- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing works and also for monitoring status / progress of all the works under development. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- There is a need to send standard notification to all the departments in case a particular road / service line is being dug.
- The department requires to view the maps pertaining to various infrastructure and service line network such as water lines, telecom lines, drainage lines, etc. on Development plan and / or City survey no.s to –
  - Identify the reservation (if any) and the type of reservations in the area under consideration
  - Identify service lines which fall in the area under consideration (service which will be impacted due to project work)
  - Identify whether land required for road construction has been acquired or not
  - Identification of roads on the map (existing / proposed) with corresponding information.
- GIS based application could be used to send standard notifications (in case applicable) to impacted departments.



### 3.5.18 JNNURM- SRA

#### 3.5.18.1 GIS Data Requirement:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Slums	Area of slum, socio-economic data of slums, No. of households, No. of ration card holders, Population	Available	Geomedia format
2	Development Plan	Reservations overlapping Slum area.	No	-
3	Land & Estates	Lands acquired by PMC or identify lands to be proposed for rehabilitation	No	

#### 3.5.18.2 GIS Functional Requirement:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- GIS could be used to perform query based analysis to assess the no. of households in the slums or no. of ration card holders in the slum under consideration.
- GIS can be used to overlay DP maps over slum areas so as to identify slum area overlapped by DP projects
- Generate report for the number of slum dwellers needed to be rehabilitated
- Calculate the area required for rehabilitation

Version No: Draft	Pune Municipal Corporation	Page 154 of 181
	Requirement Assessment	

**3.5.19 Kothi Karyalaya Development Engineer**  
**- NOT APPLICABLE -**

### 3.5.20 Land Acquisition

#### 3.5.20.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Roads	Width of proposed / to be widened Road, Name of Road	Not known	
2	Water Supply Network		Not available	
3	Drainage Network		Not known	
4	Development Plan	Reservation areas, type of reservations	Not known	
5	Revenue village boundaries	Boundaries of revenue villages, name, ownership details of villages	Not known	

#### 3.5.20.2 GIS Functional Requirement:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- The department requires to overlay the maps pertaining to various infrastructure such as roads, water / drainage network, etc. on Development plan and / or City survey no.s to –
  - Identify lands to be acquired (lands which will be impacted due to acquisition)
  - Compute the area of the land to be acquired
  - Identify which Survey no.s are impacted and get the ownership details of those survey no.s
- GIS based application could be used to send standard notifications (in case applicable) to impacted owners
- Prioritization: For Lands to be acquired – GIS could be used to assess the accessibility of lands to be acquired, assess the traffic volume on Roads and thereby identify the need for widening of roads
- Generate GIS based Reports showing Lands acquired within a certain time period (defined by start and end date)

### 3.5.21 Land and Estates

#### 3.5.21.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Roads	Width of proposed / to be widened Road, Name of Road	Yes. Available for proposed roads as per DP reservations	AutoCAD
2	Water Supply – Treatment Plant locations	Plant ID, Area of the plant	Not known	
3	Sewage – Treatment Plant locations	Plant ID, Area of the plant	Not known	
4	Gardens / Open Spaces	Area of Garden to be developed, PMC Owned or not	Available for proposed gardens in DP reservations. Attribute data not available.	AutoCAD
5	Amenities / Parking spaces	Area required for amenity, type of amenity, parking area required	Not known	
6	Development Plan	Reservation areas, type of reservations	Yes	AutoCAD
7	Survey No.s map	Boundary of Survey no., Survey No., Hissa No.	Not known	
8	Revenue village boundaries	Boundaries of revenue villages, name, ownership details of villages	Available for extended area and for lands acquired. Attribute data not available.	AutoCAD
9	Buildings	Building Name, ID, Address details, PMC Owned or Not, Date of Possession by PMC, Allotted to, Date of Allotment, Allotted till, Rent Amount, Rent Paid till		

Version No: Draft	Pune Municipal Corporation	Page 157 of 181
	Requirement Assessment	

