PREFACE

Amritsar, the city of Golden Temple, symbolizes the spiritual heritage of the people of Punjab. Its rich religious, cultural and historical heritage is the home to many landmarks. Looking at the existing trends of growth and development, the metropolitan character of Amritsar seems destined to be multifunctional with numerous prime roles in the new millennium.

Considering the critical role and importance of Amritsar and for promoting the balanced, orderly, sustainable and state of art development of Amritsar Local Planning Area, Punjab Urban Planning and Development Authority (PUDA) entrusted the task of preparing Master Plan of Amritsar to SAI Consulting Engineers Pvt. Ltd., Ahmedabad , in addition to preparation of Master Plans of Local Planning Areas of five cities/towns of state of Punjab, namely Tarn Taran, Kapurthala, Batala, Gurdaspur and Pathankot.

SAI Consulting Engineers Pvt. Ltd. feels privileged to be given the opportunity of preparing the Master Plan of Local Planning Area of Amritsar spanning an area of 1394 sq. kms., and comprising of 5 urban and 310 rural settlements, including Amritsar Municipal Corporation. Master Plan has now been prepared after carrying out detailed study and indepth analysis of Amritsar metropolis and its environs bringing out critical issues hampering the orderly growth and development of the city. Core recommendations are the outcome of intensive consultative process involving series of meetings with various parastatal agencies, experts, individuals and stakeholders. Master Plan Amritsar being the mother document, would ensure that city and local planning area are launched on the path of rapid physical and economic development in the next two decades . With the coming into operation of Master Plan Amritsar, avenues of opportunities for employment and economy shall expand enormously and challenges for public administration shall increase.

We would like to extend our special gratitude to Hon'ble Chief Minister of Punjab, Shri, Prakash Singh Badal for approving the Amritsar Master Plan to make it operational and guide the destiny of commercial and spiritual capital of the state of Punjab.

Amritsar Master Plan is a humble effort to facilitate and promote the orderly development and leveraging the economy of Amritsar to launch it on the path of rapid growth trajectory. The prime objective has been to infuse vitality while retaining the vibrant character of the city.

In order to create the local ownership of Master Plan, as a document of the people ,both intensive and extensive interactions by means of series of think tank meetings were organized

with the wide spectrum of the society & intelligentsia of the city and region followed by the publication of the draft plan for inviting objections and suggestions from the interested groups, community, stakeholders, para statal agencies, NGOs and CBOs. Several suggestions were received on the proposals contained in the Master Plan, both locally and globally. Based on the in depth and detailed analysis of the suggestions received, Master Plan was modified to meet the aspirations of the people. The support rendered by all the spectrum of society in terms of ideas, thoughts and suggestions related to planning, development, heritage conservation and making Amritsar as the most vibrant and role model of urban development and governance is gratefully acknowledged.

The task assigned for preparing the master plan was both enormous and challenging and would not have been completed without the support and able guidance of state and local level authorities. SAI Consultants would like to extend sincere thanks and place on record its gratitude for the valuable guidance and support given by (both former and present) officials especially the following officials from time to time in order to take the Master Plan of Amritsar to its logical conclusion:

1) *Sh. S. S. Sandhu, IAS, Secretary, Housing and Urban Development, Punjab.*
2) *Sh. Sarvjit Singh, Director Town and Country Planning and Chief Administrator, PUDA.*
3) *Sh. Rajinder Sharma, Advisor, Town Planning, PUDA.*
4) *Sh. Kuldip Singh, Chief Town Planner, Punjab.*

Our sincere thanks are also due to Shri K. S. Pannu, the Deputy Commissioner, Amritsar, Shri Shwait Malik, Mayor, Amritsar, Shri D. P. S. Kharbanda, Municipal Commissioner, Amritsar, Shri Ravinder Singh, Additional Chief Administrator, Amritsar Development Authority for their guidance.

SAI Consultants would also like to gratefully acknowledge and appreciate the guidance and support provided by Sh. Navjot Singh Sidhu, MP, Amritsar for taking keen interest and providing necessary support in making value addition to the proposals of the Master Plan. Valuable contribution and guidance of Shri Bikramjit Singh Majithia is duly acknowledged for taking keen interest and encouragement provided while presenting detailed studies and analysis during formulation of Master Plan.

Thanks are also due to all the local Ministers, MLAs and Councilors of the Local Planning Area for their moral support and acting as a catalyst in strengthening our confidence in preparation of Master Plan, Amritsar. The valuable support given by Sh. Vir Singh Lopoke, Chairman District Planning Committee, Amritsar is duly acknowledged.

Contributions made by Amritsar Vikas Manch, Industrial Associations, Amritsar and professionals including Shri Sravjot Singh Behl, Dean, Planning and Architecture, GNDU, Amritsar,Shri Sukhdev Singh, Chairman, INTACH, Punjab, Shri Harmeet Bedi, Chief Planner, City of Snelville, USA, Shri Prabhdyal Singh Randhawa, Shri Brij Bedi, Social Activist, Amritsar and all other stakeholders is also gratefully acknowledged for their valuable inputs to make Master Plan Amritsar more realistic and a better master plan.

Support rendered by Sarvshri M.L.Kaushal, Harnek Singh, Gulzar Singh, and Satinder Singh, Senior Town Planners, Pawan Sharma, Pankaj Bawa, Amandeep Sandhu , Jaswinder Singh and Verender Singh, District Town Planners ,Prabhjit Singh Dhillon, Harinder Singh Sandhu , Assistant Town Planner who along with their staff helped in all the possible ways for the successful completion of the project by providing unstinted support. We also express our gratitude to the PRSC, Ludhiana, for supplying the Base Map of the Planning Area, based upon which the proposals have been framed. Sincere thanks are also due to all the persons who directly or indirectly contributed in giving final shape to the master plan.

The team at SAI Consulting Engineers Pvt. Ltd., Ahmedabad and at Project Office, Amritsar has made a sincere attempt to prepare a futuristic document which will meet the hopes and aspirations of not only the present but also the future residents and communities of the city. The key professionals involved in the preparation and finalization of Master Plan of Amritsar Local Planning Area from M/S SAI Consulting Engineers Pvt. Ltd., Ahmedabad include:

1) *Mr. Nitin Shah, President and COO.*
2) *Mr. Manish Shah, Sr. Deputy General Manager.*
3) *Mr. Jit Kumar Gupta, Advisor, Amritsar Project Office, Punjab.*
4) *Mr. Manjit Singh, Advisor, Amritsar Project Office, Punjab.*
5) *Mr. Randdil Sher Jatinder Singh Batth, Project Manager, Amritsar Project Office, Punjab.*
6) *Ms. Ritika Arora, Urban Planner.*
7) *Mr. Virendra Kumar Pal, Geographer Planner.*
8) *Ms. Jaskiran Kaur, Urban Planner.*

9) Ms. Rita Sharma, Geographer Planner.

10) Mr. Laxman Sharma, GIS Engineer.

11) Mr. Prashant Gautam, GIS Executive.

12) Mr. Neeraj Sharma, GIS Executive.

13) Mr. Kamalpreet Singh, Computer Engineer.

14) Mr. Sukhjit Singh, Draughtsman.

15) Mr. Ritesh Solanki, Sr. Engineer.

16) Mrs. Sheetal Lakadwala, Sr. Urban Designer.

17) Mr. Dipak Bhatt, Sr. Draughtsman.

18) Mr. Priyank, Autocad Operator.

19) Mr. Mukund Dikshit, Ex. Vice President (Planning and SEZ)

20) Mr. U. S. Mehta, Advisor.

21) Ms. Aneeta Salaria, Geographer Planner.

22) Mr. Siyang Rebe, Geographer Planner.

23) Mr. Prabhjit Singh Dhillon, Junior Planner.

24) Mr. Padam Saini, Junior Planner.

25) Dr. Amardeep Singh, Environmental Planner.

26) Mr. Ravi Ranjan Sahay, Environmental Planner.

27) Mr. Sachin Kumar, GIS Executive.

28) Mr. Jeevan Chamiyal, GIS Executive.

29) Ms. Meenu Arora, Financial Executive.

30) Mr. Avishesh, Administrative Incharge and

Other supporting team from Headquarter (Ahmedabad) and Project Office (Amritsar).

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A. D.	Anno Domini
ASI	Archeological Survey of India
ATM	Automatic Teller Machine
BIS	Bureau of Indian Standards
BOD	Biological Oxygen Demand
CAGR	Compound Annual Growth Rate
CBO	Community Building Organisation
CC	Cement Concrete (Road)
CHC	Community Health Centre
CIP	City Investment Plan
Cl	Chlorine
CLU	Change of Land Use
COD	Chemical Oxygen Demand
CT	Census Town
DAC	District Administrative Complex
D.C.	Deputy Commissioner
DCR	Development Control Regulations
DEO	District Education Office
DG Sets	Diesel Generator Sets
DIC	District Industrial Centre
DIET	District Institute of Education & Training
DO	Dissolved Oxygen
DSC	District Shopping Complex/Centre
DTP	District Town Planner
ECS	Equivalent Car Space
EWS	Economically Weaker Section
ESI	Employment State Insurance (Scheme)
FAR	Floor Area Ratio
FCI	Food Corporation of India
FDI	Foreign Direct Investment
FGD	Focused Group Discussion
FSI	Floor Space Index
FY	Financial Year
GDP	Gross Domestic Product
GIS	Geographic Information System
gpcd	Gram Per Capita Daily
GSDP	Gross State Domestic Product
G. T. Road	Grand Trunk Road (NH 1).
H2S	Hydrogen Sulphide
Ha	Hectare
HH	House Hold
HQ	Head Quarter
HRLD	High Rise Low Density
HUDCO	Housing and Urban Development Corporation
ICU	Intensive Care Unit
IIM	Indian Institute of Management
IIT	Indian Institute of Technology
IRC	Indian Road Congress
ISI	Indian Standard Institute

IT	Information Technology	NGO	Non Government Organization
ITI	Industrial Training Institute	NH	National Highway
		NH3	Ammonia
JNNURM	Jawahar Lal Nehru National Urban Renewal Mission	NIC	National Industrial Classification
		NIMBY	Not In My Backyard
KG	Kilo Gram	NO	Nitrous Oxide
KV	Kilo Volt	NO2	Nitrogen Dioxide
KVA	Kilo Volt Ampere		
KW	Kilo Watt	NP	Nagar Panchayat
LRHD	Low Rise High Density	NSDP	Net State Domestic Product
LIC	Life Insurance Corporation of India	NTU	Nephelometric Turbidity Unit
LIG	Low Income Group	O & M	Operation and Management
LRLD	Low Rise Low Density	ODR	Other District Road
LMD	Low Rise Medium Density	OHSR	Over Head Storage Reservoir
LPA	Local Planning Area	OUVGL	Optimum Utilisation of Vacant Government Land
LPCD	Litre Per Capita Per Day		
M. C.	Municipal Corporation	PAU	Punjab Agricultural University
MDR	Major District Road		
MH Lamps	Metal Halide Lamps	PAPRA	Punjab Apartment and Property Regulation Act, 1995
MINAR	Monitoring of India National Aquatic Resources	PEPSU	Patiala and East Punjab State Union
MLD	Million Litres per Day		
MM	Modified Mercalli (Scale for Earthquakes)	pH	Power of Hydrogen
		PHC	Primary Health Centre
MoEF	Ministry of Environment and Forest	PIDB	Punjab Infrastructure Development Board
		PPCB	Punjab Pollution Control Board
MORTH	Ministry of Road Transport and Highways	PPH	Persons Per Hectare
		PPP	Public Private Partnership
MP	Master Plan		
MT	Metric Ton	PRSC	Punjab Remote Sensing Centre
MVL	Mercury Vapour Lamp	PR & TP & Dev. Act/PRTPD Act	Punjab Regional and Town Planning and Development Act,
NBC	National Building Code		

	1995
PRTC	Punjab Road Transport Corporation
PSIEC	Punjab Small Industries and Export Corporation Limited
PUDA	Punjab Urban Planning and Development Authority
PWD (B & R)	Public Works Department (Building and Roads)
PWSSB	Punjab Water Supply & Sewerage Board
RCC	Reinforced Cement Concrete
RD	Residential Density
RSPM	Respirable Suspended Particulate Matter
S.C.O.	Shop cum Office
SC	Sub Centre (Health Unit)
SCF	Shop cum Flat
SDP	State Domestic Product
SEZ	Special Economic Zone
SH	State Highway
SHC	Sub Health Centre
SO_2	Sulphur Dioxide
SPM	Suspended Particulate Matter
STP	Sewerage Treatment Plant
SVL	Sodium Vapour Lamp
SWOT	Strengths, Weaknesses, Opportunities and Threats
TCPO	Town and Country Planning Organisation
TDR	Transfer of Development Rights
TDS	Total Dissolved Solids
UA	Urban Agglomeration
UDPFI	Urban Development Plans Formulation and Implementation (Guidelines)
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULB	Urban Local Body
WBM	Water Bound Macadem (Road)

CHAPTER 1
INTRODUCTION

1.1 INITIAL STEPS

1.1.1 BACKGROUND

Urban areas in past have not received much attention in terms of their planning, development and management despite the fact that cities and economic development are inextricably linked. Because of high productivity of urban areas, economic development activities get located in cities. Accordingly, it is desirable that human settlements are provided with necessary planning and development inputs so that their orderly growth and development is ensured. This would also be necessary for ensuring efficient functioning of human settlements for improving their productivity and for providing desirable quality of life to its residents in order to cater to their economic, physical and metaphysical needs. The urban development strategy for any state thus assumes importance for not only its economic emancipation but also its physical well-being.

Therefore, the real challenge before the planning and development of towns/cities is to have balanced development in all spheres of urban life: physical, social and economic in a comprehensive manner. There is need to make urban transition efficient, equitable and cost effective by making policies and bringing out new projects/schemes. For this preparation of Master Plan becomes the guiding principle for wiping out the deficits in urban infrastructure, mining the problems and exploring the potentials of the city.

"Master Plan (MP)" is identified as a strategic tool to achieve the above objectives.

Considering the role and importance of rational and orderly growth of urban centers, the Government of Punjab intends to streamline the development process in urban settlements to ensure that these settlements continue to achieve their objectives of improved efficiency and productivity. Accordingly, it is desirable to have a stringent check on haphazard development and have an optimum land use plan for these cities/towns. In the process, the state government has taken the decision to prepare Master Plans for all towns and cities for a directed development and to provide world-class amenities to its people.

The Punjab Urban Planning and Development Authority (P.U.D.A) is an apex institution established in July 1995 for promoting the balanced urban growth in the State of Punjab. PUDA has undertaken the task of providing planned residential, commercial and industrial spaces incorporating the latest state of the art technology and town planning norms. In this process, PUDA has taken up the preparation of the Master Plan for Local Planning Area

Amritsar to address the infrastructure and service delivery gaps in Amritsar and to make the growth and development of Local Planning Area (L.P.A) rational. The key objective of the Master Plan is to formulate a long-term vision and strategy to make the L.P.A vibrant, livable and creditworthy. Besides rationalizing the land use pattern, the Master Plan will also facilitate the identification of sectoral investments and reform areas needed to transform the Local Planning Area Amritsar.

1.1.2 OBJECTIVES

The prime objective of the Master Plan is to promote, guide and rationalize the future growth and development of urban centers. It will endorse growth in the desired direction, promote economic development, improving service delivery and providing amenities to its people. Master Plan ensures rational policy choices besides providing a flexible framework based on ground realities for a defined time span.

Master Plan is an appropriate and scientific tool for promoting systematic & planned growth of the city in the form of the following:

(i) Identifying existing gaps in physical and social infrastructure & to bridge those gaps
(ii) Making city assessment and to suggest strategies for its economic development.
(iii) Leveraging economy
(iv) Rationalization of land use and their interrelationships
(v) Minimizing haphazard and uncontrolled growth of town/cities and to achieve planned growth and development in order to provide healthy living environment
(vi) Promote better urban governance and resource generation for planned urban development.
(vii) Rationalizing the orderly movement of traffic and transportation within the town and defining the area for laying down network of various services.
(viii) Indicating spatial distribution of physical/social infrastructure for optimum use
(ix) Ensuring systematic, balanced & integrated development
(x) Framing mechanism/strategies for solving out the core area problems

1.1.3 SCOPE OF WORK

The scope of Master Plan to be prepared covers the following aspects:

- Collection and review of available data, documents, reports, etc. and site visits.
- Sector studies in terms of demand, supply and identifying gaps in service delivery.
- Formulation of vision and working out strategy

- Formulation of concept plan and policies for growth centers, development corridors, etc.
- Preparation of Integrated Infrastructure Plan for all areas constituting designated Local Planning Area as per projected requirements.
- Preparation of detailed Zonal Development Plan including approximate location and extent of land uses such as residential, industrial, commercial, etc. and Development Control Regulations.
- Review of ongoing and proposed development projects and other schemes announced by the govt. under JNNURM, UIDSSMT, OUVGL schemes etc. and to incorporate them in the plan
- Incorporation of all the statutory provisions under "The PR & TP and Development Act-1995 (as amended 2006)"
- Formulation of framework for implementation of the Master Plan and Development Control Regulations
- Prioritizing the projects and formulation of Investment Plan
- Formulate Investment Plan with appropriate financing strategies.
- Focus on the reforms to be carried out at the State and District level in consonance with the vision and strategic plan outlined to sustain the planned interventions.

1.1.4 LEGAL FRAMEWORK FOR MASTER PLAN

PREPARATION OF MASTER PLANS UNDER, "THE PUNJAB REGIONAL AND TOWN PLANNING AND DEVELOPMENT ACT, 1995 (AMENDED 2006)"

To control and regulate the development of towns and cities in the state of Punjab, the Master Plans are to be prepared as a statutory requirement. The procedure for preparing the Master Plan under the Punjab Regional and Town Planning and Development Act, 1995 (hereinafter called P.R.T.P.D Act 1995 (amended 2006)), has been defined in Chapter X of the said Act.

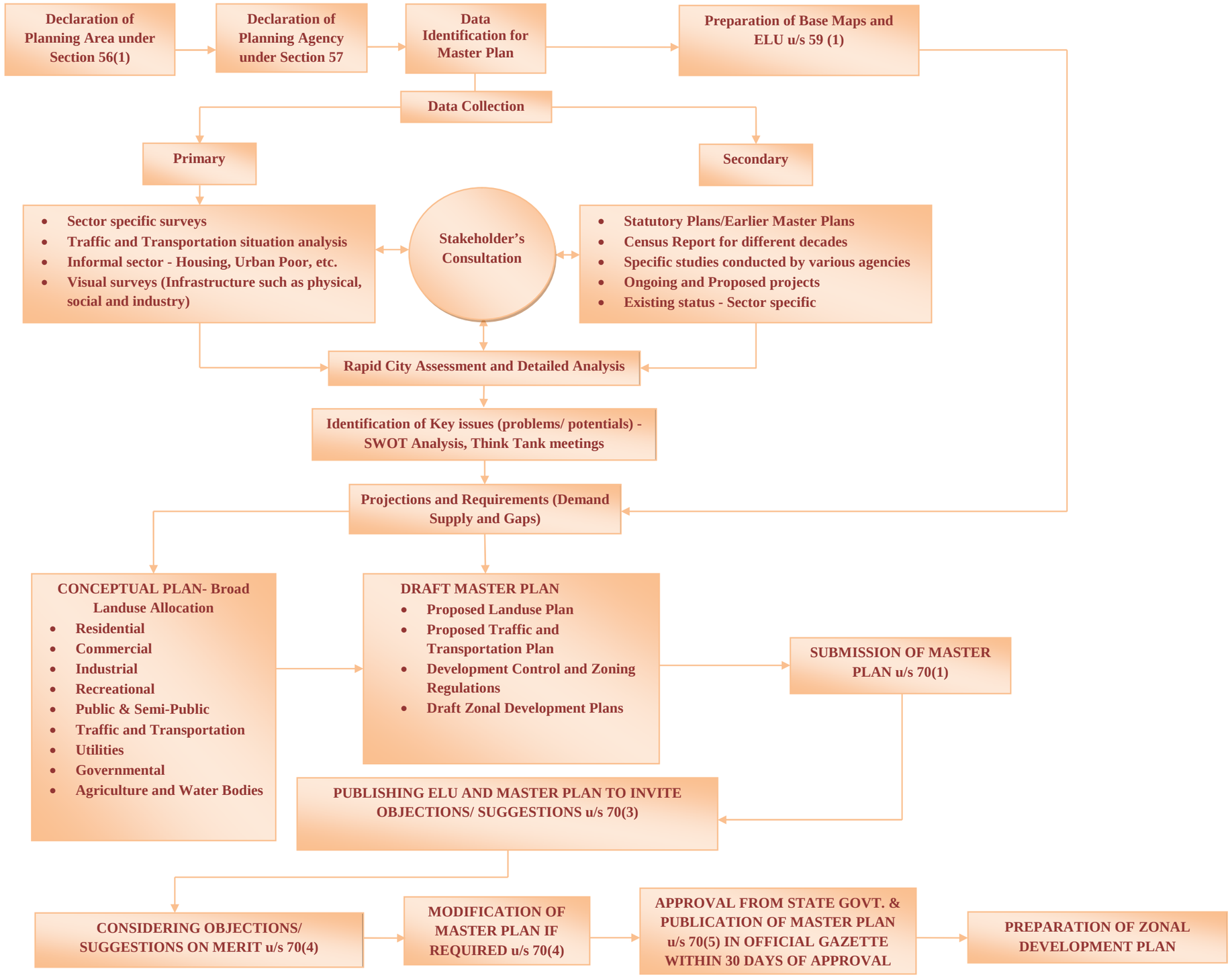
1.1.5 APPROACH TO THE MASTER PLAN

Approach to the preparation of Master Plan would involve outlining the critical issues of city development, undertaking a demand-supply gap analysis and formulating a management framework including outlining strategies and guidelines for future growth and development of Amritsar LPA. It will also include options for promoting rational development through the introduction of a regulatory mechanism including realistic planning and management interventions within the overall regulatory and institutional framework. A development action

plan comprising of implementation schedule, role of stakeholders, regulation and institutional strengthening mechanism etc. will form an integral part of the Master Plan. The Master Plan will take into account the current status of municipal services - its fiscal status, operational and management procedures besides putting in place effective monitoring mechanism. The preparation of the Master Plan will be based on existing trend of development taking into account Development Plans/Schemes of public and private agencies operating in the city and contributing towards its growth and development.

The detailed methodology for preparation of the Master Plan of Amritsar L.P.A includes data collection, city assessment, identifying gaps in service delivery and infrastructure network, identifying strengths, weaknesses, opportunities and threats, preparing Existing Land use Plan, thematic maps, Proposed Land use Plan and Zonal Development Plan etc. as defined below (Refer Fig No.1):

Fig no. 1 METHODOLOGY



1.1.6 METHODOLGY FOR MASTER PLAN

The various stages of preparation of Master Plan include:

1. Identification of Local Planning Area (as per the Government notification under PRTPDA- 1995 (amended in 2006).
2. Preparation of Existing Land Use Plan
    - *Using Satellite Imageries*
    - *Using Available Plans*
    - *Ground Surveys*
    - *Revenue Plans*
3. Assessment and analysis of Local Planning Area in terms of
    - *Regional Setting*
    - *Historical Evolution*
    - *Demographic Studies*
    - *Socio-Economic Studies*
    - *Traffic & Transportation*
    - *Physical Infrastructure (Water Supply, Sewerage, Solid Waste Management, Electricity)*
    - *Social Infrastructure (Educational, Medical, Recreational, Miscellaneous Facilities)*
    - *Environmental Studies*
    - *Heritage and Tourism*
    - *Growth Pattern*
    - *Land use Studies*
    - *Available studies and report*
    - *Ongoing and Proposed Projects*
4. Involving Stakeholders (through FGD's and personal interviews)
    - *Meeting with experts*
    - *Think Tank meetings*
    - *NGOs/ Private agencies*
    - *Public Representatives*
5. Gaps and Problem Identification through
    - *Comparison with available norms and standards*
    - *Identification of the critical problems and infrastructure gaps*

6. Carrying out S.W.O.T analysis based upon
    - *Studies made and analysis carried on*
    - *City Assessment*
    - *Stakeholders' Perception*
    - *Identified problems and gaps*
    - *Identifying major socio-economic drivers*
7. Working out requirements
    - *Population Projections*
    - *Norms and Standards*
    - *Broad Land use Requirements.*
8. Defining Conceptual Framework through
    - *Defining Vision for future growth and development*
    - *Identifying broad objectives*
    - *Laying down mission statements for critical areas*
9. Preparation of Concept Plan
10. Evolving Proposed Land Use Plan and Traffic & Transportation Plan along with Development Control Regulations (D.C.R)
    - *Based on existing land use plan*
    - *Studies and assessment made*
    - *Gaps and problems identified*
    - *Stakeholders' perception*
    - *Objectives framed*
    - *Future population growth*
    - *Future infrastructure requirements*
    - *Available land for development*
11. Preparing Phasing and Investment Plan
12. Evolving Zonal Plans based on Proposed Land Use

1.1.7 LOCAL PLANNING AREA, AMRITSAR

The Amritsar Local Planning Area (LPA) has been notified under section 56 (i) of the Punjab Regional and Town Planning and Development Act, 1995 (amended 2006), *vide* notification no. 12/65/2006-4HGI/5599, dated 18th July, 2007. (Exercising the power vested under Section 56(7) of the Act.) (Refer annexure no. I)

The Amritsar Local Planning Area covers an area of 1,39,419 hectares with a total population of 16, 60,466 persons for preparation of the Master Plan. It consists of Municipal Corporation-Amritsar with an area 142.37 sq.kms (including Amritsar Cantonment), four urban settlements namely Jandiala (M.Cl), Majitha (M.Cl), Rayya (Nagar Panchayat) and Rajasansi (Nagar Panchayat) and 310 rural settlements. The list of all settlements falling in Amritsar L.P.A is attached as annexure II showing area and population details.

While delineating the Local Planning Area of Amritsar, the following factors mentioned in rule 22 of the Punjab Regional and Town Planning and Development (General Rules 1995) have been considered:

- Administrative/ Revenue boundaries of the villages/ urban centers
- Geographical features of the area including U.B.D.C, minors, drains and other physical features like roads and railway lines.
- Means of communication and accessibility
- Present and future growth trends and distribution of the population
- Industrial location and growth trends
- Economic base and commercial activities
- Preservation of historical and cultural heritage of the areas
- Urban expansion trends and management of peripheral areas
- Ecological and environmental balance
- Balanced regional development of the state
- Dispersal of economic activities to alleviate pressure on the Amritsar city

It has been observed that the Amritsar Local Planning Area is 52.67% of the area and 76.98% of the population of the district. (Refer table 1)

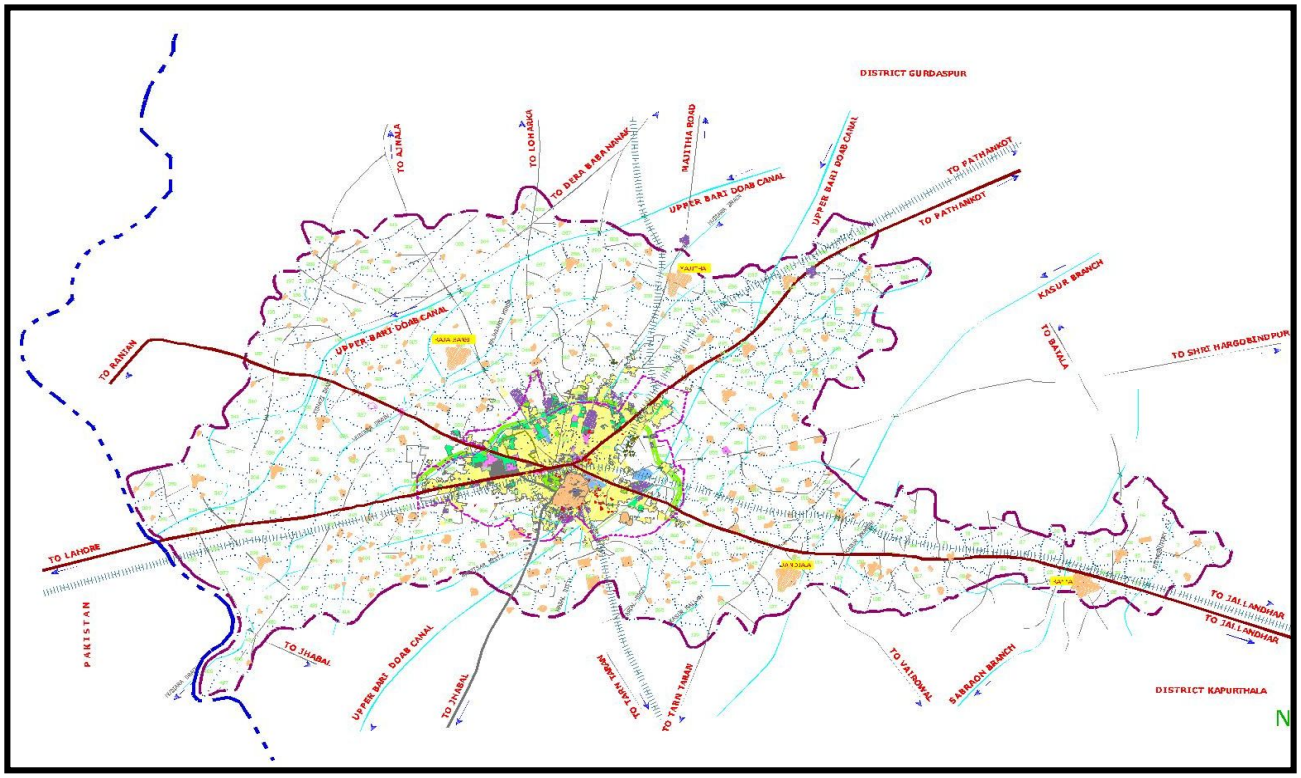
Table 1: Area and Population of Different Settlements in Amritsar District

S. No.	Settlement	Area (Hectares)	Population (2001)
1	Amritsar M.C	14,237	10,16,079
2	Jandiala (M. Cl)	1,454	23,834
3	Rayya (N.P)	655	12,631
4	Rajasansi (N.P)	1,551	12,176
5	Majitha (M. Cl)	387	12,992
6	Villages in LPA	1,21,135	5,82,754
7	**Total LPA**	**1,39,419**	**16,60,466**
8	Amritsar District	2,64,700	21,57,000

Source: PRSC Existing Landuse Map (ELU); Statistical Abstract of Punjab 2007; Census of India, 2001.

Note: Area of settlements falling in LPA is taken from ELU map prepared by PRSC, while Area of Amritsar District is taken from Statistical Abstract of Punjab, 2007. The population data is from Census of India, 2001.

Fig no. 2 Local Planning Area, Amritsar



1.2 REGIONAL SETTING & LINKAGES

This aspect is studied in order to view the developments taking place in Amritsar in regional context and to evaluate the locational advantages and disadvantages of the city of Amritsar. In the Master Plan, this aspect would help in proposing the activities that can be explored based upon the regional potential and linkages. The location coordinates of Amritsar district lies between 31° 29' and 32° 03' North latitudes and between 74° 29' and 75° 23' East longitudes. It is the third largest border district of the state after Ferozepur and Gurdaspur. Tarn Taran is the smallest among the four border districts.

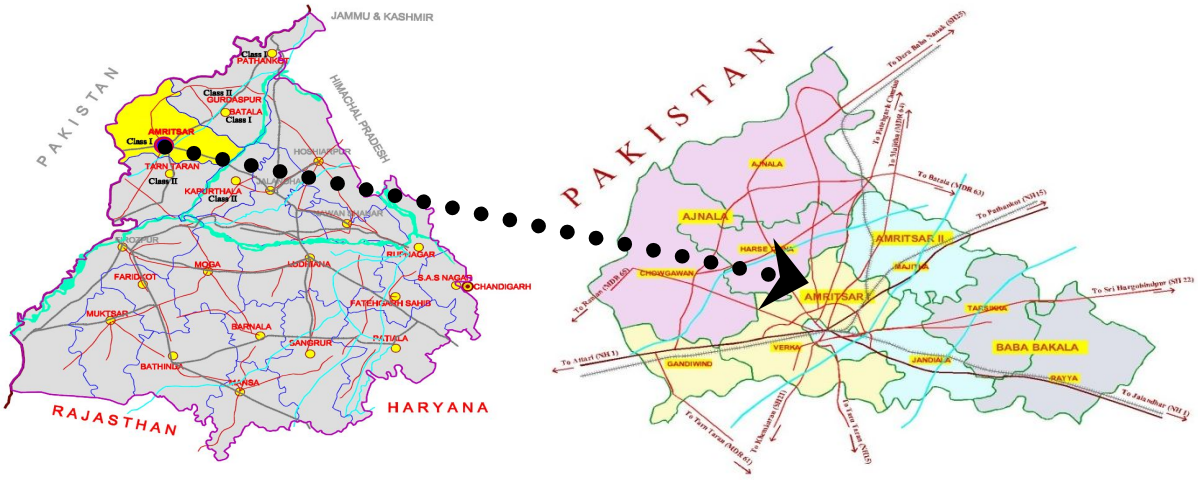
Besides being the District Headquarter and an important tourist destination (due to the existence of Golden Temple, Durgiana Mandir, Jallianwala Bagh, etc.), the regional importance of Amritsar can be assessed as follows:

- The close proximity to the Indo Pak Border has given a great set back to the development of the city. The border on one hand restricts growth in the North West direction of the city and on the other hand makes it a point of tourist attraction being an “International Border”.
- Amritsar is the second largest city of Punjab and a great centre of learning and literature. It has number of educational institutions of regional importance, such as Guru Nanak Dev

University, Khalsa College, ten Degree Colleges, two B. Ed. colleges, two Engineering Colleges, nine Nursing Colleges, two Polytechnics/Industrial Training Institutes, one Medical College, one Ayurvedic College, two Dental Colleges and four distance education centers.

- It has emerged as a magnificent centre of trade and industry. There are approximately 25,000 industrial units in the district Amritsar with major commodities of production and export being woolen blankets, shawls, carpets, food items, such as papad, pickles, etc.
- At regional level, it has also emerged has a great centre of heritage and historical significance. The history of Amritsar is more than 400 years old and is intricately intertwined with the birth of Sikh religion.
- Presence of Rajasansi International Airport has also helped in giving it due importance at regional level. At present, it handles approximately 150 commercial flights per week, both domestic and international.
- Amritsar also enjoys regional importance as it has developed as the major centre for agriculture and allied activities over the period. The Amritsar district has 8 mandi's namely, Amritsar, Rayya, Gehri, Ajnala, Mehta, Chogawan, Majitha and Attari. Out of these, six mandi's except Ajnala and Mehta, fall under L.P.A Amritsar.
- Presence of strong regional linkages, two National Highways namely NH 1 and NH 15, three State Highways, four M.D.R's and twenty four O.D.R's places it at a very strategic position with respect to the other districts by providing connectivity to the other parts of the state and country as well. Apart from the extensive road network, it also enjoys good rail and air connectivity with the other parts of the country. (Refer Map No. 1)

Fig no. 3: Location of Amritsar District in Punjab State



Puniab State **Amritsar District**

1.3 PHYSICAL CHARACTERISTICS

1.3.1 TOPOGRAPHY

Amritsar district lies amidst River Beas (to the east) separating Amritsar from Kapurthala and River Ravi (to the west). It is located in the lower part of Upper Bari Doab Canal giving it a saucer like shape. It is interesting to note that river Beas joins Satluj River at the confluence of Ferozepur, Tarn Taran and Kapurthala districts. As Punjab Plain is a part of Indo-Gangetic system, Amritsar also has alluvial deposits brought by Beas and Ravi Rivers. The soil in Amritsar is a light reddish-yellow loam (colloquially called *maira*) that becomes somewhat stiffer at the Doab, finally deteriorating into sandy and slightly uneven soil (colloquially called *tibba*).

Amritsar has a levelled plain area situated at an elevation of about 200 meters in the North East to about 175 meters in the South West. The terrain of Amritsar can be put under three categories: The Upland Plain, Bluff along the Beas and Floodplain of Satluj.

1.3.2 CLIMATE

The district has a continental climate typical of North-West Indian region. It comprises of the winter season (November to March) when temperatures ranges from 16 °C (61 °F) to about 4 °C (39 °F), the hot season (April to June) when temperatures can reach 45 °C (113 °F), monsoon season (July to September) and post-monsoon (September to November). The annual rainfall is about 790 millimeters (31.1 in). The lowest recorded temperature since 1970 is −2.6 °C (27 °F) recorded on 21 Jan 2005. The highest temperature recorded was 47.7 °C (117.9 °F) on 21 May 1978.

The climate is genrally characterized by dry weather except the brief southwest monsoon season, hot summer and bracing winter. Amritsar receives on an average 601.5 mm of rainfall with around 33 rainy days. The wind direction of Amritsar is from North-West to South-East.

1.4 HISTORICAL EVOLUTION

Amritsar, the city of Golden Temple symbolizes the spiritual heritage of Punjab. The epic stories of Golden Temple and Jallianwala Bagh have given a unique place to this dynamic city in the history of nation. There are many cities in our country, which have longer span of existence, but very few among them can regimentally claim credit for having risen to the eminence of Amritsar in a similar span of 423 years. Amritsar is a great center port of trade and commerce, a magnificent seat of learning and literature, the oldest of holy Sikh places, the highest centre of

Sikh politics and the strongest post on country's northwestern frontier. The city itself is the most prized endowment of our Gurus. The historical development of Amritsar can be traced back into following periods:

1.4.1 GURU PERIOD (1577-1628)

Fig no. 4: Amritsar in 1600 AD

The fourth guru, Sri Guru Ram Dass Ji in 1577 AD who had shifted the seat of third guru from Goindwal, founded the Amritsar, commonly known as "Pool of Nectar"**.** During this period, Guru Ram Das Ji built a house for his residence (Now called Gurudwara **Guru-Ka-Mahal**) and a number of huts, which had grown nearby, formed a small village settlement called **Guru-Ka-Chak.** Many khatri families were also settled there in order to develop the trade and commercial activities. The Guru also started with the work of excavation of a tank which could not be completed by him.

Fig no.5: Baba Atal Sahib Ji

After the death of Guru Ram Das Ji in 1588, his son and fifth guru of Sikhs "Sri Guru Arjun Dev Ji" took up the task of completing the tank. He also took interest in the extension of the settlement, which now began to be called as Ramdaspura in the name of its founder. Guru further took up the task of masonry work of the tank at Ramdas Sarovar. Simultaneously, he started construction of Hari Mandir or Temple of God in the centre of the tank.

The first brick of masonry foundation of Hari Mandir was laid on 1589 AD under the noble guidance of Guru Arjun Dev Ji. Sri Hari Mandir Sahib was completed in 1604 AD. Later sixth Guru laid the foundation of Akal Takhat, which became the political seat of the Sikhs. In the west of the city he built, a small fortress called 'Lohgarh' by building a high wall around a raised platform. The place where the young son of Guru Hargobind was cremated is the site where a high tower called as Baba Atal was built later on. Hence, the limits of then Ramdaspura were as below:

1. On the Eastern side, till the Shivala beyond which Jassa Singh Ahluwalia later built his Katra Ahluwalia.
2. On the Southern side, it was Darshni Darwaza upto which Hari Mandir could be seen without any obstacle.
3. Chaurasti Attari with its haveli was on the Western side of Hari Mandir.

4. On the North of Hari Mandir, Dharamshala of Bhai Salo was located.

1.4.2 PERIOD OF ANARCHY (1628-1765)

Though, Guru Period led to the development of settlement with many activities but Mughals attacked Hari Mandir Sahib and the city several times. As a result, this period is considered as the dark period for the city.

1.4.3 AMRITSAR UNDER SIKH MISLS (1764-1802)

With the establishment of number of independent misl's (with power of Misldars) estates surrounding Ramdaspura, it became a poly nucleated city. Function of the city predominantly remained as a religious and pilgrimage centre. It also became capital of many misl estates.