### 3.5.21.2 GIS Functional Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- The department requires to overlay the maps pertaining to various infrastructure such as roads, water / sewage treatment plants, gardens, amenities, etc. on Development plan and / or City survey no.s to –
  - Identify lands to be acquired (lands which will be impacted due to acquisition)
  - Compute the area of the land to be acquired
  - Identify which Survey no.s are impacted and get the ownership details of those survey no.s
- GIS could be utilized for the above purpose to perform overlay analysis and attribute queries.
- GIS based application could be used to send standard notifications (in case applicable) to impacted owners
- The department requires following GIS based functionalities with respect to Estates-
  - Generate query based reports to find out all properties where TDR has been applied and identify corresponding properties to which TDR has been transferred
  - Generate GIS based reports such as –
    - Show locations of all PMC owned estates (with categories of Open spaces and constructed structures)
    - Show all PMC estates which are currently being used – which are being leased out for short / long term occupation / usage
    - Show PMC estates whose possession has been taken by PMC between a specified time period (given by date range)
    - Show estates which have been allotted for usage / occupation between a specified time period (given by date range) and show details of allotment (to whom it has been allotted, from date, till date, rent details, rent payment details including date of payment, due date of payment, etc.)

### 3.5.22 Nagar Wasti Vikas Yojana

#### 3.5.22.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Slum Drainage	Existing Slum Drainage Network	No	-
2	Slum Roads	Road network	No	-
3	Water Supply	Location of water supply lines. Location of proposed water lines.	No	-
4	Slum	Declared/Non-Declared, Schemes, date of scheme, end date of scheme, sanction under scheme.		

#### 3.5.22.2 GIS Functional Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- GIS can be used to identify notified/non-notified slums.
- GIS can be used to identify the date on which the scheme started in a particular slum, the date on which the scheme ended (if applicable) and the amount sanctioned under the scheme.

### 3.5.23 Octroi

#### 3.5.23.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Octroi post	Octroi Post (Naka) name, Daily Collection Record (Date-wise), Maintenance Record, Year of Installation. Employee Details like Employee Name, Contact Information, Designation (Senior / Junior clerk, peon, Guard), Shift (D1, D2, D3)	No	-
2	Roads	Road Network	No	-
3	City Limit	Some posts are within city limit while others are at border, therefore a layer depicting city limits	No	-

#### 3.5.23.2 GIS Functional Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- GIS could be used as a point and click interface to the MIS. MIS reports pertaining to the selected Octroi post should be available.
- GIS could be used to classify Octroi posts on the following basis
  - Shift wise Daily Amount collection
  - Monthly and Annual collection
  - Octroi posts lagging behind target collection (in percentage)
  - Number of cases with difference between actual amount and deposited amount.

### 3.5.24 PMPML

#### 3.5.24.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Road	Road network		
2	BRTS Routes	BRTS Route ID, Bus No., Stoppages, Frequency (Schedule), No. of Daily Trips		
3	Bus-Stop	Type (Bus-Stop / Bus-Stand), Bus-Number, From Bus Stop, To Bus stop		
4	Bus-Depot	Type (BRTS / Regular), Terminals, Number of bus-stops, Bus-Number, Pass-Centre (availability), Maintenance Facility (availability)		
5	Development Plan	Proposed Roads for planning and prioritizing, Existing and Proposed Industrial Area.		
6	Educational Institutions	Schools (Private / Government), Colleges (Private / Government)		
7	Recreational Centers	Cinema Hall, Theatres, Mangal Karyalay, Gardens.		
8	Land Records and Estates	Commercial Complexes, Vacant Plots.		
9	Railway Stations	Major / Minor station		
10	ST-Stands	Location		

#### 3.5.24.2 GIS Functional Requirements:

- GIS could be used to identify new locations for bus-stops/bus-stands.
- An overlay analysis of development plan over existing road network can help in identifying, planning, and prioritizing route survey.
- An overlay analysis of Land and Estate layer can help identify vacant plots for shelter bus stops. In addition, commercial complexes can be potential locations for bus-stops. And that of Educational Institutes and Recreational Centers can help identify potential locations for bus stops.
- Network Analysis features of GIS could be used for Routing and Trip Planning. The Origin-Destination survey findings could be visualized in GIS for study & analysis of existing movement pattern of citizens between various origins & destinations and decision making in terms of identifying the need for new routes, trip planning (frequency planning), etc.