The trade was limited to meet the local needs. The development during this period includes Katras (neighborhood/ residential clusters), forts, havelis, bungas (rest places), gardens, tanks, etc.The various Misl's which contributed to the development of city are:

Table 2: Contribution of Various Misls

S. No	Name of Misl	Owned by/ Development Work	
1.	**Ramgarhia**	**Sardar Jassa Singh Ramgarhia**	- Converted fort of Ram Rauni to fort Ramgarh - Katra Ramgarhia - Bunga Ramgarhia (only Bunga left now) for defence of Harmandir Sahib
2.	**Bhangian**	Qila Bhangian, Katra Hari Singh, Katra Desa Singh, Katra Bhag Singh, Katra Dulo, Katra Chatar Singh, Tunda Talab area.	
3.	**Kanhaiya**	**Sardar Jai Singh**	- Built fort, Katra Baggian, Katra Jaimal Singh, Karmo Deouri
4.	**Ahluwalia**	**Sardar Jassa Singh Ahluwalia**	- Qila Ahluwalia, Katra Ahluwalia
5.	**Faizal Puria**	**Nawab Kapoor Singh Faizal Puria**	Katra now known as Bazaar Kaserian got developed.

Source: District Gazetteer, Amritsar; Amritsar: A study in urban history (1840-1947); The city of Amritsar an Introduction by Fauja Singh

This period led to strengthening of the defense system for Hari Mandir Sahib as well as for the city. Further, many activity areas in the form of Bazaars, Katras, etc. also were developed.

1.4.4 AMRITSAR UNDER MAHARAJA RANJIT SINGH (1802-1849)

Maharaja Ranjit Singh conquered Amritsar from Misl Bhangian in 1802 and Misl Ramgarhia in 1816. Maharaja gave special importance to Amritsar and it became his second capital soon after Lahore. His contribution to Amritsar can be seen in the form of various constructions. The traditional character was depicted in the form of forts (Gobindgarh Fort), gates, wall, gardens, havelis, akharas

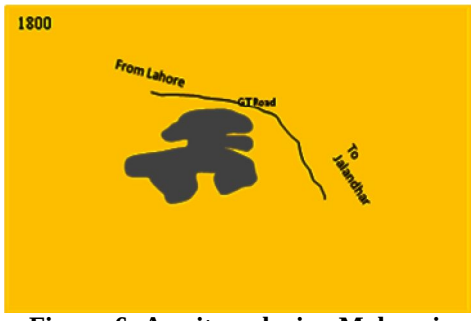


Fig no. 6: Amritsar during Maharaja Ranjit Singh Period (1800 AD)

like Balanand, Brahm Bareck (centre of learning) etc. A massive wall around the city (25 yards broad and 7 yard high) was constructed in 1925.

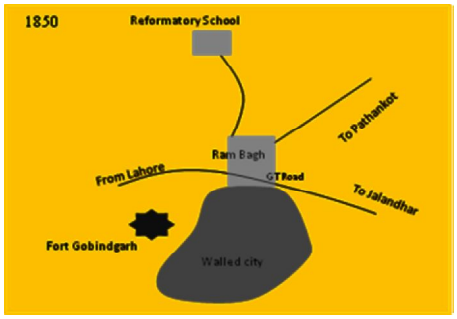


Fig no.7: Amritsar in 1850 AD

City Wall and Gates

The gates were named as:

1. Hall Gate (built in British Period)
2. Hathi Gate
3. Lohgarh Gate
4. Lahori Gate
5. Khazana Gate
6. Hakima Gate
7. Bhagtanwala Gate
8. Gilwali Gate
9. Chatiwind Gate
10. Sultanwind Gate
11. Ghee Mandi Gate
12. Sheranwala Gate
13. Mahan Singh Gate
14. Ram Bagh Gate

Out of these fourteen gates, only Ram Bagh Gate stands in its original exterior while all other gates were demolished and rebuilt by the British during 1866-1868.

Many gardens like Ram Bagh were built during this period i.e in 1931. Ram Bagh Garden consists of summer palace, which served as Maharaja's residence. The layout of garden was similar to that of Shalimar Garden based on the Mughal Garden Concept. The other gardens built were Bagh Akalian, Shamsher Singh, Attar Singh in Katra Dal Singh, Bagh Santokhsar, Ralia Ram and Bagh Ramanand.

Maharaja encouraged his sardar's to expand the city. Sardar's built their havelis and small gardens around which katras got developed. The various katras developed were Katra Karam Singh, Katra Hakima, Katra Khazana, Katra Dal Singh, Katra Mit Singh, Katra Garba Singh, Katra Zamindar Khushal Singh and Katra Sher Singh.

The fortified city was having open spaces in the form of *bagichas* (gardens) inside the katras. The various trades were assigned to different quarters. The rock salt trade centre was conducted in *Loon Mandi*. Similarly, firewood, wool spinners, cotton weavers etc. occupied different areas of the city. The retail trade was carried on in linear bazaars.

The city gave an appearance of garden city. Still many buildings are there which shows craftsmen skills through its decorative elements, typical scale, size, colour, texture, building material (nanakshahi brick, surkhi lime, etc). This shows the built heritage of the city. Thus, this period is known as 'Golden Period' in the history of Amritsar.

1.4.5 AMRITSAR UNDER THE BRITISH RULE (1849-1947)

This period is marked with various physical developments with new technologies, craftsmanship skills etc. Instead of Katras, Bunglows with setbacks started coming up. The old wall (in western part of city) was demolished and later a new masonry wall 14 feet high was constructed along with new gates in 1866-1868 from Lahori Gate to Ram Bagh, Gate. Outside the walled city, parallel to the new walls, a road was constructed as Circular Road, which still exists. As Municipal Committee was also set up at that time which gave much importance to water supply, sanitation, streetlights, etc.

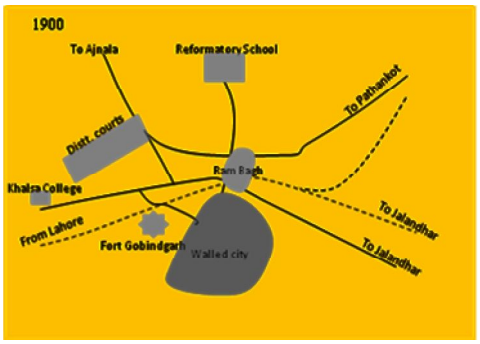


Fig no. 8: Amritsar in 1900 AD

The other developments that undertook during the British period includes

- District Headquarter -1849 A. D.
- Civil Hospital outside Ram Bagh Gate- 1849
- Clock Tower in north of Golden Temple-1852
- Bait Al Masih Chruch-1852
- St. Paul's Church- 1853
- Cantonment area- 1854
- Municipal Committee- 1868
- Hall Gate- 1876
- Hall Bazaar was laid to connect Town Hall with the civil lines.
- Distict Courts - 1877
- Khalsa College - 1892
- Sadar Police Station - 1907
- Victoria Jubilee Hospital renamed as Sh. Guru Teg Bahadhur Hospital - 1922-1924
- Head Post Office - 1925
- Medical College - 1929
- Railway Station - 1931

The architectural style, streetscapes, visual appearance of the city etc. was changed during this period.

1.4.6 AMRITSAR IN POST INDEPENDENCE PERIOD (1947-1994)

The communal riots during the partition of India in 1947 led to large scale burning of the city. About one-fifth of the walled city was burnt. To rebuild these damaged areas Government of Punjab enacted a law 'The Punjab Development of Damaged Areas Act, 1951'. Amritsar Improvement Trust was established in 1949 and framed number of Development Schemes, notable among them is widening of approach road to Golden Temple within the walled city (widening up to 60 feet). This scheme changed the entire concept of walled city from pedestrian to motorization, leading to many problems of today like traffic haos. Further, Guru Nanak Dev University, an important landmark in the city was established in 1969.

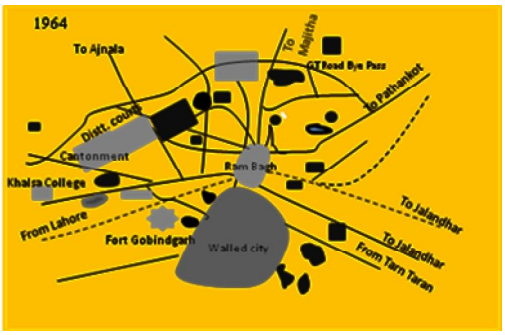


Fig no. 9: Amritsar in Post Independence Period 1964 AD

In 1981, population of the Amritsar city grew to 5,89,229 persons and the city became congested with commercial activities continuing still in the walled city area. In 1984, Operation Blue Star did much loss to the Golden Temple Complex and its surroundings. Akal Takhat was demolished completely with guns and mortars. The Watch Towers were also affected badly. In 1986 again, Operation Black Thunder caused damage to Watch Towers and other buildings. Further, in order to make for loss, the project for beautification of surroundings of Golden Temple was undertaken commonly known as Galiara Scheme in which 30 meters of area around the Golden Temple complex was acquired for the aforesaid purpose and were demolished (named as Corridor Plan but the press called it Operation Demolition). It also took many historic buildings and monuments in its folds. Some of them are Akhara Sangulwala, Burj Giania, Baradari near Baba Atal, Akal Rest House, Akhara Beriwala, etc. Many traditional bazaars like Papran wala bazaar etc. also bore the same fate. Coming to the present scenario, in the year 1988 & 1994, the area of Municipal Corporation Amritsar was extended in accordance to the nature of development, which was observed in NW & SE of the Amritsar Municipal Area. After this, in 2004-05 the number of wards were increased to 65 from 60, but interesting fact is that the total area of city remained same i.e. 142 sq km.

CHAPTER 2

DEMOGRAPHIC PROFILE AND ECONOMIC BASE

2.1 DEMOGRAPHIC CHARACTER

Municipal Corporation, Amritsar has been found to be the most urbanized settlement of the L.P.A comprising of 61% population of the LPA. Municipal Corporation, Amritsar constitutes 91.5% of urban population of the Amritsar district. Among the other four major urban settlements within L.P.A, Jandiala has 2.14% share of the urban population of the district and Rajasansi has least urban population share of 1.1%. (Refer Table 3) Among the 310 rural settlements falling in Amritsar LPA, Budha Theh is a census town according to census 2001.

Table 3: Distribution of Urban Population in Major Towns of Amritsar District

Name	Urban Population	%age to District Urban Population
Amritsar District	11,10,811	-
M. Corp. Amritsar *	10,16,079	91.50%
Jandiala M. Cl	23,834	2.14%
Rayya N.P.	12,631	1.14%
Majitha M. Cl	12,992	1.17%
Rajasansi N.P.	12,176	1.10%

Source: Census of India, 2001

* Population of Cantonment and Outgrowth is also included into the population of M. Corp. Amritsar.

Further, in order to determine the hierarchy of settlements (310 rural settlements and 5 urban settlements) falling in L.P.A, they have been categorized into 6 broad groups (refer table 4). 47.62% of village settlements in Amritsar L.P.A fall under the population range 1000-3000 followed by 19% of the villages in the category of population range 500- 1000. Only 1.59 % of the villages fall in the category of population above 10,000. (Refer map 1)

Table 4: Hierarchy of Settlements in LPA Amritsar (both urban and rural)

Sr. No.	Settlement Group	No. of Settlements	%age*
1	Below 500	43	13.65
2	500-1000	59	18.73
3	1000-3000	150	47.62
4	3000-5000	42	13.33
5	5000-10,000	16	5.08
6	Above 10,000	5	1.59
Total		**315**	**100.00**

Source: Census 2001 and Computed values*

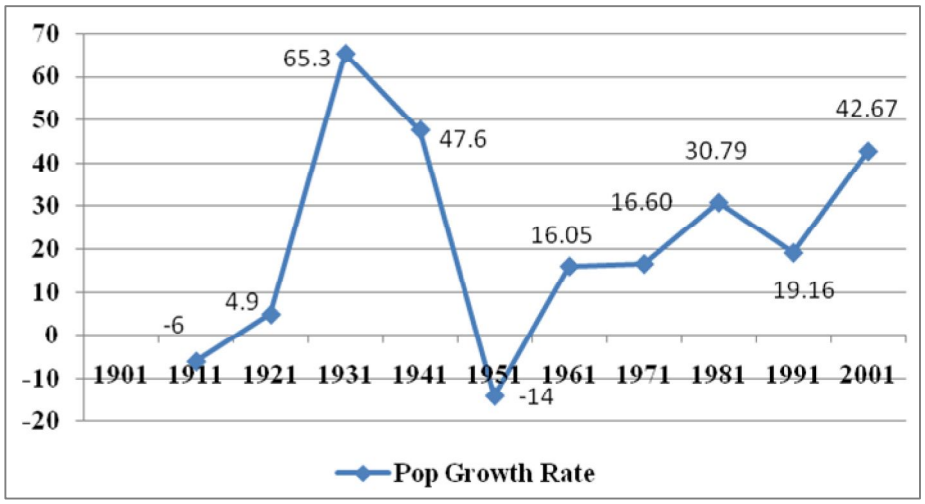
From the map 1, it is evident that settlements with higher population are situated along the major radial roads of L.P.A. As a result, greater accessibility is the major factor responsible for their growth/ development. For example, Attari and Kathanian which have high population are located on N.H-1 towards Wagah Border. Similarly village Harsha Chhina lies on Ajnala Road (S.H- 25) and Chogawan on Amritsar-Ranian Road (M.D.R-65),village Sohian Kalan and Nag on Majitha

Road (M.D.R-64), village Warpal and Chabba on Tarn Taran Road (N.H-15), village Baba Bakala and Sathiala along Beas-Baba Bakala-Batala Road (M.D.R-66).

2.1.1 POPULATION GROWTH -AMRITSAR

Amritsar, the second metropolitan city of Punjab has a total population of 10, 16,079 persons (including out growth) and ranked 33rd in the list of 35 metropolitan cities as per census 2001 and ranks 274th in the world's list of 1000 largest urban settlements (2005). The population growth rate of Amritsar M.C. has been analyzed from time period of 1901 up to 2001 which is shown in the figure below.

Fig no.10 Population Growth of Municipal Corporation Amritsar



Source: Census of India, 2001

The rapid growth of the city has been observed since 1855, when the census was conducted for the first time and the city recorded a population of 1,12,186 persons, emerging as the largest city of Punjab which was overtaken by Lahore in the year 1881. Thereafter, a rapid upward trend was observed with growth rate as high as 65.3% for 1921-1931 and 47.64% for 1931-1941. Spatially the city grew from an area of 840 acres (walled city) in 1849 to about 8316.49 acres in the 1940's. The city had reached a population of nearly 4 lakhs and was ranked 9th largest city of un-divided India as per census of 1941. It was also speculated that if the city had not suffered the partition setback in 1947, Amritsar would have achieved metropolitan status decades ago. While population growth dropped to -14.04%, a major slow down in physical growth was observed due to its close proximity to the international border. Though in absolute terms population growth did occur but the growth rate (16% for both decades 1951-1961, 1961-1971) was less than half the growth rate in the decade from 1931-1941. The decade from 1931-1941 that was immediate before the partition was also impacted by the two wars with Pakistan which again inflicted losses and slackened the pace of development. However, in recent development of post 1990, the city has bounced, back to

make swift strides to become the second largest city of Punjab state after Ludhiana and achieving the fastest growth rate (42.67%) amongst all the class I centers of Punjab for the decade 1991-2001. Further within L.P.A Amritsar , it is observed that among the 4 other settlements (except M.C.A), Rayya experiences the highest growth rate of the order of 38.5% and Majitha experienced a growth rate of 31.1% in comparison to other two urban settlements namely: Jandiala and Rajasansi which had comparatively lower growth rate of the order 23.5% and 21.7% respectively. This implies that both these towns are being over shadowed by the growth of the metropolis of Amritsar and will become part and parcel of the metropolis in near future. (Refer map 2)

Table 5: Demographic Trend, Annual Growth Rate and Population Density in Amritsar LPA

CATEGORY OF THE SETTELMENTS	TOTAL POPULATION			GROWTH RATE		POPULATION DENSITY (NO. OF PERSONS/SQ.KM)		
	1981	1991	2001	1991	2001	1981	1991	2001
Amritsar (MC)	5,94,844	7,08,835	10,16,079	19.16	42.67	5,173	6,163	7,137
Rayya (NP)	7,049	9,122	12,631	29.4	38.5	1,007	1,303	1,928
Majitha (M Cl)	8,729	9,912	12,992	13.6	31.1	2,910	3,304	1,113
Jandiala (M Cl)	16,335	19,293	23,834	18.1	23.5	3,889	4,594	1,639
Raja Sansi (NP)	8,107	10,008	12,176	19	21.7	2,027	2,502	785
Villages (LPA)	-	4,97,625	5,82,754	-	26.3	-	423	481

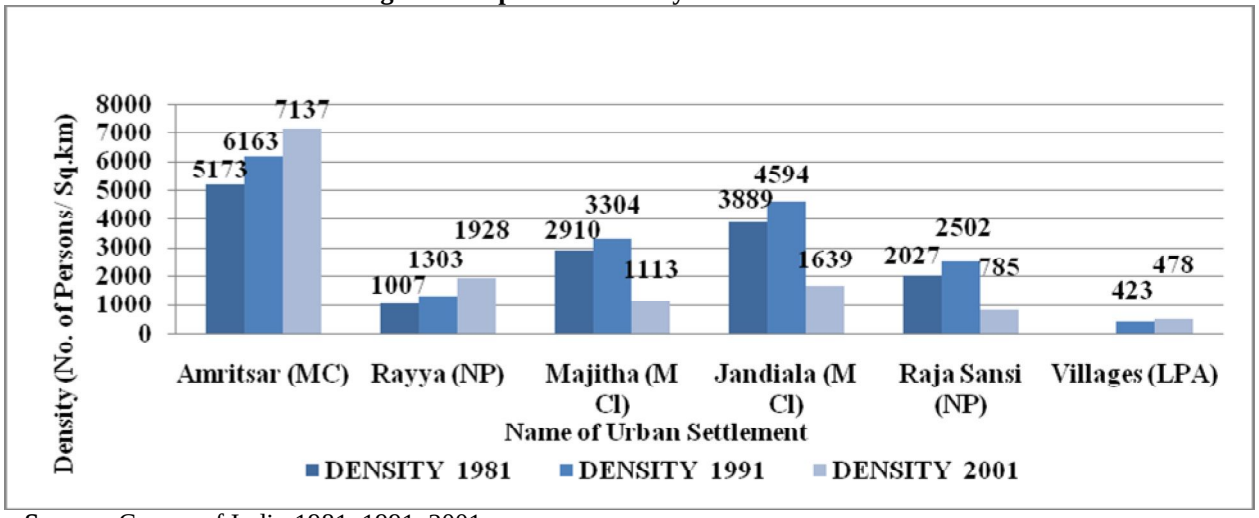
Source: Census of India 1981, 1991, 2001

*Areas of the settlements falling in LPA are as per PRSC map (Refer annexure no. II)

2.1.2 POPULATION DENSITY

The population density in Amritsar L.P.A was of the order of 1,190 persons/square kilometers in 2001 where as density in rural area stood at 481 persons/square kilometer. In comparison to that, the population density of Amritsar city was 7,137 persons per sq.km, which is six times higher than L.P.A. Among the 4 urban settlements, the density of Rayya stands at 1,113 per sq.km which is highest with Rajasansi having the least population density of the order of 785 per sq.km. (Refer map-3)

Fig no.11 Population Density in L.P.A Amritsar



Source: Census of India-1981, 1991, 2001

Taking into consideration the ward wise density in Amritsar, the highest density is observed in the 12 wards which fall within the walled city having density more than 300 persons per hectare (PPH) whereas 7 wards falling outside walled city also have density in the range of 300 persons per hectare and above. (Refer Table 6)

Table 6: Density in Different Wards of Amritsar City

Density	Range (PPH)	No. of Wards	%age
Walled City			
High	Above 300	12	20.00
Medium I	100-200	1	1.67
Outside Walled City			
High	Above 300	7	11.67
Medium II	200-300	6	10
Medium I	100-200	11	18.33
Low	Less than 100	23	38.33
Total		**60**	**100**

Source: Census of India, 2001 and PRSC data

*The area of wards is based on the map supplied by PRSC

The highest density observed within the wards is of ward no.21 and 4 where it is of the order of 860 persons per hectare and 740 persons per hectare respectively. The ward no. 4 is located within the walled city area while ward no.21 is located adjoining the walled city in the southern direction and have density approximately 10 times higher than the city's gross density. The lowest density is of ward no.18, which is of the order of 15 persons per hectare and is merely one fourth of city's gross density. Further, it has been analyzed that 56.3% of high-density area lies within walled city Amritsar (Refer annexure no.III). This makes it crucial as walled city constituting $1/41^{th}$ (3.47 sq.km) of the total city area (142.37sq.km) houses $1/6^{th}$ of the M.C.A population (1, 60,000 persons approximately). Due to such high density, prevailing in the city core poor quality of life and unhealthy living conditions have been witnessed which requires special strategies. (Refer map 4)

2.1.3 SEX RATIO

The over all sex ratio for the Amritsar L.P.A stands at 865 which is less than the district and state figure of 872 and 876 females/1000 males respectively.

Table 7: Sex Ratio in Amritsar L.P.A

Category of Settlements	Sex Ratio (No. of Females/1000 Males)		
	1981	1991	2001
Amritsar (MC)	853	883	865
Majitha (M Cl)	896	869	889
Jandiala (M Cl)	907	893	869
Rayya (NP)	898	787	904
Raja Sansi (NP)	-	892	848
Villages (LPA)			872

Source: Census of India 1981, 1991, 2001

There has been decrease in the sex ratio of M.C Amritsar from 883 in 1991 to 865 in 2001. On comparing the sex ratio in other four urban settlements in the LPA, it has been observed that Rayya has the highest sex ratio of 904 and Rajasansi has the lowest sex ratio of 848. (Refer table no.7). This decrease in sex ratio could be due to increasing male migration in the city for work and other reasons.

Religious Composition: Hindus constitute 50.23% of total population of Amritsar city, while 47.92% are Sikhs and 1.85% are Christians and rest of the population belongs to other religions including Muslims, Jains, Buddhist as per 2001 census.

2.1.4 LITERACY RATE

Table 8: Literacy Rate in Amritsar L.P.A

Category of the Settlements	Literacy Rate (in %Age)	
	1991	2001
Amritsar (MC)	75.26	79.55
Majitha (M Cl)	62.49	67.30
Jandiala (M Cl)	67.25	75.26
Rayya (NP)	73.61	78.53
Raja Sansi (NP)	57.40	63.67

Source: Census of India 1981, 1991, 2001

The literacy rate is highest in M.C Amritsar compared to other urban settlements in L.P.A which stands at 79.55% as per census 2001 followed by Rayya which is 78.53% with the least being in Rajasansi that is 63.67%. The literacy rate in M.C Amritsar is higher than the district literacy rate of 70.4%.

It has also been observed that literacy rate has increased in all the five urban settlements in L.P.A in 2001 from the year 1991. The maximum increase in the literacy rate has been observed in Jandiala where the increase has been of the order of 8% followed by Rayya where it has increased by 6.20%. (Refer table no.8)

2.1.5 SC/ ST COMPOSITION

The total SC population in the Amritsar city is 1, 82,261 persons which is 18.9% of the total population in 2001.

Table 9: SC Population in Amritsar LPA

Category of the Settlements	%age of SC Population		
	1981	1991	2001
Amritsar District	-	28.00	27.34
Amritsar (MC)	16.0	17.6	18.9
Majitha (M Cl)	19.4	39.1	18.0
Jandiala (M Cl)	26.5	29.9	32.6
Rayya (NP)	22.0	22.0	24.7
Raja Sansi (NP)	-	40.9	37.4
Villages (LPA)	-	-	38.2

Source: Census of India 1981, 1991, 2001

Among the five urban settlements in Amritsar L.P.A, Rajasansi has maximum percentage of SC population, which stands at 37.4% followed by Jandiala with 32.6% share. Percentage share of scheduled caste population in rural area of Amritsar L.P.A is 38.2%, which is highest, compared to urban areas in L.P.A.

2.1.6 MIGRATION

Migration forms an important component of process of urbanization. Census of India defines the migration in two ways viz.

Migrants by Place of Birth: Migrants by place of birth are those who are enumerated at a village/town at the time of census other than their place of birth.

Migrants by Place of Last Residence: A person is considered as migrant by the place of last residence, if the place in which he is enumerated during the census is other than his place of immediate last residence.

Migration at Punjab Level: The migration data provided in the Migration Tables of Primary Census Abstract by Place of Last Residence is of two types. The first one is related to all types of migrants while the second one is concerned with migrants seeking work/employment. The data available for both categories are for in-migrants and are for urban population of Amritsar district. To calculate the data for Amritsar city, the share of Amritsar city population in the urban population of Amritsar district is considered i.e. 91.5%, and the same is applied to take out the number of in-migrants for Amritsar city from the in-migrants in urban population of district. The migration data for all types of in-migrants for Amritsar city is given in the table below:

Table 10: Total Migrants and Migrants in Last 10 Years by Place of Last Residence to Amritsar city (2001)

Last Residence	Total Migrants (since 1971)	%age of Total Migrants	Migrants in Last 10 Yrs	%age of Total Migrants
Elsewhere in the district of enumeration	1,78,628	55.13	30,097	38.25
In other districts of the state of enumeration	57,716	17.81	16,702	21.22
States in India beyond the state of enumeration	71,596	22.10	30,644	38.94
Last residence outside India	16,086	4.96	1,245	1.58
Total	**3,24,026**	**100.00**	**78,688**	**100.00**

Source: Census of India, 2001

***Note**: Here "district of enumeration" term includes Tarn Taran District too.*

The total number of migrants since 1971 to Amritsar city is around 3.2 lakhs, out of which more than half had the last residence within the Amritsar District (includes Tarn Taran). Less than 1/5th of the migrants have moved from the other districts of the state only while more than 1/5th come from the other states of the country. Only $1/20^{th}$ migrants have migrated from outside countries. In case of migration occurred in the last 10 years, almost 2/5th of the migration is of intra district type showing a decline in percentage share in comparison to that of total data.

Almost the same numbers i.e. 30,644 are migrants from other states showing a substantial percentage rise. On the other hand, the share of foreign in-migrants has fallen down drastically to 1.58%.

Table 11: Total Migrants by Place of Last Residence from different states to Amritsar City (2001)

State	For All Years (since 1971)		For Last 10 Years	
	No. of Migrants	%age of Total Migrants	No. of Migrants	%age of Total Migrants
Uttar Pradesh	24,039	33.58	10,770	35.14
Himachal Pradesh	9,414	13.15	2,967	9.68
Bihar	9,277	12.96	5,202	16.98
Haryana	4,657	6.50	1,710	5.58
Delhi	3,957	5.53	1,373	4.48
Jammu & Kashmir	3,282	4.58	1,288	4.20
Rajasthan	3,238	4.52	1,250	4.08
West Bengal	2,502	3.49	1,036	3.38
Uttaranchal	2,234	3.12	981	3.20
Others	8,992	12.56	4,067	13.27
TOTAL	**71,596**	**100**	**30,644**	**100.00**

Source: Census of India, 2001

While comparing the interstate migration, i.e. the migration happened within the country but outside Punjab, the total number of migrants is 71,596. Out of these, 1/3rd alone is from Uttar Pradesh while more than 1/10th is from Himachal Pradesh and Bihar, each. The other important contributors with more than 3% share are Haryana, Delhi, J & K, Rajasthan, West Bengal and Uttaranchal. The other states constitute more than 1/10th of the migrants.

In case of migration happened between 1991 and 2001, almost 30 thousand people are expected to have come up in the city for work and other reasons. Out of these, again U. P. has the largest share with more than 1/3rd of the migrant people. Bihar ranks second registering 1/6th migration, while H. P. comes third with less than 1/10th migration to Amritsar city. The share of states other than those listed above is again more than 1/10th of the migration happened in the last 10 years.

Table 12: Migration of Workers by Place of Last Residence to Amritsar city (2001)

Sr. No.	Place of Last Residence	No. of Migrant Workers	%age of Total Migrant Workers
1	Elsewhere in the district of enumeration	60,925	50.87
2	In other districts of the state of enumeration	18,819	15.71
3	States in India beyond the state of enumeration	34,221	28.57
4	Last residence outside India	5,806	4.85
	Total	**1,19,770**	**100.00**

Source: Census of India, 2001

Note: Here "district of enumeration" term includes Tarn Taran District too.

The migration of people seeking work or employment is the most important part of the total migrants, as it is considered as the prime factor responsible for migration. The total number of migrant workers in Amritsar city since 1971is more than 1lakh which forms 37% share of the total migrant population in the city. More than half of the migrant workers are from within the

Amritsar District (including Tarn Taran District). Almost 1/6th have migrated from the other districts of Punjab, while around 3/10th migrant workers have come from other states in search of job. The rest 1/20th workers have migrated from the other countries.

2.2 ECONOMY AND EMPLOYMENT

2.2.1 WORK FORCE PARTICIPATION

The overall Work Force Participation Ratio (Ratio of total workers Vs total population) for Amritsar L.P.A stands at 34.15%, which is less than the district and state figure of 35.39% and 37.5% respectively. Within the urban and rural areas in Amritsar L.P.A, the rural areas have been observed to have higher work force participation ratio than urban areas. It can be implied from the data that towns generally have a low work force participation ratio in comparison to that of the villages. This may be because of agriculture practices prevailing in the villages, which is labor intensive. (Refer table 13)

Table 13: Percentage of Workers and Non-Workers in L.P.A Amritsar, 2001

State/District/City /Village	Total Population	Total Workers	Total Workers (% of Total Population)	Non-Workers (% of Total Population)	Main Workers (% of Total Workers)	Marginal Workers (% of Total Workers)
Punjab	243,58,999	91,27,474	37.5	62.5	85.8	14.2
Amritsar District	21,57,000	7,63,452	35.39	64.61	86.32	13.68
Amritsar (MC)	10,16,079	3,28,919	32.37	67.63	93.7	6.3
Jandiala	23,834	7,441	31.2	68.8	90.8	9.2
Majitha	12,992	3,978	30.6	69.4	75.5	24.5
Rajasansi	12,176	4,118	33.8	66.2	82.1	17.9
Rayya	12,631	3,775	29.9	70.1	96.4	3.6
All 310 Villages	5,82,754	2,18,802	37.54	62.45	80.1	19.9
Total LPA	**1660466**	**5,67,033**	**34.15**	**65.85**	**88.2**	**11.8**

Source: Census of India, 2001

On comparing the work force participation ratio within the urban settlements in Amritsar L.P.A, it has been observed that Rajasansi has highest ratio, which is of the order of 33.8% followed by M.C Amritsar i.e. 32.37% while it is lowest in Rayya, i.e. 29.9%.

2.2.2 OCCUPATIONAL STRUCTURE:

The occupational structure of LPA Amritsar has been assessed by the number of workers engaged in the four categories namely cultivators, agricultural laborers, household industry and others as described in census 2001 is shown in the table below.

Table 14: Occupational Structure of Amritsar LPA

	Cultivators (%)	Agricultural Labourers (%)	Household Industries (%)	Others (%)	Total (%)
Amritsar MC	3,004 (1)	6,213 (2)	12,317 (4)	2,86,663 (93)	3,08,197 (100)
Urban Settlements in LPA	760 (4.53)	1,246 (7.42)	656 (3.9)	14,114 (84.15)	16,776 (100)
310 Villages in LPA	49,011 (27.98)	31,478 (17.97)	5,918 (3.38)	88,743 (50.67)	1,75,150 (100)
Total LPA	52,775 (10.55)	38,937 (7.78)	18,891(3.77)	3,89,523 (77.9)	5,00,123 (100)

Source: Census of India, 2001

It has been observed that 93% of the workers in Amritsar city are engaged in other activities (mainly tertiary activities), 4% in household industry and 3% in primary activities i.e cultivators and agricultural laborers. Likewise, 77.9% of the working population in the Amritsar LPA is engaged in the tertiary activities with 18.33% in primary activities.

Table 15: Industrial Classification of Main Workers in Amritsar City

Classification No.	NIC Code	Type of worker	1991		2001	
			Number of Workers	%age	Number of Workers	%age
		(I) PRIMARY-				
1	A & B	Cultivators	4,603	2.16	3,004	0.97
2		Agricultural laborers	12,405	5.81	6,213	2.02
3		Plantation, Livestock, Forestry, Fishing, Hunting and allied activities	1,398	0.65	3,023	0.98
4	C	Mining and Quarrying	9	0.00	212	0.07
		(II) SECONDARY-				
5 (a)	D	Manufacturing processing and repairs industry (Household industry)	483	0.23	12,317	4.00
5 (b)		Manufacturing processing and repairs industry (Other than Household)	60,678	28.43	67,632	21.94
	E	Electricity, Gas and Water Supply			3,592	1.17
6	F	Constructions	6,957	3.26	20,989	6.81
		(III) TERTIARY-				
7	G	Whole sale and Retail trade	64,730	30.32	79,033	25.64
	H	Hotels and Restaurants			4,073	1.32
8	I	Transport, Storage and Communications	15,903	7.45	24,595	7.98
9	J & K	Financial Intermediation; Real Estate Renting and Business Activities.	46,293	21.69	19,814	6.43
	L to Q	Public Administration and Defence; Compulsory Social Security; Education; Health and Social Work; Other Community, Social and Personal Service Activities; Private Households with Employed Persons; Extra-Territorial Organisations and Bodies.			63,700	20.67
		Total	**2,13,459**	100.00	**3,08,197**	100.00

Source: Census of India-2001

The table above shows that the main workers in Amritsar city, classified into 9 categories as per census 2001. It has been found that out of the total workers in Amritsar city, 26.96% of the

workers are engaged in Wholesale and Retail Trade followed by 21.94% in manufacturing, processing &repairs industry and 20.67% in public administration and others since Amritsar is the district head quarter. The increase in number of workers have been observed in the construction, manufacturing processing and repair industry (household industry) and in the ninth category which includes financial intermediaries, real estate renting and business activities and public administration and defence services (J&K and L to Q).

2.2.3 DEPENDENCY RATIO

Dependency Ratio in any settlement/city is an indicator of total number of non-workers dependant on total number of workers and is calculated as per 100 workers. Amritsar city has dependency ratio higher (214) than that of state (167) and district (178). Further, it has been analyzed that Rayya has highest dependency ratio standing at 235 followed by Majitha M.Cl that is of the order of 227 per 100 workers. The villages on the other hand have comparatively lowest share of dependency (168) in LPA. Overall, the dependency ratio in LPA Amritsar is of the order 196.

Table 16: Dependency Ratio for Different Settlements in Amritsar L.P.A

State/District/Town/Village	Dependency Ratio (Dependants/ 100 workers)
Amritsar M.C.	214
Jandiala M.Cl	220
Majitha M.Cl	227
Raja Sansi N.P	196
Rayya N.P	235
Villages	168
Total LPA	196

Source: Census of India, 2001

2.2.4 EMERGING ECONOMIC DRIVERS OF L.P.A

Several economic drivers have been identified within the Amritsar L.P.A. Recently, booming real estate activities have been observed with the coming up of several residential colonies such as Impact Gardens (a mega project), Garden Enclave, Shubham Enclave, Ansal City, Heritage City etc and has played a great role in both the physical and economic development of the city. Besides this, several shopping malls and multiplexes, like Celebration Mall, Alpha One, Trilium, etc. have come up or are under construction in the Amritsar city along with commercial retail chains like Bharti Walmart's Best price on GT road near Manawala, Tata retail chain stores, reliance retail chain stores etc., which when operational will contribute towards the economic development. Further, there is proposal for establishment of World-Class Central University in the Amritsar, which will give employment to large number of people.

The Amritsar over the period of time has also established its mark in the tourism industry due to the presence of Golden Temple and other historical sites such as Ram Tirath, Wagah Border etc. The city is witnessing boom in hotel and restaurant industry due to large influx of tourists on daily basis. Several projects are being undertaken to conserve and enhance the city heritage and to improve the city infrastructure to attract more and more number of tourists. The booming tourism industry is bound to give employment to large number of people in near future. Existing economic drivers are studied in terms of Industry, trade/commerce, tourism and agriculture/allied activities.

Fig no.12 Alpha One on GT road towards Jalandhar

Fig no. 13 Upcoming mega project Shubham Enclave

Fig no. 14 Best Price on GT road near Manawala

2.2.5 INDUSTRIAL GROWTH

Fig no.15 Industries at the Focal Point, Mehta Road

Amritsar before partition was re-knowned in terms of industries of woolen tweeds, suiting's, blankets, shawls etc but got setback later. Amritsar district in overall had 26, 080 numbers of small-scale industrial units with 1, 15, 423 numbers of workers and 13 numbers of large/medium scale units with 5,910 number of workers in 2007. In existing status, it has been observed that 69% of the district's small-scale industries are located within the Amritsar city employing approximately 71% of the workers engaged in SSI units. Nearly 61.5% of the medium and large- scale units are located within the city which includes Khanna Paper Mill on Fatehgarh Churian Road, Verka Milk Plant, Northern Railway Mechanical Workshop, O.C.M Mill on Attari Road, Gopi Fabrics Pvt.Ltd etc.

Table 17: **Major Industrial Locations in Amritsar City**

Sr.No.	Industrial locations	Sr.No.	Industrial locations
1	Focal Point, along Vallah Road – Mixed (Engineering, Textile, etc.)	6	Putlighar, Islamabad – Textile
2	Focal Point Extension, along Vallah Road – Mixed (Engineering, Textile, etc.)	7	Chheharta Industrial Area, G.T. Road, towards Attari – Textile
3	New Focal Point along Mehta Road	8	Verka Industrial Area, along Batala Road – Textile
4	Industries in East Mohan Nagar	9	Majitha Road – Textile
5	Along G.T Road towards Amritsar Engineering College	10	Batala Road – Textile

Source: District Industrial centre, Amritsar

The spatial analysis highlights that except industrial focal points which are considered as planned schemes, industries are scattered all along the major corridors of development. Industries scattered all over in Amritsar city, which creates problem of non-compatibility as well as pollution. There is an urgent need to develop industries in a comprehensive manner, they should have specific zone with all state of art infrastructure needs to be identified.

INDUSTRIAL EMPLOYMENT AND PRODUCTION

Industrial employment from small scale/ medium/ large-scale industries in the Amritsar city has been analysed from 2003 to 2007 in comparison to the Amritsar District, which is shown in the table below:

Table 18: Comparison of Industrial Data at City and District Level, 2007

Area	Small Scale Industries				Medium/Large Scale Industries			
	No. of Units	No. of Employees	Fixed Capital (Crores Rs.)	Production (Crores Rs.)	No. of medium/ large Units	No. of Employees	Fixed Capital (Crores Rs.)	Production (Crores Rs.)
Amritsar District	26,080	1,15,423	695.32	3,836.61	13	5,910	921.33	826.51
Amritsar City	17,985	81,772	-	-	8	4,091	-	-
% share of City to District	68.96%	70.84%	-	-	61.5%	69.2%	-	-

Source: District Industries Centre, Amritsar

The table no 18 shows that the Amritsar city has the highest no. of small scale units (17,985 units) as compared to medium and large scale units which are only 8 in no. and also provides highest employment (81,772), the share of employment in city comes to 70.84% of the district.

Keeping in view the positive contribution made by small-scale industrial units in the employment generation, the similar contribution has been done in their investment as well as production in the district. Looking at the fixed capital investment in the year 2007, the total investment in case of small-scale industries was of the order of Rs 695.32 crores while in case of large and medium scale industries, it was of the order of Rs 921.33 crores. Similarly, small-scale industries also stand highest in case of production, in the year 2007, the production from small scale units stands at Rs 3,836.61 crores as against the large / medium scale units Rs 826.51 crores.

INDUSTRIAL ESTATE/FOCAL POINT

Focal Points have been setup in the city of Amritsar by Department of Industries under State Govt. Policy to facilitate industrial development in cities with potential for industrialization.

Amritsar with high potential for industrial growth has three focal points. The details of the focal points and industrial estates in Amritsar city within L.P.A are given in the table below.