### 3.5.25 Property Tax

#### 3.5.25.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Buildings	Building Id, Building Name, Property ID, Plinth Area, Number of Floors, Owner Name, Address, Construction Type (RCC / Load Bearing / Slum / Other), Year of Completion, Type (Apartment / Bungalow / Chawl), Usage (Residential / Non Residential / Mixed), Type of public utility, Dilapidated (Y/N), Private Or PMC Owned	Map Data is available but requires assessment for reusability. The attribute information mentioned is not available / needs to be checked for availability.	Unknown
2	Revenue Village Boundaries	Boundaries of Revenue villages, name, ownership details of villages	No	No
3	Property Ready Reckoner	Survey No, Revenue Village Name, Area, Rate	Data is available but requires assessment for usability.	Unknown
4	Zones	Zone ID (Bhag Kramank)	No	No
5	Plot Boundaries	Plot ID, Property ID, Owner's Name, Address, Road Name, Private or PMC Owned	Data is available but requires assessment for reusability	Unknown
6	Roads	Road Name	No	No

#### 3.5.25.2 GIS Functional Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- GIS Could be used to
  - Display all dilapidated buildings.
  - Display all buildings not assessed so far.
  - Display all the buildings paying tax only after a certain period of time or for the first time.
  - Display defaulters in a given date range.
  - Classify zones on basis of collection.
  - Classify zones on basis of defaulters
  - Highlight properties on basis of year of construction.
  - Display all the newly added buildings within specified date range
  - Classification of buildings based on ARV
- Integration with existing property tax web application to display the property on the map.

### 3.5.26 Roads

#### 3.5.26.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	Roads	Name of Road, Width of Road, Length of Road, Type of Road(Flexible Pavement/ Concrete), Storm Water Line (Yes/No), Drainage Line(Yes/No), Water Line(Yes/No), MSEB Poles(Yes/No), MSEB Cables(Yes/No), Telephone Lines(Yes/No), Trees(Existing), Trees(Proposed), Dividers(Yes/No), Dividers Height, Dividers Width, Culvert(Yes/No), Bridges(Yes/No), Footpath(Yes/No), Footpath(One/Both sides), Footpath Width, Lane Marking(Yes/No), Cycle Track(Yes/No), Street Lights(Yes/No), Street Lights(Sides/Center), No. of Lanes(Yes/No), Date/Year of Contract, Resurfacing Date/Year, Name of Contractor(New), Name of Contractor (Resurfacing), Name of concerned authority (JE), Name of concerned authority (DYCE), Name of concerned authority (DE), Name of concerned authority (Add. CE), Name of concerned authority (Add. CE), Status(Existing/Proposed)	Yes	Google Imageries
2.	Development Plan	Reservation areas, Type of Reservations	No	
3	Ward Boundary	Ward Boundary, Ward Name, Area	No	
4	Survey No. s map	Ownership Details	No	
5	Landuse	City Survey No. , Usage Type, Area	No	
6	Waterlines	Pipeline ID, Pipeline Type(Main/Branch/Artillery), Pipeline Pressure	No	

7	Railway Lines	City Survey No., Gauge, Name, Type, Length, Width	No	
8	PMC Boundary	PMC Boundary, Area	No	
9	Sector Boundary (Old Limit)	City Survey Grid ID, Name, Area, ID	No	
10	Unit Boundary (New Limit)	Planning Unit No., Village Name , City Survey No. , Name, Area, ID	No	
11	Traffic Signals	Traffic Signal Location ID, Road ID, City Survey No. Junction ID	No	
12	Drainage Lines (Surface) / Storm Water Drainage	City Survey No., Type(Natural/Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length,	No	
13	Drainage Lines (Underground)	City Survey No., Type(Natural/Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type(Primary, Secondary)	No	
14	Manholes	City Survey No. , Type(Chamber/ Manhole), Diameter, Depth	No	
15	Bridges / Flyovers / Culverts / Sub-Ways	City Survey No., Name, Type(Railway/Road Bridge/Flyover/Over Bridge/Culvert/Sub-Way	No	
16	Telephone Network	City Survey No., Line ID, Cable Type, Authorization (BSNL/MTNL/TATA/AT&T/Others)	No	
17	Telephone Mobile Towers	Tower Location (Open-Land/Building), Building Name, Agency Name (Reliance/Tata/Hutch/ BPL, etc.)	No	
18	Gardens / Playground	City Survey No., Name, Area, Type	No	
19	Encroachment	Encroachment	No	

### 3.5.26.2 GIS Functional Requirements:

- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing works and also for monitoring status / progress of all the works under development. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- There is a need to send standard notification to all the departments in case a particular road / service line is being dug.
- The department requires to view the maps pertaining to various infrastructure and service line network such as water lines, telecom lines, drainage lines, etc. on Development plan and / or City survey no.s to –

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 164 of 181</b>
	<b>Requirement Assessment</b>	

- Identify the reservation (if any) and the type of reservations in the area under consideration
- Identify service lines which fall in the area under consideration (service which will be impacted due to project work)
- Identify whether land required for road construction has been acquired or not
- Identification of roads on the map (existing / proposed) with corresponding information.
- GIS could be utilized for the above purpose to perform overlay analysis and attribute queries.
- GIS could be used to perform 'Search' operations to find the requested road or road related infrastructure.
- GIS based application could be used to send standard notifications (in case applicable) to impacted departments.