Table 19: Details of Industrial Estates/Focal Points in Amritsar LPA

Sr. No.	Industrial Estate/Focal Point	Total Area (in Acres)	No. of Sheds/Plots	Allotted	Vacant
Amritsar M.C.					
1	Focal Point, Vallah Road, Amritsar City	94.05	237	237	___
2	Focal Point Extension, Vallah Road, Amritsar City	81.43	176	176	___
3	New Focal point, Mehta Road, Amritsar	184.04	464	416	48
Total		**359.52**	**877**	**829**	**48**
4	Industrial Development Colony, Chheharta, GT Road, Amritsar	23.09	55	52	___
Total of M.C.		382.61	**932**	**881**	**48**
Amritsar LPA					
5	Rural Industrial Estate, Kathu Nangal	3.30	8	6	___
Grand Total		**385.91**	**940**	**887**	**48**

Source: District Industries Centre, Amritsar

Fig no.16 Poor road infrastructure, water logging and open dumping of industrial waste in Focal Point, Amritsar

Within Municipal Corporation, Amritsar, the three Focal Points cover a total area of 359.52 acres with a total of 877 industrial sheds/ plots. A rural industrial estate also exists at Kathu Nangal with an area of 3.30 acres. The existing focal points although have provision of water supply, sewerage and storm water drainage but they lack maintenance. The internal roads in the old focal point are not well maintained. Open disposal of hazardous waste and other industrial waste has been observed which needs to be regulated.

A Sector specific Special Economic Zone (SEZ) dedicated to Textiles is coming up in Amritsar at *Khasa* village on GT Road towards Attari. The Punjab-based Ishan Developers and Infrastructure Limited, is developing The Integrated Textile Park on 100 hectares at village *Khasa* in Amritsar with the investment of Rs 1,861 crores. The project is expected to provide employment to 15,000 people.

2.2.5.1 Ongoing Projects/Proposals:

- Punjab Small Industries and Export Corporation (PSIEC) is developing a New Focal Point on Mehta Road along Bypass. The scheme is of Small Township with all facilities located at the same place. The total area of the scheme is 184.04 acres, 62.05 acres of which is allocated for industrial plots numbering 459 plots. The industries coming here are related to power loom, electroplating, dyeing, etc.
- Setting up of Information Technology Park - The Govt. of Punjab has been requested to set up an IT Park at Amritsar. The work on the land identification and other issues shall commence shortly.

2.2.5.2 Key Issues

1) Scattered industries – no consideration to accessibility/approach/wind direction in the location has been given
2) Absence of Comprehensive Industrial Zone with all State of Art Infrastructure
3) Industrial units along major roads if developed without proper policies/strategies
4) The lost glory of Amritsar city in terms of woolen tweeds, suiting's, blankets requires immediate restoration.
5) Location of industries within residential areas causing pollution in the residential areas
6) Absence of food processing industry or cold storage facility

2.2.6 TRADE AND COMMERCE

Amritsar from the historical times has earned the image of being an important commercial city as it is a gateway to Indo Pakistan. It is also an important regional market center for agricultural goods, woolen, spices and dry fruits. Today, it is India's important distribution centre of dry-fruits, tea (next only to Kolkata), and is leading exporter of goods to the Middle East. woolen tweeds, suiting's, blankets, shawls in traditional weaves, ivory (now plastic) inlay furniture, swords of all designs, oils, scents, *jutties* (traditional embroidered shoes), cut-glass crockery, selective musical instruments, carpets are manufactured here. Its pickles, *murabbas* (Indian jams), *papads, warian* and sweetmeats are exported to far off places, right into Punjabi Diaspora abroad. With a population of more than 10 lakhs and a number of educational institutions, wholesale markets, industrial focal points, banks, hotels and restaurants, Amritsar has strengthened its base as second largest commercial city of Punjab.

The importance of trade and commerce as an economic function of the Amritsar city can be judged from the very fact that 92.28% of the total working population of the city is involved into

tertiary activities while 75.22% of the total working population of Amritsar L.P.A is engaged into tertiary sector. The larger share of working population in trade and commerce related to an activity reflects that it is the mainstay of the people in the city.

MAJOR COMMERCIAL AREAS/MARKETS IN AMRITSAR

Commercial area in Amritsar constitutes 3% of the total city area. Apart from the conventional specialized bazaar system existing in the walled city and civil lines area of the city such as that on Queens Road, Court Road, M.M Malviya Road and Lawrence Road, the establishment of District Shopping Complex at B Block, Ranjit Avenue (area 61 acre) and shopping complexes along Lawrence Road, Mall Road and Ranjit Avenue provides residents with a whole new experience of shopping in the city. This new concept of shopping malls/complexes and multiplexes are fast catching up the city. In addition, large shopping areas have been developed in the residential plots under the govt. policy of permitting change of landuse from residential to commercial. Major residential areas impacted under this policy include Mall Road, Lawrence Road, M.M. Malviya Road and residential areas located along major road networks of the city. However, change of land use from residential to commercial without providing adequate parking has adversely impacted the quality of life in these areas. Opening up of commercial areas along all minor/major streets needs to be taken care off.

The walled city, Amritsar is the major commercial area or “C.B.D” of the city having many specialized bazaars. The total character of the walled city is marked by mixed land use with commercial use on the ground floor while with residential on the upper floors. However, with the passage of time and commercial activities getting concentrated in the walled city, there is large-scale conversion of residential areas into commercial use even on upper floors. This pattern is more pronounced in the areas defined by Katra Ahluwalia, Karmon Deori, Shastri Market, Hall Bazaar etc wherein the availability of space is a constraint and land prices are very high. Some of the important specialized bazaars existing in the walled city, Amritsar are listed in the table no. 20. Outside Hall Gate & behind Municipal parking on Bhandri Bridge exists the whole sale market of tyres, batteries, private transport offices and eating joints also prevail in this market. These specalised bazaars on one hand impact economy of the city whereas on the other hand represents its specific medieval character.

New commercial areas have or are coming up in Amritsar city in the form of malls and multiplexes primarily on Mall Road, Batala Road (Celebration Mall), G. T. Road (Alpha One) and Circular Road (Trilium at Mental Hospital site with around 5.5 acres area by Tata Realty and Infrastructure Limited) where land use conversion has taken place from residential to

commercial, hence, pressurizing the infrastructure beyond its limits. Frequent traffic jams and on street parking is a common character.

Table 20: Major specialized Markets in Amritsar City

Sr. No.	Name of Market	Type of Goods Available	Whole sale/Retail/Both
1.	Guru Bazaar	Gold Jewellery	Both
2.	Bazaar Kesarian	Steel and Brass Utensils	Retail
3.	Katra Kathian	Papads, Warian, Murabbas, Pickles, Aam Papad	Both
4.	Mishri Bazaar	Dry Fruits	Whole sale
5.	Churi bazaar	Glass Bangles	Whole sale
6.	Katra Jaimal	Clothes/Garments and Shoes	Both
7.	Partap Bazaar	Clothes/Wholesale Readymade Garments	Both
8.	Shastri Market	Wholesale Woolen (Blankets, Shawls, etc.) and Sales	Whole sale
9.	Katra Ahluwalia	Wholesale Clothes	Whole sale
10.	Bazaar Mai Sewan	Wholesale Stationery	Whole sale
11.	Hall Bazaar	Electronics and Books	Both
12.	Lawrence Road	Garments and Restaurants	Retail
13.	Majith Mandi	Wholesale Dry Fruits and Spices	Whole sale
14.	Dal Mandi	Pulses and Spices	Whole sale
15.	Dhab Basti Ram	Soaps	Whole sale
16.	Queens Road & Court Road	Car Dealers	Retail
17.	Malviya Road	Readymade Garments	Retail
18.	Katra Sher Singh	Wholesale Medicines	Whole sale
19.	Fish Market	Fish	Whole sale
20.	Pink plaza	Garments	Retail
21.	IDH Market (Behind bus stand)	Multipurpose	Both
22.	Putligarh market	Garments , Mix	Retail

Source: Municipal Corporation, Amritsar

Fig no.17: Electronics' Market at Hall Bazaar

Fig no.18: Readymade Cloth Market at Katra Jaimal Singh

Fig no.19: View of Shopping Complexes on Mall Road

Fig no.20: District Shopping Complex at Ranjit Avenue

INFORMAL SECTOR

In addition to these traditional markets and those provided under various schemes, city has large number of informal markets. The genesis of these informal markets has its origin in the large number of tourists and visitors coming to the city daily, lack of formal commercial spaces, high land values and land disposal policy of the parastatal agencies. Most of these informal markets are located around the major traffic nodes including railway station, bus stand and places of tourist interest and religious centres including Golden Temple, Jallianwala Bagh, Durgiana Mandir, Baba Atal etc., areas outside walled city to supplement the commercial requirements of people living within the walled city and visitors to the city. Mushrooming of these informal commercial markets have been witnessed in and around the health, education and recreational facilities such as outside Rambagh Garden, Guru Nanak Hospital. Most of these informal markets are located on road berms, vacant land/open spaces, parking lots etc. creating numerous problems in the efficient functioning of the city including traffic and transportation. In order to rationalize the growth and development of the city, informal sector needs to be made integral part of the city planning and development process. Options for creating more affordable commercial areas in terms of day markets needs to be explored in order to enable the informal sector contribute to the economic growth of the city.

Informal sector, survey in the city has been conducted in order to have better understanding of the exact nature and characteristics of these areas. The major considerations taken while analyzing the informal activities in these stretch/junctions are surrounding land use, character of land use activity, effective width of road reduced due to encroachments and informal activity. The nature of informal activity, whether it is permanent, temporary or mobile, duration of time and peak hours of informal activities, space occupied for particular use, availability of infrastructure, source of electricity, mode of disposal generated by these informal vendors. Informal parking and on- street parking. The following table no. 21 describes the location of various stretches/junctions taken for study in the city.

Table 21: Details of Informal Sector Stretches/Junctions in the city

Name of Stretch/ Junctions	Surrounding Land uses	Major Characteristics	Encroachment	No. of Rehris	Infrastructure available	SWM	Parking	Pedestrian Facilities	Street Light
Majitha Road	Mixed land use	Commercial	yes	50	No	Collection bins of MCA	No	No	Yes
Guru Tegh Bahadur Hospital	Mixed land use	Commercial	yes	25	No	Collection bins of MCA	No	No	Yes

Name of Stretch/ Junctions	Surrounding Land uses	Major Characteristics	Encroachment	No. of Rehris	Infrastructure available	SWM	Parking	Pedestrian Facilities	Street Light
Guru Nanak Hospital	Mixed land use	Commercial	yes	20	No	Collection bins of MCA	No	No	Yes
Ram Bagh	Mixed land use	Commercial	yes	50	No	Collection bins of MCA	Yes but on street parking is seen	No	Yes
Lawrence Road	Mixed land use	Commercial	yes	10	No	Collection bins of MCA	inadequate parking	Yes	Yes
Basant Avenue School	Mixed land use	Commercial	yes	12	public toilet	Collection bins of MCA	inadequate parking	No	Yes
Near Golden Temple	Mixed land use	Commercial	yes	50	Yes	Collection bins of MCA	Yes but on street parking is seen	No	Yes
Baba Deep Singh Gurudawara	Mixed land use	Commercial	yes	40	The source of electricity is From Nearby shops and some from rechargeable Batteries	Collection bins of MCA	inadequate parking	Yes	Yes
Durgiana Temple	Mixed land use	Commercial	yes	15	Church, Bus stop, Public toilet, Dust Bin (Iron), Tourist Information Centre along the railway station and electricity facility	Collection bins of MCA	Un-authorized parking along the roads	Yes	Yes
Fish Market	Mixed land use	Commercial	yes	12	No	No	No	No	Yes (out of order)
Bus stand	Mixed land use	Commercial	yes	28	Public toilet, Dust Bin (Iron), and electricity facility	Collection bins of MCA	Yes	Yes	Yes
Near Crystal Chowk	Mixed land use	Commercial	yes	25	No	Collection bins of MCA	Un-authorized parking along the roads	No	Yes
Sultan wind Gate	Mixed land use	Commercial	yes	20	-	-	-	-	-
Lohgarh Gate	Mixed land use	Commercial	yes	30	No	Collection bins of MCA	No	No	Yes (out of order)

Source: Primary Survey, SAI Team, August 2009

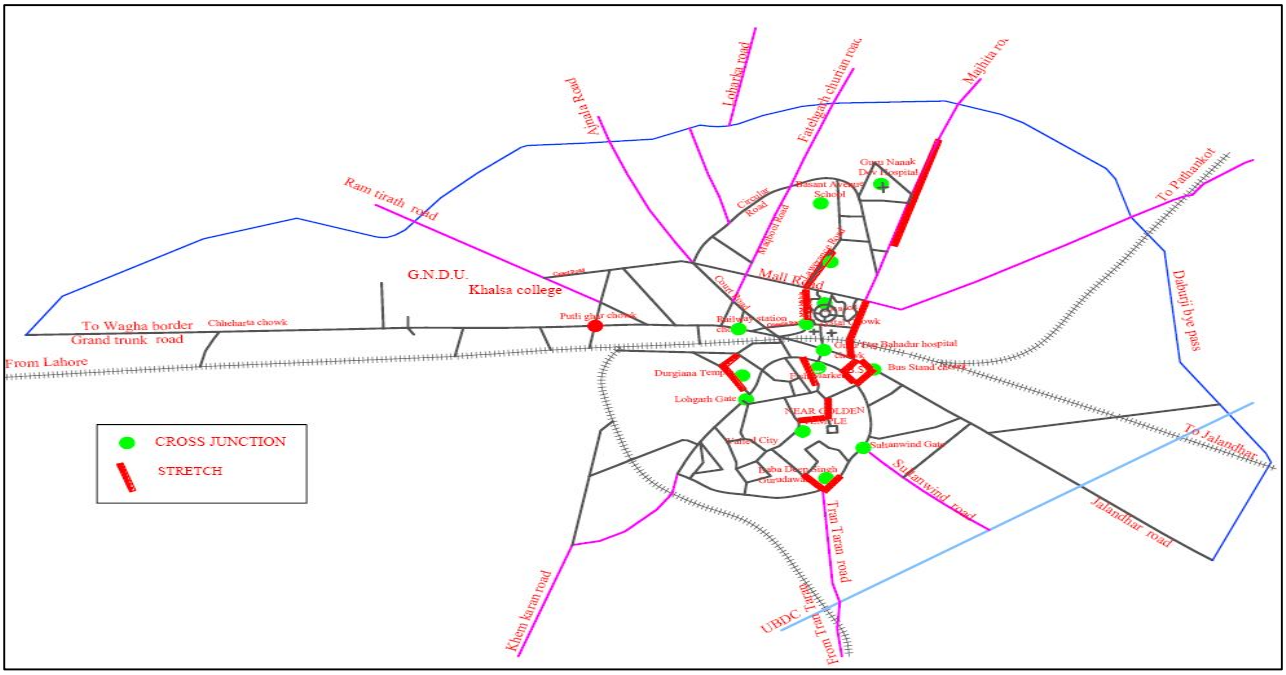


Fig no.21: Location of Informal Sector Stretches

The issue is to have formal spaces for such informal markets so that they don't create problem rather help in economic generation of the cities.

Fig no.22: View of On-street parking and Informal Market opposite Baba Deep Singh Gurudwara

2.2.6.1 KEY ISSUES

- The markets of the walled city are highly congested and have high density. Due to absence of adequate parking and organized commercial area the movement in these areas has been hampered.
- The narrow streets and road encroachments have further degraded the aesthetic and potential of the area. This has affected the trade of the markets and thus their existence.
- No institution dedicated to research and development of traditional industrial products of the city, like shawls, is established to improve their quality, cost effectiveness and marketing.
- No commercial complex for banking, insurance and share market exists in the city

2.2.7 AGRICULTURE AND ALLIED ACTIVITIES

District Amritsar has 84% of its total geographical area as "Net Sown Area" under various crops, which is 5.32% of the net sown area in the state. The total cropped area in the district is 5.39% of the state and ranks 8th among other districts. 100% of the gross cropped area in the district is irrigated. 75.67% of the net sown area in the district is irrigated through tube wells and wells and the remaining 24.33% of the area is irrigated through network of government canals in the district i.e. Upper Bari Doab Canal.

PRINCIPAL CROPS

The principal crops in the Amritsar district are Wheat and Paddy as it ranks 8th in rice production and 9th in wheat production among the districts of the state. Both these crops have largest area under cultivation in the district, as yield per hectare of land is highest.

AGRICULTURAL MARKETS

Amritsar district has total 8 regulated markets out of which 6 markets namely Amritsar, Chogawan, Majitha, Attari, Rayya and Gehri fall within the Amritsar L.P.A. The other two markets namely Ajnala and Mehta are in close proximity but fall out fall Amritsar L.P.A.

Table 22: Information regarding Regulated Markets in District, 2006-07

District	No. of Regulated Markets		No. of Sub Yards attached with Regulated Markets		Average No. of Villages served per Regulated Market		Average Area served per Regulated Market (Sq. Km.)	
	2005-06	2006-07	2005-06	2006-07	2005-06	2006-07	2005-06	2006-07
Punjab	145	145	294	294	85	85	347	347
Amritsar	15	8	37	15	79	89	340	331

Source: Statistical Abstract of Punjab, 2008

There are three agricultural markets within the Amritsar city situated at Vallah, Bhagtanwala and Chheharta. The market at Bhagtanwala is mainly the grain market located outside the walled city, which deals with the procurement of food grains and cereals whereas the old fruit and vegetable market was located outside the Hall gate. The agricultural market at Vallah- situated on the Amritsar-Jalandhar Rail line opposite to Focal Point in an area of 102 acres, is the new grain cum fruit & vegetable market. The reason behind locating of new site for grain cum fruit & vegetable market is to shift wholesale markets existing within the city especially near the walled city area as it caused lot of congestion due to heavy movement of trucks. The table below gives details of the crop arrival along with the season and no. of villages served by the various mandi's falling within Amritsar L.P.A (refer table 23).

Fig no.23: Existing Grain Market at Bhagtanwala

Fig no.24: New Fruit & Vegetable Market at Vallah

Table 23: Details of Crop Arrivals Mandis coming within LPA limit

Mandi	Area (Acres)	Principal Crops	Annual Arrival (Metric Ton)	Arrival Season	No. of Villages served
Amritsar	105	Wheat Rice Tomato Apple Banana Mango Mausami	- - 131031 82850 187448 61693 12273	April-May Sep-Dec Aug-Feb Aug-Feb Aug-Feb Aug-Feb Aug-Feb	500
Gehri	49.18	Wheat Sunflower Paddy	53561 1740 11915	 May-June Aug-Dec	32
Rayya	32	Wheat Sarson Paddy Basmati Toria	40000 75 50000 6800 20	April-May April Aug-Oct April April-May	74
Chogawan		Wheat Paddy	92000 32000	April-May Aug-Dec	132
Majitha	18.5	Wheat Paddy Basmati Fruit/Veg. Wood	43018 40382 450 1800 1500	April-May Sep-Nov Dec Jan-Dec Jan-Dec	97
Attari	20	Wheat Paddy	70406 42362	April-May Sep-Dec	71

Source: Punjab Mandi Board, 2008

It has been observed that new fruit and vegetable market at Vallah Mandi requires shifting as an ammunition depot is situated close to it. As per the norms an area of approx 900mts around the ammunition depot is to be declared as no construction zone wherein the fruit and vegetable market at Vallah falls within this 900mts zone.

ALLIED ACTIVITIES

Allied activities such as dairying, animal husbandry, fisheries etc also form a strong economic base for the Amritsar L.P.A apart from agriculture. Amritsar district has 2nd highest number of livestock after Ludhiana in the state of Punjab. Amritsar district holds 1.44% of the total poultry

in the state of Punjab. The details of livestock and poultry in the district are shown in the table no. 24.

Table 24: Details of livestock and poultry in the Amritsar district, 2007

Livestock and Poultry in District Amritsar, 2007 ('000)										
	Cattle	**Buffaloes**	**Donkeys**	**Horses & Ponies**	**Mules & ponies**	**Sheep**	**Goats**	**Pigs**	**Total**	**Poultry**
Punjab	1760.92	5035.65	4.83	29.82	9.69	210.61	286.39	24.99	7365.12	18899.7
Amritsar District	101.09	298.01	0.64	2.47	0.63	8.18	11.27	0.82	423.83	271.65
%age	5.74	5.92	13.25	8.3	6.5	3.88	3.9	3.3	5.75	1.44

Source: Statistical Abstract of Punjab, 2008

Amritsar district ranks 3rd in number of buffaloes in the Punjab State, hence is rich in milk and milk products. Pertaining to higher number of livestock, poultry and fish; the district ranks 1st in number of animals slaughtered. As shown in table no.25, 96.72% of the animals slaughtered in the city are sheep and goats. Average no. of animals slaughtered per day is 208. This reflects high demand of animal skin for the leather factories and also the demand of meat for consumption.

Table 25: Details of animals slaughtered in the Amritsar District, 2008

Slaughter Houses in Amritsar District (2008)				
	No. of Recognized Slaughter Houses (2007)	**Animals Slaughtered**		
		Sheep & Goats	**Pigs**	**Total**
Punjab	87	3,37,922	26,023	3,63,945
Amritsar District	3	78,444	91	78,535
Amritsar M.C	1	75,878	0	75,878
M.C as % of District	3.3	96.72	-	96.62

Source: Statistical Abstract of Punjab, 2008

At present, there is only one slaughterhouse operational in the city located at Gumanpura. The existing slaughterhouse is observed to be using old equipment and outdated technology. As many activities causing environmental pollution are carried out in the slaughterhouse, they need to be equipped with latest equipments and modern technology so that meat supplied to the city is healthier and is as per the requirement "Prevention of Cruelty to Animals Rules 2001". As Amritsar district is observed to rank 1st in number of animals slaughtered, therefore it requires establishment of institutions such as Carcass Utilization Centre and Leather Research Institute to utilize the left over from the animal bodies for various other uses. Further, seeing the high number of animals slaughtered in the city, an incineration plant is also required for disposal of carcass of animals and birds due to infectious diseases like rabies and flu as per "Animal Birth Control Rules-2000".

2.2.7.1 Key Issues related To Slaughter House in Amritsar City

- Only one slaughter house in the city, which has low capacity and is not designed as per concerned rules namely Prevention of Cruelty to Animals (Slaughter House) Rules- 2001 and it is not on modern lines.
- The city lacks incinerator plant for disposing animals & birds, which die due to infectious diseases like rabies & bird flu
- Absence of Centre for Dead Animal Carcass Utilisation
- Slaughter houses leads to environmental pollution.

Lack of appropriate slaughtering facilities and unsatisfactory slaughtering techniques also causes unnecessary losses in meat.

2.2.8 ONGOING PROJECTS/PROPOSALS

- Setting up of Integrated Check Post at Attari-Wagha Border with cost out lay of Rs.130 Crores. 120 acres of land for ICP has been acquired during the year 2008 for the same.
- Integrated Check Post at Attari Railway Station spread in about 300 acres of land shall be set up.

CHAPTER 3

HERITAGE AND TOURISM

Amritsar with its rich history of cultural heritage has immense potential to grow as a major tourist destination of the region. Amritsar city is famous as a religious centre due to the presence of Golden temple, Durgiana temple and many other gurudwaras/temples/mosques, which makes it a centre for religious tourism. Other than this, city has a vast treasure of historical buildings, heritage structures/areas. Walled city itself is rich in heritage. All these can generate lot of tourism potential, which has not been explored. It is said that about 1 lakh people visit Golden temple everyday and this requires detailed planning, focused development and well defined management strategies. Further, the share of Amritsar Rajasansi Airport in India in terms of arrival of tourists was merely 2.2% (0.11 million) in the year 2007 (Source: India Tourism Statistics 2007, Ministry of Tourism, Govt. of India). The heritage and tourism aspects of Amritsar are very wide spread and are not limited to the city only. Accordingly, their potential has been considered in three layers: (i) Walled City, (ii) Municipal Corporation, Amritsar (MCA), area outside the walled city (iii) regional context (within LPA and its surroundings), which are discussed as below.

3.1 WALLED CITY: AMRITSAR

The walled city is the most important place in the history of Amritsar where the fourth Guru Ram Das Ji constructed the sacred Golden Temple. Though it constitutes only 2.44% of the total MC area, yet it houses $1/6^{th}$ of the total MC population.

The walled city Amritsar has a history spanning 433 years and is marked by the presence of historical buildings with heritage elements such as Town Hall building, old hospital (Prince Wales Zanana Hospital), etc. As per Municipal Corporation Amritsar, there are approximately 52 buildings within walled city (out of which 23 buildings are in Galiara) have been considered of heritage value. Since rest of these buildings are privately owned and are in bad shape, hence their conservation needs to be taken up on priority.

The origin of the walled city dates back to the sixteenth century. It had traditional spaces like streets, squares and common courtyards. The architectural styles, materials used for different purposes in different ways, like woodcarvings, *jali* work, etc. reflect the high level of craftsmanship. The narrow winding streets with squares, buildings with domes and chattris have the influence of Islamic Architecture and Rajputana style and are the major design heritage areas.

The walled city was built on human scale i.e. a pedestrian entity. The narrow zigzag street pattern is a typical medieval planning concept and was not meant for vehicular movement. The maximum distance from one corner to another is 3 km and almost every area around Golden Temple (the nucleus of city) is within 1-2 km reach. So it could be visited by foot from the remotest corner.

Fig no.25: Walled City 1849

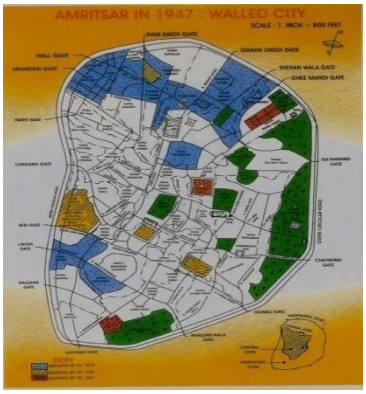


Fig no.26: Walled City 1947

Fig no.27: Walled City 2010

Initially, the walled city of Amritsar was marked with number of parks and open spaces, which over the time have been used for commercial purpose. The area such as Hall gate, which at present is acting as C.B.D., was initially a green open space. Likewise, Ramanand Bagh, Jhande Wala Bagh, Kesari Bagh, Bagh Akalian, etc. which were earlier green areas and have now been exploited for commercial use. The maps above show the walled city over a period of time. (refer figure no.22,23,24)

The figures above very well describe that how parks and open spaces of the city have been eaten up by other development activities, majority of which are commercial in nature. Such conversion has led to lack of breathing spaces within walled city. Strategies need to be evolved to stop future conversion of landuse to commercial and to restore its old glory and provision of open spaces wherever possible.

The walled city of Amritsar has a rich heritage in the form of historical buildings/areas, gardens, artifacts, townscape and streetscape. To quote Sir Bernard Fielden, “A historical building is the one that gives us a sense of wonder and makes us want to know more about the people and culture. It has architectural, aesthetical, historical, economical, social and political values”. However, with the changing life

Fig no. 28: A view of the jharokhas of Qila Ahluwalia. It shows a hand in jaap mudra, an inherent feature in most buildings in the walled city.

styles and priorities of the living community all are in state of neglect. The threats posed to these areas and buildings are misuse, alteration in the architectural fabric, etc. So far, no effort has been made at the state or local level to preserve them. The walled city must be considered as heart and soul of the Amritsar city and requires major efforts as immediate actions.

Heritage Structures in the Walled City

Golden Temple

The highest seat of the Sikh religion, the holy Golden Temple is the nucleus of the walled city. It was the place from where the settlement originated. The living monument of spiritual and historical traditions of the Sikhs, the Hari Mandir, popularly called the Golden temple has been a source of inspiration for Sikh community ever since it was founded.

Fig no.29: Golden Temple

At present various issues like parking, congestion on approach roads have arisen. There is an immediate need of proposing pedestrianization, landuse freezing, demolition of shops, etc., which in future may disturb the view/ aesthetics of Golden Temple.The famous Galiara Project meant for the beautification of the surroundings of the temple has proved highly beneficial in this regard.

Mosque of Khair-ud-Din

It was built in 1877 and is located in Hall bazaar. It is one of the beautiful pieces of Islamic architecture. It has served as Jama Masjid and it reminds the socio-cultural aspect of the city. Mosque is well maintained, but it has been overshadowed by the high rise structures.

Fig no. 30: Mosque Khair-ud-Din

Mosque of Mohammed Jan

Built in 1872, the mosque is now in a state of complete neglect. This is also a good piece of Islamic architecture. If these mosques would not be declared as the protected monument, they will have the same fate like others, which have been converted into shops and residences. This will mark the end of relics of Muslim architec in the walled city.

Fig no. 31: Mosque Mohammed Jan

Gates and Walls

Massive wall (25 yards broad and 7 yards high) was constructed in 1825 by Maharaja Ranjit Singh. Around these walls, moat had been constructed to protect from enemies which at present is encroached upon by different acitivites. In today's context, historic character of wall has vanished largely due to encroachments.

Fig no. 32: Hall Gate

Area under wall in the south, it is largely encroached by govt. offices like police office and few areas have been kept as green area. In the north and all along the moat, area is encroached by different commercial activites, which needs to be conserved. There were initially 14 gates in the city. Out of these, six gates have already been demolished which includes Beri Gate, Mahan Singh Gate, Sheranwala Gate, Bhagtanwala Gate, Hakima Gate and Gilwali Gate. The remaining gates need conservation. The Municipal Corporation, Amritsar has taken few steps on 9th Feb, 2010 by closing nearly 20 shops and removing encroachment along the walled city from Lohgarh Gate to Beri Gate.

Town Hall:

This was built as an administrative nucleus in 1863 by the Britishers. It is located on the southern end of Hall Bazaar. It is constructed in red bricks with lime and *surkhi* as the binding material. It has semi-circular arcades and a beautiful *chhatri* at the front entrance. It has a flat roof made of timber planks and brick tiles. The MC office located in this complex which is going to be shifted in a short period and this building shall be used as a city museum.

Fig no. 33: Town Hall

The cracks in the structure have been filled with cement mortar, which destroys the historic fabric of the structure. The growth of plants has taken place in the cracks, resulting in creating dampness in the walls.

Chowk Passian:

The origin of Chowk Passian started from a settlement of huts around the residence of Guru Ramdas Ji (Now known as Gurudwara Guru Ka Mahal). Gradually it also became one of the commercial center of the city. It has narrow winding streets of medieval character. The houses are generally three storied and ground floors are used for commercial purposes. The area is incapable of accommodating the increasing vehicular traffic since; it was originally planned for catering to pedestrian traffic only.

3.2 HERITAGE STRUCTURES IN MUNICIPAL CORPORATION AREA, AMRITSAR

Saint Paul's Church

This church is located on Court Road adjacent to Head Post Office and opposite New Rialto Cinema. It has a seating capacity of 200 persons. The church is in a comparatively good condition but its surroundings are neglected.

Bait-Al-Massih Church

The church was built in 1852 and is located outside Rambagh Gate. It is a fine piece of Victorian architecture. It is situated outside the Rambagh Gate.

Durgiana Mandir

Fig no.36: Durgiana Mandir

Built in 1924, Durgiana temple is an important religious center in Amritsar. It is in close vicinity of Amritsar Railway Station & about 1.5 Km from the Bus Stand. There is not enough parking spaces for the visitors. The encroachment on the katcha road constructed over the Nallah passing adjacent to the temple is restricting from having another access to the temple. The area around the temple, especially along Shivpuri, is encroached upon by the *jhuggi-jhoparis,* which is also affecting the aesthetics of the temple. A proper access and parking area is required for the temple having great religious significance. Under the Durgiana Temple beautification scheme, Improvement Trust is finding it difficult to locate the owners of 3.03 acres of the land, which is needed for the beautification of the area.

Khalsa College

Khalsa College is a unique master piece of Sikh architecture. It was planned in 1892 by Sardar Ram Singh of Maya School of Art. Its foundation stone was laid in 1904. The basis of planning of this college has been taken from Harvard University of USA (H – shaped plan of main building). The architectural style is a hybrid of Mughal and Rajputana architecture. There are Mughal style Jharokhas, Jali work, Chattris and Rajputana stylearches and huge pillars. The campus has got well distributed and spacious open spaces. The construction was made by

renowned contractor S. Dharam Singh, in whose memory Dharam Singh Market near Golden Temple has been constructed by the Improvement Trust.

Fig no.37: Khalsa College

Watch Towers:

Two watch towers were constructed by S. Jassa Singh Ramgarhia i.e., Burj Baba Phula Singh and Baba Atal Rai Tower. These are octagon shaped minarettes with height of about 100 feet. These are built in lime and *surkhi* with *Nanak Shahi* Bricks.

(i) Burj Baba Phula Singh

It was built in 1923 by Mahant Narain Singh. It is situated in front of Bus Terminus near the city center. It is circular in shape, four storied high with a *chattri* (dome) at the top. There are smaller *chattris* on all four sides. It is constructed of red bricks in lime and *surkhi*. The approach to the building is through the road leading to truck terminal, which is in a worse condition due to the ongoing construction of elevated road to Golden Temple.

Fig no.38: Burj Baba Phula Singh

(ii) Baba Atal Rai Tower

It is a nine storied tower constructed during the period 1778-1784. The tower is dedicated to the memory of the Sixth Guru the Master of Miri Piri, Sri Guru Hargobind Sahib and his son, Baba Atal Rai. It is one of the important tourist destination located in the vicinity of Golden Temple. It is octagonal in shape and has the distinction of being one of the tallest building of Amritsar.

It has a great religious value and significance.

Fig no. 39: Baba Atal Rai Tower

(iii) Gobindgarh Fort:

It was built in 1809 by Maharaja Ranjit Singh and is located on the western side of the Lohgarh Gate. The wall of the fort had numerous bastions with guns fixed. It was used as a treasury of Maharaja Ranjit Singh. It is constructed of red bricks mixed with lime and *surkhi*. Earlier it was under the Indian army but now

Fig no. 40: Gobindgarh Fort

has been handed over to State Tourism Department for converting into a cultural heritage destination with provision of museums and galleries.

District Courts

Fig no. 41: District Court

District Courts is based in the building which was built in 1876. The building is enclosed in the triangle formed by Mall Road, Court Road and Ajnala Road. It is built in red bricks with lime and *surkhi*. The building has an influence of Victorian Architecture having pointed arches and carved wooden doors and windows. It has a flat roof with brick tiles and timber planks. Some of the parts of the building have been demolished and new judicial complex has been constructed. The building has unsightly electric poles and wires in its vicinity. Some doors, windows and ventilators have been closed by placing the bricks. The entrance porch has been whitewashed which does not get with the original red color of the building.

Head Post Office

Fig no.42: Head Post Office

It was built in 1925. It is situated in front of New Rialto Cinema on Court Road. It is built of red bricks with lime and *surkhi.* It has got semi circular arches with huge pillars. The building is jinxed by the informal activities at the front. There are unsightly overhead wires and signboards.

Ram Bagh

Fig no.43: Ram Bagh

Ram Bagh Garden was built by Maharaja Ranjit Singh which was completed in the year1831. It used to be the summer palace of Maharaja Ranjit Singh earlier known as Company Garden. The name of the garden was changed to Ram Bagh by Maharaja Ranjit Singh to commemorate his unflinching devotion to Guru Ram Das, the founder of the city of Amritsar. The garden is built on the model of famous Shalimar Gardens of Lahore.Its design is largely influenced by Mughal concept. Its main unit is summer palace, which has now been converted into Maharaja Ranjit Singh Museum.

Ram Bagh Garden attracts lot of tourists every year, owing to the enormous natural beauty it encompasses. It has a huge collection of rare species of plants and trees. It is rich in natural beauty. It stands out for its collection of rare coniferous trees, herbal plants and water channels

set with fountains and golden fish. At one end of the garden, one can see a lively statue of the king seated on a horse. Some of the area of the garden has been encroached upon by various clubs, which are adversely impacting the environment of the garden. The Summer Palace and Ram Bagh Gate have been taken over by the A.S.I. as Protected Monument as per the provisions of Ancient Monuments and Archaeological Sites and Remains Act (Amendment and Validated 2010). As per the provision of the act, the entire area of the garden measuring 678 Kanals and 12 Marlas has been notified as protected area. Out of the notified area, 3 Kanals and 2 Marlas have been transferred in the name of A.S.I. and 40 kanals have been allotted to Panorma.Further, as per the provisions of the act, 300 meters buffer zone has been notified outside the limits of the protected Ram Bagh Garden (refer annexure IV and V) for protection and conservation of the environs of the garden.

Guru Teg Bahadur Hospital

This hospital was previously known as Victoria Jubilee Hospital. The British built it in 1904. It is situated in opposite direction to Ram Bagh with Cooper Road on the western side. It is built in lime and *surkhi* with red bricks. It has pointed arches and small domes on the corners of the building. The roof is made of timber planks and brick tiles. The building has beautiful glasswork in doors and windows. Now this building is fast decaying due to lack of maintenance. Major wards based in the building have been shifted to new medical complex called Guru Nanak Hospital, which is located on Majitha road. Considering the architectural and historical value of the hospital, it is suggested that the site/historic building of the hospital should be conserved and re-used for culture and tourism whenever it is proposed to shift the hospital from the present site. However, the building needs conservation on priority.

Railway Station

The Britishers constructed the Amritsar Railway station in 1931. It was the first railway station in the whole of Punjab. It is built in red bricks with lime and surkhi. It has an influence of Victorian architecture with decorative *jali* work and arches. Recently, the Indian Railway announced Amritsar Railway Station to be upgraded and modernized as a World-Class station, having shopping centers, food stalls, restaurants, book shops, telephone and fax booths, medicine and variety stores and budget hotels as well as underground parking.

3.3 HERITAGE STRUCTURES IN AMRITSAR LPA AND IT'S SURROUNDINGS:

Pul Kanjri

It is a historic Sikh Village, which is part of the Attari border within the Indian Territory. It was Maharajah Ranjit Singh's resting point while travelling between Lahore and Amritsar. Ranjit Singh built a replica of Baradari building here. In 1971, the Pakistani Army failed in their attempt to capture the Village from India. The Indians fought off the Pakistani attack and successfully held Pul Kanjri. There is a war memorial, which commemorates the brave defence of the village by the Indian jawans.

Preet Nagar

Preet Nagar is a socio cultural religious complex situtated in close vicinity of the Amritsar city. It is situated in the village Lopoke about 2 kms from Ram Tirath Road. This was first planned rural settlement of Punjab visioned by Sardar Gurbaksh Singh Preetladdi, who was a great writer of Punjab. Before partition, Preet Nagar was an important socio-cultural center being equidistant from Lahore and Amritsar but after partition has lost its glory. It has many important buildings that require conservation strategies.

Ram Tirath

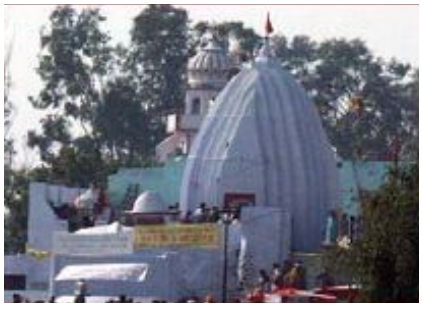


Fig no.46: Ram Tirath

Approximately 11kms from Amritsar on Amritsar Chogawan Road lies the holy place of Shri Ram Tirath. It's a place of historic significance as it is the place where Maharishi Valmiki gave shelter and protection to Mata Sita. It is also the birth place of Lav and Kush and a place where the epic Ramayana was composed by Valmiki Ji. It holds great importance for Hindus. The importance of this place has not been yet explored. Even the Lopoke Road is required to be strengthened which acts as a major access to this spot.

Attari

General Sham Singh Fort and Haveli at Attari village near Wagha Border are the other places in LPA, which needs to be preserved. General Sham Singh Attari was a valiant General of Maharaja Ranjit Singh. He was the one under whose brave leadership in the Battle of Sabhraon which panicked British Officers and made them shout' 'India lost'. The Samadhi of General Sham Singh Attariwala's is also located at Attari village. The potential of the spot is also required to be developed and explored from tourism point of view.

Sarai Amanat Khan

Fig no.47: Sarai Amanat Khan

Sarai Amanat Khan was built during the Mughal era. It acted as medieval motel during that period, where all facilities like prayer, food and drink for both people and animals were available. It is located on Attari-Tarn Taran Road in Tarn Taran District. The inn was built during the Mughal era to provide shelter to the tourists or travelers. The ancient inn has an ornamented gateway decorated with glazed tiles. It is a wonderful specimen of Mughal architecture. It has been declared as a "monument of national importance" under the 'Ancient Monuments and Archaeological Sites and Remains Act 1958'. Amanat Khan, the calligrapher of the famous monument Taj Mahal, constructed the sarai during the Mughal period.