### 3.5.27 Sky Signs Department

#### 3.5.27.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	Roads	City Survey No., Name, ID, Type, No of Lanes, Usage Type ( NH / SH / Major / Minor / Lane / Slum-Road / 205 / 210), Length, Width	Not known	-
2.	Locations of Advertising Boards	Type of Advertising Board (Illuminating / Non-illuminating), Height of the Board, Dimensions, Name of Road, Applicant Name, Other parameters	Not Available	-
3.	Locations of Machinery Applications	Type of Machinery applied for, Area of the Space, Name of Owner, etc.	Not Available	-

#### 3.5.27.2 GIS Functional Requirements:

- Locations of Advertising Boards and Machinery can be created using GIS and their associated attribute information could be stored and managed through GIS
- A GIS based 'Search' facility could be used to locate Boards and Machinery
- GIS based reports could be generated to show locations of all boards / Machinery that have been granted licenses / permits in a specific time period, etc.

### 3.5.28 Slum

#### 3.5.28.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Slums	Area of slum, socio-economic data of slums, No. of households, No. of ration card holders, Population	Available	Geomedia format
2	Development Plan	Reservations overlapping Slum area.	No	-
3	Roads	Width of proposed / to be widened Road, Name of Road	No	-
4	Water Supply	Location of water supply lines. Location of proposed water lines.	No	-
5	Land & Estates	Lands acquired by PMC or identify lands to be proposed for rehabilitation		
6	Electricity	Location of service lines.	No	-
7	Drainage	Location of Drainage main lines.	No	-
	Slum Drainage	Existing Slum Drainage Network, YOI, MR, Installing Department (ward off/slum dept.).	No	-
8	Slum Roads	RCC Roads, RCC Roads to be constructed, Year of Installation (YOI), Maintenance Records (MR), Installing Department.	No	-

#### 3.5.28.2 GIS Functional Requirements:

- GIS could be used to perform query based analysis to assess the sufficiency of Infrastructure in the slums e.g. show all those slums, which do not have hand-pumps / water taps / water connection or show all slums where no concrete roads exist

### 3.5.29 Traffic Planner

#### 3.5.29.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Existing Roads	Type of Road (Tar/CC/ Kaccha), Arterial Road (Lanes/ ByLanes), Width of Road (Existing and Proposed), Footpath (One/Both sides), Footpath Texture, Railing (Yes/No), Road Divider (Yes/No), Type of Divider (Parabolic / Small), Name of Road, Adjoining Survey Numbers, Length of Road, Ward Number, Traffic (One/Two way), Parking (Yes/No), Parking (Free/Paid), Cycle Tracks (Yes/No), Jurisdiction (PMC/KCB/PCB), Closed for Traffic (Yes/No), Cycle Tracks (Yes/No), Speed Breakers (Yes/No), No. of Lanes	Yes. Available for the specific areas on which the work was carried out.	AutoCAD
2	Junctions	Island (Yes/No), Traffic Signal (Yes/No), Name of the junction, Regular / Skewed, No. of Arms (Square/T)	No	
3	Street Light Network	Location, Road, Pole Type, Fitting Type, Arrangement Type, Bracket Type, Type (Street Light / Mast Pole), Fitting Wattage, Owned by, Maintained By	No	
4	Development Plan	Reservation areas, Type of Reservations, Markings on Site	No	
5	Ward Boundary	Ward Boundary, Ward Name, Area	No	
6	Survey No.s map	Ownership Details	No	
7	Existing Land – use	Usage Type, Area	No	
8	Existing Waterlines	Pipeline ID, Pipeline Type (Main / Branch / Artillery), Pipeline Pressure	No	
9	Existing Railway Lines	Gauge, Name, Type, Length, Width	No	
10	PMC Boundary	PMC Boundary, Area	No	
11	Sector Boundary	Name, Area	No	

12	Unit Boundary (New Limit)	Planning Unit No., Village Name , Name, Area, ID	No	
13	Existing Traffic Signals	Traffic Signal Location ID, Road ID, Junction ID	No	
14	Existing Drainage Lines(Surface) / Storm Water	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length,	No	
15	Existing Drainage Lines (Underground)	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type (Primary, Secondary)	No	
16	Existing Manholes	Type (Chamber / Manhole), Diameter, Depth	No	
17	Existing Bridges / Flyovers / Culverts / Sub-Ways	Name, Type (Railway / Road Bridge / Flyover / Over Bridge / Culvert / Sub-Way)	No	
18	Existing Telephone Network	Line ID, Cable Type, Authorization (BSNL / MTNL / TATA / AT&T / Others)	No	
19	Existing Telephone Mobile Towers	Tower Location (Open-Land/Building), Building Name, Agency Name (Reliance / Tata / Hutch / BPL, etc.)	No	
20	Gardens / Playground	Name, Area, Type	No	

### 3.5.29.2 GIS Functional Requirements:

- Integration with ITS (Intelligent Traffic System) preferred
- According to the department, a common updating facility - for all the departments for all the works carried out (repository of all the works) - should be created through GIS.
- There is a need for GIS Data Development (Standard Base Map) to indicate all the proposed and existing works and also for monitoring status / progress of all the works under development. GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- The department requires to view the maps pertaining to various infrastructure and service line network such as water lines, telecom lines, drainage lines, etc. on Development plan and / or City survey no.s to –
  - Identify the reservation (if any) and the type of reservations in the area under consideration
  - Identify service lines which fall in the area under consideration (service which will be impacted due to project work)
  - Identify whether land required for road construction has been acquired or not
  - Identification of roads on the map (existing / proposed) with corresponding information.



<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 169 of 181</b>
	<b>Requirement Assessment</b>	

- GIS could be utilized for the above purpose to perform overlay analysis and attribute queries.
- GIS could be used to perform ‘Search’ operations to find the requested Traffic Planning related infrastructure.
- GIS based application could be used to send standard notifications (in case applicable) to impacted departments.

### 3.5.30 Up- Aayukta Karyalay (Ward Office)

#### 3.5.30.1 GIS Data Requirements:

#	Maps / Layers	Information Required/ to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1.	DP Map	Reservation areas, Type of Reservations	No	
2.	PMC Boundary	PMC boundary, Area, Population	No	
3.	Ward Offices Boundary	Ward Office Boundary, Area, Population	No	
4.	Survey No.s map	Ownership Details, Survey No.	No	
5.	Bridges	Name, Type (Railway / Road Bridge / Flyover / Over Bridge / Culvert / Sub-Way)	Yes	CAD
6.	Bus stop	Name, Ward Name, City Survey No.	Yes	CAD
7.	Contour	Topography Details, Contour Interval	Yes	CAD
8.	Drainage line network	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length, Chamber ID, Pipeline Type (Primary, Secondary)	Yes	CAD
9.	Dustbin / Containers	Capacity, Ward Office Name	Yes	CAD
10.	Electric Poles	Pole Id, Ward Office Name	Yes	CAD
11.	Man-Holes	Type ( Chamber / Manhole), Diameter, Depth	Yes	CAD
12.	PMC owned buildings	Name, No. of Floors, Type of building(Ex: Educational/ Hospital/Offices/Parking spaces)	Yes	CAD
13.	Railway lines	Gauge, Name, Type, Length, Width	Yes	CAD
14.	Storm Water lines	Type (Natural / Constructed), Width, Depth, Pipeline Conduit Diameter, Pipeline Conduit Length	Yes	CAD
15.	Telephone Lines Network	Line ID, Cable Type, Authorization (BSNL / MTNL / TATA / AT&T / Others)	Yes	CAD
16.	Landmarks	Name, No. of Floors, Name of the road ,Owned by	Yes (Partially)	CAD
17.	Toilet blocks	No. of toilets / bathrooms, Owned by, Managed by	Yes	CAD
18.	Water ponds / wells / Nallahs	Capacity, Category (Man-made / Natural),Type (Water ponds / Wells / Nallahs)	Yes	CAD
19.	Buildings	Name, Type (Residential / Commercial), Owned by, Managed by, No. of Floors	No	CAD
20.	Slum	Name, Area, No. of Households, Authorized / Non-Authorized, No.	Yes	CAD

21.	Roads	Name, width, footpath (Yes / No), Road Dividers (Yes / No), Height of Road Dividers, Traffic signal (Yes / No)	No	Statistical Report
22	Proposed Roads	Proposed Name, footpath (Yes / No), Road Dividers (Yes / No), Height of Road Dividers, Traffic signal (Yes / No)	No	