It has two fascinating gateways known as Lahori Darwza and Delhi Darwaza. Within its courtyard, a mosque, a well and even open space to keep bullocks and horses has been provided. Even though it has been declared as a heritage monument by the Archaeological Department, it is not well maintained by the department. The sarai is presently in a dilapidated condition due to the negligence of the department.

Baba Bakala

The historical gurudwara of Baba Bakala is situated at a distance of 45 kms from Amritsar. Its importance lies in the fact that here Bhai Makhan Shah Lubana, a devotee in his search for the true Guru, ultimately discovered him and declared the news yelling from the top of a house. This eventually resulted in a beautiful and serene Gurudwara, a place of meditation of Guru Teg Bahadur, and came to be known as Baba Bakala after the village where he was revealed for the greater benefit of mankind. Beautiful paintings showcasing pictures from the history of the Sikhs adorn the walls of the Baba Bakala Gurudwara. Each year in the month of March, people gather at Baba Bakala to offer homage for the sacrifices made by him. It is a festive time for the Sikhs

Dera Baba Jaimal Singh

Dera Baba Jaimal Singh was founded by Baba Jaimal Singh in 1891, which is located on the West bank of River Beas. It is also the headquarter for Radha Soami Satsang. Millions of Radha Soami followers travel to Beas on Satsang days from all over the world.

Apart from the above mentioned heritage structures in Amritsar LPA and its surroundings, Wagha Border is also one of the most visited tourist place after the Golden Temple.

Fig no.48: Wagha Border

Wagha Border

The Wagha border is a ceremonial border on the India–Pakistan Border where each evening a retreat ceremony called 'lowering of the flags' is held. Soldiers from India and Pakistan perform a flag march. Soldiers perform some drills and then gates between India and Pakistan are opened. To experience the retreat ceremony about 15,000 to 20,000 people visit the border every week. Wagha Border is located at a distance of 28 kilometers from Amritsar city.

3.4 FAIRS AND FESTIVALS

Amritsar is known as city of “Fairs and Festivals”. Large number of festivals are celebrated in the city to mark important social and religious events such as *Baisakhi, Diwali, Hola Mohalla, Dushehra, Ram Navami, Janmashtami, Guru Nanak Jayanti, Gurupurabs, Basant Panchami, Amavasya and Sangrand*. In addition, a *Langoor Mela* at Durgiana Mandir and Maghi are celebrated with great gusto and fervor**.**

Major attractions include Diwali celebrations at Golden Temple, Baisakhi at Jallian wala Bagh and Guru Nanak Jayanti and Prakash Utsav of Sri Guru Granth Sahib Ji. Almost 4-5 lakhs people visit Golden Temple on *Baisakhi, Diwali* and *Guru Nanak Jayanti*. Apart from these, there is always rush on *Sangrand* (the first day of Hindu month). A mela is celebrated in Ram Tirath too for one week, which witnesses gathering of one lakh people daily. In addition to Hindus and Sikhs, large number of Muslims and Christians also visit the city. St. Paul’s Church built in 1853 and Jama Masjid (Mosque of Khair-ud-Din) built in 1877 are the most prominent locations frequented by them.

Rayya and its surrounding villages have special festivals, which are celebrated and many visitors take part in these. The detail description is given below:

Table 26: Fair and Festivals of Rayya and its surrounding villages

Town/ village	Fair/ festival	Date and duration	Significance and legend	Approximate number of visitors and radius covered	Commodities sold
1	2	3	4	5	6
Rayya	Cattle fair	On the 5th of every Bikrami month six days	Commercial	2000 16 km	Cattle and other animals
Baba Bakala	Guru Teg Bahadur fair	Sawan Puranmashi (July-August) Three days	Religious The fair is held in the sacred memory of Guru Tegh Bahadur who passed 26 years of his life in meditation here.	40000 32kms	Religious books, earthen pots, kirpans, agricultural implements, utensils

Source: Punjab District Census Handbook No.13, Amritsar District, pp. 126-61

3.5 TOURISTS INFLOW

Total number of tourists visiting Amritsar city by air were 0.11 million in the year 2007, which works out to be 2.2% of the total country's share. However, majority of visitors use rail and road as mode of transport because of its high connectivity with other parts of the country. No. of tourists visiting the Golden Temple has been estimated to be approx. **1 lakh per day**. In addition, large number of people visit the city to avail higher level of educational and healthcare infrastructure. The total number of tourists and visitors coming to the city are estimated to be **36 million per annum.**

Largely Punjab Tourism Development Corporation (PTDC) manages the tourist facilities. For facilitating and guiding the tourists, the department has created Tourist Information Centres at Amritsar Railway Station, Wagha Border and Airport. More than 50 personnels have been engaged by the department to act as guide for the visitors. Most of the tourist guides are positioned at major centers of tourist influx including Golden Temple, Bus Stand, Wagha Border, Railway Station, Air Port and Durgiana Temple. In addition, SGPC also assists the tourists visiting the Golden Temple. However, the existing infrastructure is not adequate keeping in view the large influx of tourists.

3.5.1 HOTELS

There are more than 150 hotels in the city. Some of the prominent hotels of the city are MK International, Ritz Plaza, Mohan International, Grand Legacy, Ranjit's Svassa, etc. The city was lacking a five star hotel within its area, which got fulfilled with the recent inauguration of Hotel Ista. Lately, Hotel Best Western Marrion too has come up in District Shopping Complex in Ranjit Avenue. Some more hotels are proposed in the city, around Airport area and along Airport

Road such as Raddison and Taj group along circular road at old mental hospital site. Major hotels along with the number of rooms available are detailed below.

Table 27: Major Hotels in Amritsar

Category	Name of Hotel	No. of Rooms
5 star	Hotel Ista	248 including 10 suites
4 star	M.K International	75
	Ritz Plaza	50
	Mohan International	76
	Grand Legacy	52
	P.R. Residency	49
	La Cascade	18
3 star	Shiraz Regency	35
	R.V. Continental	32
	City Heart	30
	Ishan Villa	27
	C.J International	25
	R.S Residency	21
Category	**Name of Hotel**	**No. of Rooms**
3 star	Raj Continental	23
	Randhawa International	38
	Heritage Inn	24
	Khyber Continental	36
	Sanjog Palace	30
	K.K. International	25
	Aay Kay International	30
Total		**944**

Source: Tourism Department, 2009

The number of rooms available in the city is inadequate considering the large number of tourists. In addition to hotels, religious institutions such as Golden Temple, Durgiana Mandir, etc. provide affordable accommodation. There are five *sarais (dharmshalas)* providing lodging facilities near Golden Temple by the Shiromani Gurudwara Prabandhak Committee (the management authority of the Golden Temple). They are:

i) Sarai Shri Guru Ramdas
ii) Shri Guru Har Gobind Niwas
iii) Shri Guru Arjun Niwas
iv) Akal Rest House
v) Shri Guru Nanak Niwas

Despite the fact, there are 150 hotels, clubs and large number of dharamshalas in the city, the available accommodation is inadequate to meet the needs of the tourists. Accordingly, large number of residential houses within the walled city in general and around Golden Temple in particular, have been converted into make shift hotels providing accommodation at a high cost. There is urgent need for creating affordable and budget accommodation with quality facilities for the tourists in the city. This would not only help the tourists but would also extend their stay in

the city. Further, most of the tourists halt at Amritsar as a transit destination before proceeding to other areas like Vaishno Devi Temple. This makes their visit to the city of a very short duration. However, considering the potential of Amritsar in terms of its connectivity and location of large number of places of historical and tourist interest in the close vicinity, the stay of the tourist could be increased from a single day to minimum 2-3 days. This would facilitate the city's trade and commerce and boost its economy.

3.5.2 CUISINE AS A PART OF HERITAGE/CULTURE

Amritsar - a traditional vibrant city – is known for its warmth & hospitality. Amritsaris are born hosts, and are famous for having a palate for eating. This is perhaps because frequent ravages of war shaped the Amritsari mindset where the dawn of the next day was not sure.

The city is famous for its culinary delicacies like multi-layered *prathas, channa bhatura, tandoori kulchas*, *puris*, jam, marmalades, *sharbat, rabri* & *lassi*. Other delicacies include *satpuras, samosas*, fried fish, *seekh kabab, mutton tikka*, barbecued chicken and spicy pickles. The specialized Amritsari Kulcha (baked) is prepared in A
ritsar city only, and is not available or preapared even at a distance of 15 kms from the city.
The celebrated *papad* and *vadian* from Amritsar have become the subject of many a rhymes and jingles. Amritsaris have a sweet tooth for *pinnis, balushahis* and *gur ka halwa*. The city has many places which makes it famous for traditional cuisines and modern foods. Most of the eating joints of the traditional cuisines are within the walled city. Some of the famous food joints and eating destinations of the city include:

- Kundan Dhaba, Opposite Canal Office
- Bhrawan Da Dhaba, Opp. M. C. Amritsar
- Kesar Da Dhaba, Lohgarh
- Crystal Restaurant, Cooper Road
- Gyani Di Dukan, near Lohgarh Gate, famous for Chatti Di Lassi and Barfi
- Sharma Ki Dukan, Lawrence Road
- Kanha Sweets, Lawrence Road
- Bansal Sweets, Lawrence Road
- Bira Chicken, Majitha Road
- Surjit Chicken, Nehru Complex, Lawrence Road
- Kulcha Land, Ranjit Avenue
- Roshan Kulfiwala, Hall Gate

3.6 ONGOING PROJECTS/PROPOSALS

In order to promote tourism in the city large number of steps has been taken and new projects are being initiated to make Amritsar as the tourist destination. These projects include:

1. Creating three additional Tourist Information Centres at Ram Bagh, Golden Temple and Qila Gobindgarh.
2. Creating a new high-tech Office with all facilities at outer gate of the Railway Station.
3. Starting a train service from Amritsar on the pattern of Palace on Wheels covering the important tourist destinations in the region.
4. Conservation and upgradation of 6 gates of the walled city namely Lahori Gate, Gate Hakima, Hathi Gate, Hall Gate, Khazana Gate, and Sultanwind Gate at a cost of Rs. 40.00 lacs.
5. Renovating Ram Bagh Gate to its original shape (under construction) at a cost of Rs. 1crore.
6. Setting up of Heritage Village in Guru Nanak Dev University in an area of 10 acres. In addition, 10 acres of area is further proposed for expansion of the Heritage Village. Govt. of India has already sanctioned a sum of Rs. 6.84 Crore for setting up of Heritage Village in GNDU Campus. Sh. Abhimanyu Dalal, a renowned Architect, has been appointed as Consultant for the project.
7. The Government of Punjab has decided to shift the Municipal Corporation, Amritsar office from the existing Town Hall building. A new 2-acre plot shall be notified for the construction of new Municipal Corporation office in Ranjit Avenue.
8. Conservation of Town Hall building to be achieved at a cost of Rs.5.00 crores for creating state level museum and cafeteria by renovation of Town Hall Building.
9. Gobindgarh Fort to be developed as Heritage museum to showcase city's rich cultural heritage which shall be made open to public after completing the conservation of its buildings at a cost of Rs.2.5 crore.
10. Light and Sound programme in Jallianwala Bagh.
11. Beautification of surroundings of Durgiana Temple after acquisition of necessary properties shall be undertaken at a cost of Rs.29.00 crore. The main access of 16 feet to the temple shall be widened to about 60 feet. The shopkeepers are proposed to be relocated by constructing a commercial complex under the scheme. The existing Police Post and Post Office shall be relocated.
12. Creating additional parking space at Wagha Border in an area of 10 acres for facilitating the tourists (under construction).
13. Renovation of Maharaja Ranjit Singh building at Pul Kanjri near Wagha Border,

14. Providing additional man power for guiding the tourist including placing (12-15 personnel).
15. Starting specialized course in tourism for creating appropriate level of trained manpower
16. A Food Street with traditional food joints shall be set up in the city.
17. Village Kakkar in Block Chogawan shall be developed into a Model Village with concrete roads, solar lights and 100% underground sewerage facilities at a total cost of Rs.1.50 crore.
18. A beautiful open Plaza shall be set up in front of Golden Temple at a cost of Rs.7.00 crore by shifting Ghanta Ghar Market to the newly constructed shopping complex in front of Shani Mandir.
19. Conservation and beautification of Jallianwala Bagh at a cost of Rs. 5.00 crore with conservation of Historical walls and Well and the Visitors Facilitation Centre, Light and Sound Programme.
20. The conservation of Pul Kanjri and Attariwala's Samadhi at a total cost of Rs.2.25 crore.
21. Land-scaping and up-gradation of Rambagh Garden including conservation of Summer Palace and Civil Defence building shall be completed at a cost out lay of Rs.5.00 crore.
22. Galiara Beautification Project around Golden temple has been almost completed. The Galiara is one of the most beautiful spot in the city due to its landscaping and quality of environment.
23. Improvement of Virsa Vihar at a cost of Rs.40.00 lacs.

Fig no.49: Shopping Complex

Fig no.50: Pul Kanjri under renovation

From the above listed projects, it has been observed that only three projects have so far been completed to this date (no. 2, 18 (shopping complex completed) and 19) while the remaining projects are still in process of completion. The projects like conservation of Gobingarh Fort, Pul Kanjri and Attariwala's Samadhi and others are expected to be completed shortly.

3.7 KEY ISSUES

In view of the above, key issues related to heritage and tourism has been identified, which are as follows:

- Lack of focus on preservation and conservation of heritage buildings
- Lack of strategies for promoting tourism such as promoting famous eating joints, opening up of food streets, Bazaar Culture, etc. to promote the Walled City as the role model of urban heritage.

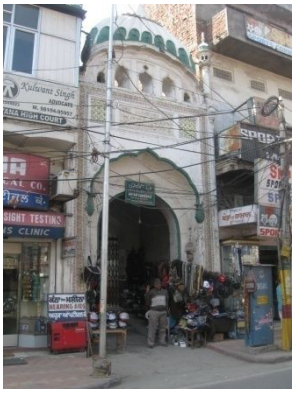


Fig no.51: Heritage buildings surrounded by modern architecture buildings

- Construction of buildings with modern architecture in and around heritage buildings is destroying the heritage character of the area.
- Absence of tourist circuits connecting various places of tourist interest in LPA act as discincentive for taking tourists to other destinations present within Amritsar L.P.A.
- Absence of organized mode of travel connecting different tourist sites/destinations within the city and in its surroundings.
- Affordable tourist accommodation in the city leading to conversion of houses to make shift hotels during peak season.
- Lack of public toilets and other civic amenities in the vicinity of majority of the tourist destinations.
- Non-declaration of the Walled City as the Special Heritage Area is hampering the process to introduce some innovative and urgently needed steps to be taken up like pedestrianisation, concept of Group Visiting, adequate financial help and tax incentives to the owners of the heritage buildings, etc.

Fig no.52: Conversion of building into commercial shops

- The location of Jewellery shops using coal within the Walled City impacts the beauty of the Golden Temple and other old buildings. The district administration has taken steps to convert the surroundings of golden temple into smoke free zone with the handing over of 86 new L.P.G connections to goldsmiths running their shops near to it. This strategy is required to be implemented in all such shops.
- Large-scale subdivision of buildings or open spaces within the Walled City to commercial uses.
- The Fort requires to be developed as Heritage Museum to showcase city's rich cultural heritage.
- Some key issues related to Durgiana Temple are:

(i) Narrow approach road leading to Gobindgarh Fort from Bhandari Bridge is largely encroached upon by the shopkeeper that is hindering the direct access to the temple.

(ii) Lack of parking spaces for the visitors. The land behind the temple, currently used as lakkar mandi can be used for providing parking.

(iii) Creating a new bridge instead of the age old Rigo Bridge is not capable enough to bear the traffic moving to Gobindgarh Fort and the Durgiana Temple from GT Road side. Heavy vehicles are also not allowed on this bridge. Hence, a new bridge needs to be constructed to ease the situation.

Fig no.53: Lakar Mandi

(iv) The encroachment on the brick road constructed over the Nallah passing adjacent to the temple is restricting from having another access to the temple. A wide road can be constructed to overcome this problem. This will also solve the problem of foul smell coming from the nallah.

(v) Removal of jhuggi-jhoparis present in the area around the Durgiana temple, especially along Shivpuri which has been encroached and is affecting the aesthetic encironment of the area. Green belt is required to be developed by vacating the land from jhuggi-jhoparis.

Fig no.54: Jhuggi-Jhoparis in Shivpuri

CHAPTER 4

HOUSING AND URBAN POOR

4.1 HOUSING SCENARIO

4.1.1 EXISTING HOUSING STOCK

Looking at the growth of the occupied residential houses in the Amritsar city, it has been observed that the number of occupied houses have grown by 13.74% in the decade from 1981-1991 with highest growth observed in the decade from 1991-2001 which is of the order of 92.53%. The high growth rate of residential houses can be attributed to the rural migration to the city of Amritsar for better educational and other facilities and better quality of life, being the metropolitan city and district headquarters. On the contrary, villages in LPA and urban settlements have observed a declining trend in growth of number of residential houses, which is a result of increasing migration to the urban centers of the district. The descent has been steeper in case of villages in L.P.A as compared to the urban settlements in L.P.A where the decrease has been from 53.63% in 1991 to 19.74% in 2001 and 53.13% to 39.27% respectively.

It has been further analysed from the table no. 28 given below that growth in number of households in Amritsar metropolis is keeping pace with the growth of number of occupied residential houses. Highest growth rate in number of households has been observed in the decade from 1991-2001 which is of the order of 41.79%, while a lower growth rate of the order 19.78% was observed in decade from 1981-1991 (refer table no.28). During the same period, the household size has remained constant at 5.6 in last two decades from 1981 to 2001.

Table 28: Comparison of Households Vs Occupied Residential Houses

	Year	Occupied Residential Houses	Growth rate of Residential Houses (%)	No. of Households	%age Growth of Households	Household Size
Amritsar M.C.	1981	99140	-	105429	-	5.6
	1991	114935	13.74	126283	19.78	5.6
	2001	221282	92.53	179057	41.79	5.6
Villages in LPA	1981	53867	-	57194	-	6.2
	1991	82716	53.63	82716	44.61	6.0
	2001	99046	19.74	99046	19.74	5.9
Urban Settlements in LPA	1981	5091	-	5460	-	7.1
	1991	7796	53.13	7979	46.14	6.1
	2001	10858	39.27	10858	36.08	5.6
Total LPA	1981	158071	-	168088	-	-
	1991	205447	29.97	216978	29.08	-
	2001	331186	61.20	288961	33.17	-

Source: Census of India: 1981, 1991, 2001.

On the contrary, to the rising trend in growth of households in Amritsar metropolis, the urban settlements and villages falling in Amritsar L.P.A has observed a downward trend. Likewise, to

the growth of the occupied residential houses, the households and family size in urban settlements and villages in L.P.A have observed the declining trend. The decrease in growth of number of households has been more in case of villages in L.P.A in comparison to the urban settlements. Similarly, the household size is highest in urban settlements in Amritsar L.P.A, which is 7.1 in the decade1971-1981 and had decreased to 5.6 in the decade 1991-2001. The villages in L.P.A have also observed the decrease in the household size from 6.2 in 1971-1981 to 5.9 in 1991-2001. This shows that with the better economic conditions, the awareness about better housing condition and trend towards nuclear families has been on rise.

4.1.2 PATTERN OF HOUSING

Further to this, housing pattern in Amritsar city has been studied in terms of density pattern, plotted or flatted development and pattern of use of existing housing stock. The pattern of housing within the different parts of the city has been studied based on the visual survey of the city.

Looking at the pattern of housing, it has been analyzed that most of the housing whether under various schemes or through private developers is in the form of plotted development. Flatted development that exists in the city is majorly govt. housing for its employees such as housing board colony, railway colony, custom colony etc. A portion of the flatted housing in the city is created by the way of development schemes prepared by Amritsar Improvement Trust, which includes flatted development in Ranjit Avenue Block B, development scheme of 340 acres and Mall Mandi Scheme. Further, Amritsar Improvement Trust is considering two more proposals for flatted development in the city. One is the extension of the existing Guru Teg Bahadur Nagar, where an additional area of 5.50 acres is to be added under flatted development while the other is covering an area of 11.25 acres at Bhai Gurdass Ji Nagar.