### 3.5.30.2 GIS Functional Requirements:

- The department requires to view the maps pertaining to various infrastructure on Development plan and / or City survey no.s to –
  - Identify the reservation (if any) and the type of reservations in the area under consideration for proposing new schools.
  - Identify service lines which fall in the area under consideration
  - Identify the land has been acquired or not
  - Identify existing facilities like schools/hospitals/cremation grounds and the likes.
  - Identification of roads on the map (existing/proposed), bridges, railway lines etc. with corresponding information.
- GIS could be used to perform search operations to find the requested infrastructure or may be to find out the dustbin located in a particular locality or an electric pole in question.
- GIS could also be used to identify pipes to be replaced or to be repaired or to draw new water supply and drainage connections.
- GIS based analysis could be used to suggest an optimum path to collect the garbage to reduce the dead mileage.
- GIS could be used to perform query based analysis to assess the sufficiency of infrastructure in the slums e.g. show all those slums, which do not have water connection.
- GIS based application could be used to generate reports viz.
  - “Show all the dustbin locations in a specified area” or
  - “Show all the slums under a specified ward office” or
  - “Show the no. of households in a specified Ward which have been renovated in the past one year” or
  - “Show all the drainage lines passing through a particular ward or
  - “Show all the water connections given in a specified time period”
  - “Show all the Drainage NOC / Water NOC / Light NOC given within specific time duration” etc.
- Such kind of analysis could help in assessing the requirement for example:
- To increase the number of dustbins in the area in question in case the garbage produced exceeds the estimated quantity used while planning; Water/ Electricity requirement can be estimated when such results are coupled with other relevant information, also the number of slum dwellers dwelling in unsafe zones can be identified through such analysis and then arrangements for their rehabilitation can be suggested to the concerned departments.

Version No: Draft	Pune Municipal Corporation	Page 172 of 181
	Requirement Assessment	

### 3.5.31 Vehicle Depot

- NOT APPLICABLE -

### 3.5.32 Water supply

#### 3.5.32.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Supply Line	ID, Name, Type, From Valve, To Valve, Diameter, Length, Thickness, Material, Pressure, Discharge (volume of water), Delivery Time, Year of Installation (YOI), Maintenance Record (MR), Status (functioning / non-functioning)	No	No
2	Reservoir	Name, Capacity, Highest Supply Level, YOI, MR	No	No
3	Valves	ID, Type (Pressure Release, Air Release, Discharge), Diameter, Mode of Operation (automatic / manual), Location (Name of area), Name of Valve Operator, Number of Threads in operation, Time of Opening, Time of closure, YOI, MR	No	No
4	Pumping Stations	Name, Time of Operation, Time of Closure, Name of operator, Number of pumps, Discharge capacity	No	No
5	Road (Type)	Name, Type of road	No	No
6	Ward Boundary	Name, Name of Corporator, Ward number	No	No
7	Contour	Value of contours	No	No
8	Maintenance Record (Non-Spatial)	Name of Contractor, Date of work order, Period of completion, Amount paid, Amount balance, Progress of work (details)	No	No

#### 3.5.32.2 GIS Functional Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information
- GIS could be used to identify pipes to be replaced or repaired.
- GIS could be used to draw new water supply connections
- GIS could be used to identify length of pipe line to be laid or replaced. This length can be further used for estimation of cost for laying the pipeline

<b>Version No: Draft</b>	<b>Pune Municipal Corporation</b>	<b>Page 174 of 181</b>
	<b>Requirement Assessment</b>	

- GIS could be used to identify roads and service lines affected by maintenance works
- GIS could be used to generate reports like ‘Show all Water Connections provided’ within a specified time period
- GIS can be used to search and display pipelines using maintenance records based on specific condition like ‘Show pipelines installed between a specified time period’

### 3.5.33 Water supply-Project (Extended area)

#### 3.5.33.1 GIS Data Requirements:

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1	Supply Line	ID, Status (Operational/Proposed), Name, Type, From Valve, To Valve, Diameter, Length, Thickness, Material, Pressure, Discharge (volume of water), Delivery Time, Year of Installation (YOI), Maintenance Record (MR), Status (functioning / non-functioning)	No	No
2	Reservoir	Name, Status(Operational/Proposed) Capacity, Highest Supply Level, YOI, MR	No	No
3	Valves	ID, Status (Operational/Proposed),Type (Pressure Release, Air Release, Discharge), Diameter, Mode of Operation (automatic / manual), Location (Name of area), Name of Valve Operator, Number of Threads in operation, Time of Opening, Time of closure, YOI, MR	No	No
4	Pumping Stations	Name, Status (Operational/Proposed), Time of Operation, Time of Closure, Name of operator, Number of pumps, Discharge capacity	No	No
5	Road (Type)	Name, Type of road	No	No
6	Ward Boundary	Name, Name of Corporator, Ward number	No	No
7	Contour	Value of contours	No	No

8	Maintenance Record (Non-Spatial)	Name of Contractor, Date of work order, Period of completion, Amount paid, Amount balance, Progress of work (details)	No	No
9	Treatment Plant	Capacity, Status (Operational/Proposed),	No	No
10	River	Name	No	No
11	Land Records	Survey No, Residents Information	No	No
12	Development Plan	Reservations	Yes	AutoCAD

#### 3.5.33.2 GIS Data Requirements:

- GIS could be used to create digital map layers listed above with the corresponding information required for each map layer as its attribute information.
- GIS could be used Plan (i.e. edit/mark the DP Layer) proposed locations to be reserved for Water Supply projects. The proposed road network can also provide reference for proposed water pipelines.
- GIS could be used to intimate Land Acquisition departments regarding the land plots to be acquired under Water Supply projects. Status of required acquisition can also be displayed using GIS map.
- Contour maps can provide slope of the area.
- GIS could be used to track progress of ongoing projects. Classification of such projects depending on the percentage completion can be displayed on the map.



Version No: Draft	Pune Municipal Corporation	Page 177 of 181
	Requirement Assessment	

### **3.6 Other Requirements:**

#### **3.6.1 Integration with existing systems**

PMC has several applications of which some are web applications available through the PMC website whilst some are desktop applications. For an Enterprise GIS Implementation, it would be required to optimally use the existing data being used and processed by these existing applications. Also, it would be required that these applications be interfaced with the proposed Enterprise GIS system.

Before undertaking integration of the existing system there is a need to study the feasibility of all or some of the systems with regard to integration. Under this feasibility study it would be assessed whether the existing systems and the proposed GIS could be compatible in terms of development platform, industry standard communication protocols, and usage of common databases.

Existing applications / systems at PMC are:

1. CFC
2. BPAMS
3. WMS
4. Octroi MIS
5. Property Tax web module
6. Sky License web module
7. Health License web module

## Annexure – I:

The list of Departments interviewed (RA Meetings / workshops held with) in alphabetical order is as under –

# No.	Department	Associated Department if any
1	Bhavan	
2	BSUP- Basic Services for Urban Poor	
3	Building Permission (Fast Track)	
4	Building Permission / Control	
5	Census Department [as part of the Office of the Assistant Municipal Commissioner]	
6	Computer Department	
7	Development Plan	
8	Drainage- Old Limit	
9	Drainage- Project (Extended area)	
10	Education Department	Including Education Officer (Primary & Technical Institutes)
11	Elections Department	
12	Electric	
13	Electric Pole Shifting	
14	Encroachment Department [as part of Dy. Municipal Commissioner (Special)]	
15	Fire Brigade	
16	Garden	Parks and Zoos
17	Health	Other Health Depts., Consultants, Hospitals and Clinics
18	JNNURM- Roads	
19	JNNURM- SPD	
20	JNNURM- SRA	
21	Kothi Karyalaya Development Engineer	
22	Land Acquisition	
23	Land and Estates	Including Chawls, Stadiums / Sports Complex, Theatres, Recreation Centers, Vegetable Markets, Prisons
24	Nagar Wasti Vikas Yojana	
25	Octroi	
26	PMPML	
27	Property Tax	
28	Roads	
29	Sky Signs Department	
30	Slum	
31	Traffic Planner	
32	Up- Aayukta No- 1 (Mr. Jagtap Sir)	
33	Vehicle Depot	
34	Water supply	
35	Water supply-Project (Extended area)	

Version No: Draft	Pune Municipal Corporation	Page 179 of 181
	Requirement Assessment	

## Annexure – II:

The Questionnaire used for capturing Requirements from User Groups / Departments:

### Questionnaire for the PUNE MUNICIPAL CORPORATION Software Requirement Specifications (SRS) for GIS Implementation

Department Name: < Name of the User Department >	Date:< Date of Meetings >
Head of the Department: < Name of the HOD >	
Meeting Held with: < Name of the nominated person(s) >	
No of Expected Users:< Expected number of Technical Staff >	

<b>Existing Departmental Structure: (with No. of Staff)</b>
< Include hierarchical structure of the department – only pertaining to Technical Staff > - <i>This section intended to understand the existing manpower of the department with hierarchy so as to identify various categories Users which would have respective rights and privileges.</i>
<b>Municipal (Development / Maintenance) Functions of Department:</b>
< List out all the functions of the department > - <i>This section is intended to bring out the nature work and responsibilities that a department is entrusted with.</i> - <i>The inputs will be used to understand the functioning of the department.</i>
<b>Departmental Activities</b>
< Include various activities that the department staff / the department as a whole carries out towards fulfilling the aforementioned functions > - <i>The activities of the department will be understood to assess the potential usage of maps (in other words geographical location) and thereby the potential of application of GIS in the department's operational activities.</i>
<b>Internal Departmental Workflows:</b>
< In continuation to above, document the workflow(s) involved in the activities > - <i>This section is intended to identify the stages, personnel involved in an activity and the data / information transferred from one stage to its subsequent stage.</i> - <i>This will help assess potential of creating a GIS based workflow.</i>
<b>Workflows with other departments:</b>
< Identify departments with which this department interacts with and document the type of interaction involved between the departments > - <i>This section will help understand which type of information / data is received / sought by this department and which information / data is sent to other departments.</i> - <i>Also, this will help identify various GIS layers / data pertaining to other departments will be used by this department.</i>
<b>Type of Data / Information Used:</b>
< List out all the type of data (any hardcopy maps), existing reports and other information such as standards & guidelines, acts, etc. used by this department. >

Page 1 of Questionnaire

Version No: Draft	Pune Municipal Corporation	Page 180 of 181
	Requirement Assessment	

<b>Existing Data:</b>
< List all the existing data with the department e.g. if hardcopy maps are used – what scale of maps, source of maps, etc. or if any statistical (digital) data is used, what format, etc. >
<b>Existing Method of Data Capture</b>
< Document how the aforementioned data is captured. Identify the sources of data / information >
<b>Existing means of Data Storage</b>
< Document how the data / information is current being stored. Whether digital storage is there or not? If digital, what format, application or system is used for storage? >
<b>Existing means of Data Maintenance</b>
< Document existing method / means used for maintenance of data. >
<b>Data Process / Analysis</b>
< Is the data captured & stored processed further for some kind of analysis and decision making? >
<b>Existing Outputs / Results (In terms of reports, etc.)</b>
< Document the form of outputs / results generated by processing / analysis of data. The outputs could be in the form of standard reports generated by the department from time to time. These outputs could be sought by the decision makers of the department and PMC as a whole. >
<b>Existing CAD / Any other Software used</b>
< Does the department have any digitization tool or software? Or does it use any other specific software e.g. STAAD for structural engineering? >
<b>Existing applications if any</b>
< Does the department use any customized application for its operational activities? >
<ul style="list-style-type: none"> <li>- This is to identify and document the details of such application such as its development platform, database storage (whether it uses any RDBMS, etc.) and other relevant information</li> <li>- This will help assess whether any potential for integrating such an application with GIS based application exists or not.</li> </ul>
<b>Existing Digital Data Available (Maps / Statistical)</b>
< This is to solely document about what data is available in digital format, whether maps or any other tabular information which may be used by the department >
<b>Existing GIS Skillset:</b>
< How many personnel possess GIS awareness or knowledge? >
<ul style="list-style-type: none"> <li>- This is intended to asses the need for GIS capacity building vis-à-vis the potential usage of GIS for the department</li> </ul>
<b>Existing IT Infrastructure (Desktops / Servers / Peripherals)</b>
< List out how many computers (desktops), servers or any other peripherals such as printers, scanners, plotters, etc. are used in the department. >
<ul style="list-style-type: none"> <li>- This is to help identify any requirement of reinforcement in existing IT infrastructure w.r.t. a GIS based application for the department</li> </ul>

**Requirements:**

< These requirements are in terms of which GIS layers / maps could be useful for the department for its operational activities. Enquire from the department about what all information is used pertaining to a particular geographical feature e.g. if Roads are required by the department, what all information about roads would be useful such as width of road, type of construction material, when was it last re-surfaced, etc. >

- This section is intended to generate the attributes required by the department about a GIS layer
- It will be used to develop an Urban GIS data model for the PMC as a whole.

#	Maps	Information Required / to be Retrieved from Map	Whether Digital Data Available	Format of Digital Data if available
1				
2				
...				
...				

**Additional Information / Remarks**

< Enquire from the department how it intends to use GIS / GIS tools and techniques for their operations. In addition, suggest / recommend possible ways and means about using GIS for the department. >