Further, the pattern of use of the existing housing stock is studied (refer table no.28). Out of total 237211 houses listed in census 2001, 159395 houses are being used as residential houses, which comprise of nearly 2/3rd of the total housing stock (67.2%). Only 4.36% (10348) of the houses have been observed to have mixed- use which is mainly concentrated in the walled city area of the Amritsar. Approximately, 15.80% (37477) of the houses have been solely used for commercial purposes such as shops and offices, 2.33% (5528) of the houses have been used for factory, workshops and work sheds and nearly 2.57% (5998) of the census houses have been used for other non-residential uses. The large number of vacant houses in the city is of the order of 6.71% (15929), which can be attributed to the legal framework including the Rent Control Act, which leads to unwillingness on the part of the owners to rent out the houses. Accordingly,

favorable environment needs to be created in order to minimize the number of vacant houses to ensure the optimum use of the housing stock.

Table 29: Pattern of Use of Census Houses Category wise in Municipal Corporation, Amritsar (2001)

S. No.	Category	No. of houses	% age of total houses
1.	Residential	159395	67.19
2.	Residential cum other use	10348	4.36
3.	Shop cum office	37477	15.79
4.	School/College	718	0.30
5.	Hotel/Lodge/Guest House	289	0.12
6.	Hospital/Dispensary	585	0.24
7.	Factory/Workshop/Work shed	5528	2.33
8.	Place of Worship	944	0.39
9.	Other Non Residential uses	5998	2.57
10.	Vacant houses	15929	6.71
	Total census houses	**237211**	**100**

Source: Census of India, 2001

4.1.3 HOUSING CONDITION

As per census 2001, 86.5% of the total households live in permanent and 11.3% in semi permanent structures. Total 2.14% live in temporary structures out of which only 0.35% are non-serviceable structures. (Refer table no. 30)

Table 30: Distribution of Residential Houses by their Type of Structure in Municipal Corporation, Amritsar: 2001

Type of Structure	Permanent	Semi-permanent	Temporary			Unclassifiable
			Total	Serviceable	Non-serviceable	
No. Of houses	146805	19180	3642	3035	607	45
%age of total	86.5	11.3	2.14	1.79	0.35	0.06

Source: Census of India, 2001

In case of urban settlements within Amritsar LPA, Rayya has maximum good condition housing stock where in all the components i.e. roof, floor and walls are made up of pucca material which is followed by Jandiala, Majitha and Rajasansi.

On the basis of visual survey of the housing condition in the city, it has been observed that the housing existing in the walled city area of Amritsar is in dilapidated or poor condition characterized by old age buildings with an average building height of G+3, 100% ground coverage with no setbacks and narrow access roads with poor mass space relationship. These areas have high intensity of development.

Fig No.55 Poor Housing Condition, Poor Mass Space Relationship, Mesh of Wire and High Intensity of development in walled city Amritsar

On the contrary, the area outside the walled city and within the northern bye-pass is characterized as medium density built up area with medium to good housing condition. The houses have 60 % -80 % ground coverage depending on the plot size with mainly front and side setbacks and an average building height is G+1.

Fig no.56: View of planned housing area on Maqbool Road, Green Avenue and Ranjit Avenue

The Peri-urban area that is area outside the northern bye pass is characterized with low-density development where in new approved housing colonies are coming. Therefore, the increasing concentration of planned housing efforts in the north of the city has been observed which has further aggravated the difference in quality of life between the north and south half of the city.

Fig no.57: View of new upcoming residential projects along Bye- Pass

4.2 HOUSING SCHEMES

4.2.1 IMPROVEMENT TRUST SCHEMES

The Improvement Trust, Amritsar has undertaken total of 84 schemes covering a total area of 3,483.7acres in last six decades under the two heads namely, Re-Development Schemes and Development Schemes. The details of the schemes are shown in the table below:

Table 31: Details of Improvement Trust Schemes

Type	No. of Schemes	%age of total schemes	Area (in acres)
Re-Development Schemes	41	48.81	137.46
Development Schemes	43	51.19	3346.25
Total	**84**	**100**	**3483.71**

Source: Amritsar Improvement Trust, 2009

Nearly, 51% of the trust's schemes undertaken are Development Schemes majorly concentrated from north to south-east direction of the city. 41 schemes (49%) constitute Re-development schemes over last 60 years in the walled city area as initiative to foster planned development in the damaged area after the partition of the country but it covered only 137 acres. The nature of the schemes undertaken by Improvement trust includes both residential and commercial. Some of the important residential schemes undertaken are Mall Mandi Scheme, Green Avenue, Kennedy Avenue, New Amritsar Scheme of 340 acres and commercial schemes includes bus stand area scheme, grain market scheme, truck stand scheme, city center, Nehru shopping complex and some of the new schemes to be undertaken includes approach road to Golden Temple, beautification of Durgiana Mandir and development of 188 acres of residential area adjoining New Amritsar.

4.2.2 TOWN PLANNING SCHEMES (T.P Schemes)

About 86 Town Planning Schemes have been prepared by the Municipal Corporation, Amritsar (M.C.A), out of which about 72 have been sanctioned by the government covering an area of 751.4 acres. About 8 schemes out of the total have been converted into Re-Development Schemes and handed over to Amritsar Improvement Trust. These schemes are located in the east of the walled city area. Out of the remaining 6 schemes, 4 schemes are still pending at the govt. level for approval and other 2 schemes have been dropped which includes scheme no. 63 and 64. (Refer Table No.32) (Refer map no.5)

Table 32: Town Planning Schemes

Details about schemes	No. of schemes	Scheme No.	Area in acres
Sanctioned Schemes by the Govt.	72		751.4
Dropped Schemes	2	Schemes No. 63,64	164
Transferred to the other departments	8	Scheme No. 80,36,45,47,54,60,79,5	1179.3
Pending at the Govt. Level	3	Scheme No. 62,69,70	234.72

Details about schemes	No. of schemes	Scheme No.	Area in acres
Pending with Distt. Town Planning	1	Scheme No.65	210
Total Number of Town Planning Schemes	86		3890.93

Source: Municipal Corporation of Amritsar, 2009

4.2.3 BUILDING SCHEMES

As many as 16 building schemes have been prepared and implemented in the city from last 7 decades. Maximum of 50% of building schemes were undertaken in the decade from 1971 to 1981 covering an area of 360 acres approximately. Thereafter, not much building schemes have been undertaken in the last 3 decades.

Table 33: Details of Building Schemes

Time Period	Total Area(in Acres)	Total No. of Schemes	%age
Before 1951	18	2	12.5
1951-1961	90	2	12.5
1961-1971	45	2	12.5
1971-1981	359.76	8	50
1981-1991	4.26	1	6.25
1991-2001	100	1	6.25
2001 onwards	0	0	0
Total	**617.02**	**16**	**100**

Source: Amritsar Municipal Corporation, 2009

4.2.4 P.U.D.A SCHEMES

The table below gives details of P.U.D.A schemes or colonies that have been undertaken in the city. It reflects that about 76 percent of the total schemes/colonies covering an area of 824.32 Acres have been approved by the P.U.D.A and remaining 24 percent of the colonies are in the process of approval.

Table 34: Details of P.U.D.A Schemes/ Colonies

Type of Schemes	Total Area (in Acres)	No. of Schemes	%age
Approved PUDA Colonies	824.324	26	76
Under process	748.015	8	24
Total	**1572.339**	**34**	**100**

Source: PUDA, 2009

The newly built and upcoming P.U.D.A approved colonies are spanning along the major radials of the city such as Silver Oak Enclave along Loharka Road, S.G. Enclave along Majitha Road, D.R City and Garden Enclave Ext II along Ajnala Road and Impact Gardens and Garden Enclave Ext-I along Bye Pass Road, Ansal city and Dream City along G.T Road. This shows that the city is expanding along its major radials in all directions with major concentration in North West to South East direction of the city.

There are about eight colonies whose approval is still pending with the P.U.D.A. These are located on outskirts of the city along the major radial G.T Road and along the bye pass. These

are being developed by private developers such as Vrindavan Gardens and Sahara City along G.T. Road and Alpha International City and Shaurya Tower on Bye-Pass Road near Wallah village.

4.2.5 OUVGL Schemes

Till date there are 6 O.U.V.G.L schemes (Optimum Utilization of Vacant Government Land) out of which 3 schemes are on-going, 2 are sanctioned and still in the process of implementation and there is proposal of one scheme. The table below lists the details of the OUVGL schemes in the city. Total area covered under this scheme is 92.27 acres.

Table 35: Details of O.U.V.G.L Schemes

Sr.No.	OUVGL Scheme	Area of Scheme (in Acres)
	Ongoing Schemes	7.5
1	Sahej Enclave, Amritsar	6
2	Tehsil Complex, Amritsar	0.9
3	Bel-Aahata, Amritsar	0.6
(i)	**Sanctioned and implemented schemes under process**	36.487
1	Residential cum commercial site, Canal Rest House	4.887
2	Mental Hospital Surplus Site, Amritsar	31.6
(ii)	**Future Schemes**	
1	Old Session Court Site	4.3
	TOTAL	**92.27**

Source: DTP Office

4.2.6 SCHEMES IMPLEMENTED IN WALLED CITY AREA

The table below describes the list of various schemes that have been implemented in the walled city area. Out of the total schemes sanctioned and implemented, merely 20% of the schemes have been undertaken in the walled city area.

Table 36: Comparison of Various Schemes Implemented in Walled City Vs Total No. of Schemes

Schemes	Total no. of Schemes	Total Area of Schemes (in Acres)	No. of Schemes inside walled city	Total Area of Schemes inside walled city (in Acres)
Town Planning Schemes	86	3891	3 (6.66%)	7.2
Building Schemes	16	617	1 (2.23%)	4
Development Schemes	43	3346.25	0	0
Re-Development Schemes	41	137.5	41 (91.11%)	137.46
P.U.D.A. Schemes	5	64.12	0	0
O.U.V.G.L. Scheme	3	7.5	0	0
Private Promoters	77	30.56	0	0
Total Area Under Various Schemes	**271**	**8093.9**	**45 (100%)**	**148.66**

Source: Amritsar Municipal Corporation, Amritsar Improvement Trust, PUDA, 2009

91 percent of the total schemes implemented in the walled city are Re-Development Schemes undertaken by Amritsar Improvement Trust covering an area of 137.5 acres approximately. These are spread over whole of the walled city area. The 6.66 percent of the schemes

implemented in the walled city are Town Planning Schemes and only 1 Building Scheme has been undertaken which is inside Bhagtanwala Gate. Still the condition of walled city requires very strong policies/ strategies in terms of Urban Renewal Programmes.

4.2.7 RURAL DEVELOPMENT SCHEMES

These are an initiative to promote rural development to improve overall quality of life of rural people. Several centrally sponsored schemes have been formulated and implemented in rural areas such as Swaranjayanti Gram Swarozgar Yojna, Indira Awas yojna, IWDP and NREGA.

The NREGA scheme was started in Amritsar district in 2007-08. During the last year, a total of Rs 1,466.93 lakh was received for development, of which Rs 1,086.84 lakh has been utilized. The district had issued 24,322 job cards to the villagers and generated work of 7.35 lakh person days. The money has been used for de-siltation of village ponds and construction of retaining walls with screening chambers around the village ponds. This has not only helped to maintain sanitation in the village but also in the removal of encroachments from the village water bodies.

4.2.8 ONGOING PROJECTS/PROPOSALS

Govt. of India, Ministry of Housing and Poverty Alleviation approved Rs. 5.79 crores for construction of 320 nos. of dwelling units for EWS section at village Rasoolpura under Basic Services to Urban Poor. Out of Rs. 5.79 crores in the first phase, only work for construction of 80 nos. of Dwelling Units (including infrastructure) amounting to Rs. 2.80 crores has been allotted.

4.2.9 KEY ISSUES

- 61% of the city area still remains unplanned
- 70.5% of the walled city area to be covered under various schemes.
- The role of Amritsar Improvement Trust in undertaking more and more schemes in the city have been on decline as Punjab Govt. has decided not to acquire land without the consent of landowners.
- Lot of upcoming colonies along the major radials of the city in a haphazard way.
- Increased pressure on the resources of the Amritsar metropolis due to steep increase in number of households as a result of migration from rural areas.
- Negligible share of flatted development compared to the plotted development in the city and in urban settlements in LPA.

- Lack of optimum utilization of the existing housing stock as 6.72% of the existing housing stock is vacant.
- 76. 27% of the existing housing stock is permanent that is all the components are made of pucca material. The remaining 23.73% of the housing requires up gradation.
- 13.5% of the households resides in poor condition housing in Amritsar metropolis.
- Among the urban settlements in Amritsar LPA, Rajasansi has minimum percentage of permanent housing structures.
- Lack of planned housing efforts in the southern portion of the city, hence, increasing the disparity in terms of overall living environment between the north and south portions of the city.

Honorable Supreme Court has declared section 192, as void in 1994 held that 25% area for public purpose cannot be acquired without compensation. So no Town Planning Schemes are now been prepared

4.2.10 CONCLUSIONS

From the various development initiatives taken in form of T.P schemes, redevelopment schemes, development schemes, building schemes and other schemes by various bodies have contributed to make 49% of planned development in the the city which is too less. Rest of the city area is still unplanned where proper development has to be infused by the way of these schemes.

4.3 URBAN POOR AND SLUMS

Urban poverty has emerged as one of the major challenges faced by policy planners and urban planners in promoting the rational development of urban areas. Poverty refers to not only deprivation of vital goods but also includes services determining the quality of life. In fact, poverty amid plenty is the world's greatest challenge.

4.3.1 DEMOGRAPHIC PROFILE

During the last 2 decades, number of slum dwellers in Amritsar has increased from 32,632 (1981) to 3, 04,824 (2001) recording more than nine fold increase in slum population. In 2001, 30% of the city population lives under slums i.e. every fifth household is slum. This indicates fast deteriorating quality of life and acute shortage of housing and basic infrastructure in most of the residential area of the city in Amritsar.

Table 37: Distribution of Slum Population to Amritsar M.C. Population

Year	City population	Slum population	% to City Population
1981	589299	32632	5.53
1991	708835	123000	17.35
2001	1016079	304824	30.00

Source: CDP Amritsar and Census of India 2001

Other than this the demographic characteristics of slum in Amritsar is shown in table below. Table indicates that the schedule caste population is placed at 35.54% indicating that every third residence of the slum belongs to the category of schedule caste. Number of workers living in slums constitute one fifth of the total work force of the city. Number of agricultural labourers has been found to be quite high i.e. 38.5%. Average household size in slum areas has been found to be 5.47 whereas in case of Amritsar metropolis, the size is 5.45.

Table 38: Slum Population Characteristics

Sr.No.	Item	Urban	Slum	%age to total population
1	Total households	185268	41961	
2	Total Population (including institutional and houseless population)	1016079	304824	**30.00**
3	Population in the age group 0-6	121369	31581	**26.02**
4	Schedule caste population	198595	70610	**35.54**
5	Schedule tribes population	-	-	-
6	Literates	693139	141771	**20.45**
7	Total workers	322214	72777	**22.58**
8	Main workers	301827	67220	**22.27**
	Cultivators	2900	796	27.44
	Agricultural Labourers	5897	2271	38.51
	Household industry workers	12260	2613	21.31
	Other workers	280770	61540	21.91
9	Marginal workers	20387	5557	**27.25**
	Cultivators	283	20	07.06
	Agricultural Labourers	1466	525	35.81
	Household Industry workers	1992	594	29.81
	Other workers	16646	4418	26.54
10	Non workers	678322	156826	**23.11**

Source: Census of India-2001

4.3.2 SLUM LOCATION AND DISTRIBUTION

At present, 64 slums (Refer annexure VI) exist in the city that has been notified by the Municipal Corporation, Amritsar under the Punjab Slum Areas (Improvement and Clearance) Act, 1961 covering a total area of 5.8 sq.kms constituting 4.26% of the area of the city (as per the national urban information scheme for indicators produced by Municipal Corporation, Amritsar). Largest number of slums was notified in 1986/87 i.e 32 (24 to 54) localities were declared as slums.

Looking at the spatial distribution of slums, majority of slums are located in the southern part of city in close vicinity of walled city, Amritsar. Concentration of slums on the southern part was largely on account of haphazard and unplanned development in the area besides absence of any major development scheme taken up by the Improvement Trust and Municipal Corporation. On the other hand Northern side of city is better placed due to lesser number of slums. This is due to the fact that majority of development schemes and better quality of development has taken place in this areas. Accordingly, it is appropriate to rationalize the development of the Southern part of the city outside walled area and particularly along the Tarn Taran railway line in order to minimize the growth of slums.

Housing in Slums

Based on the visual survey of slums in Amritsar, it has been observed that housing condition in these areas is poor. They are characterized as one-room tenements housing 6-7 people on an average and are made up of semi permanent materials because of the cost factor as they do not have fixed income and mainly work on daily wages.



Fig no. 58: Housing condition in slum areas of Amritsar

Table 39: Ownership of Land under Slums in Amritsar

S. No.	Ownership of Slum Land	No. of Slums	%age
1	Public (MCA)	6	9.5
2	Private	56	89
3	Others	1	1.5
	Total	63	100

Source: Municipal Corporation-Amritsar, 2009

As per the information from Municipal Corporation Amritsar, 89% of the slums in the city exist on the private land wherein some cases the land has been either encroached or has been purchased from land owner and the remaining 11% of the slums exists on the M.C.A land which are mainly located on the southern portion of the city.

4.3.3 AVAILABILITY OF URBAN BASIC SERVICES TO POOR

Basic services and amenities available in the slums in Amritsar are given below. It has been found that 71.87% of the slum population has access to safe drinking water whereas 28.13% population is still depended upon make shift arrangement.

Table 40: Basic Services & Amenities Existing in Slums of Amritsar

Facilities	No. of Slums Having Access to Basic Facilities				
	Yes	%age	No	%age	Total
Water Supply	46	71.87	18	28.13	64
Sewerage	44	68.75	20	31.25	64
Electricity	15	24	49	76	64
Education	64	100	-	-	64
Pavement	54	84.38	10	15.62	64
Street Lights	53	82.81	11	17.19	64
Medical	62	97.00	2	3.00	64

Source: Municipal Corporation, Amritsar -Survey on Slums

Further, in terms of sewerage, 68.75% population has access to this facility whereas rests of the 31.25% are defecating in available open areas. In the absence of regular electric connections, majority of population tap the electricity illegally through kundi connections causing enormous loss to the state. Moreover, in many of the slums areas such as Bangla Basti, Indira Colony, the high tension lines and towers are existing in between the settlements having road underneath and houses by its side which is a threat to human habitation.

Fig no.59: Infrastructure situation in slum areas of Amritsar

4.3.4 ONGOING PROJECTS /PROPOSALS

Besides earmarking funds for improvement of slums and provision of basic services by the Municipal Corporation, Amritsar since the inclusion of Amritsar under the JNNURM, it has been made mandatory that specific allocations for improvement of slums and urban poor have to be made as integral part of Municipal budget. Accordingly, in the annual budget 2005-06, the year when JNNURM came into operation and Amritsar was included as one of the 63 identified beneficiary cities, an allocation of Rs. 650lakhs was made for the slums. The allocation made constituted 9.75% of the development budget and 1.6% of the overall budget.

Under this mission, number of project has been identified for poor to overcome the shortage of basic services and housing in the slum areas. Constructions of 1400 units of one-room tenements supported by basic infrastructure are proposed to be constructed spread over 7 identified localities. The table no. 40 gives details of the 1400 houses to be constructed for urban poor under VAMBAY SCHEME.

In addition, provision of low cost sanitation, approach road, water supply, electricity etc. has also been included as part of the project, making total cost of project Rs. 10, 30, 00, 000. Numbers of schemes for providing basic infrastructure to the poor have also been identified under the component "Providing Basic Services to the Urban Poor" (BSUP).

Table 41: Details of Revised Project for construction of 1400 one room tenements by MCA.

Sr. No.	Name	Total numbers of tenements	Construction cost of tenements as per the limits prescribed by Govt. @ Rs. 45000/- each	Subsidy amount from Govt. (50% of cost of construction)	Total land area	Rates as per value master		Total land value	Cost of one room tenements						Total cost
						Per sq. yard	Per Acre		Land cost	Construction cost	Development cost	Low cost sanitation	Const. of Approach road or levelling cost	Total cost	
			(Rs. in lacs)	(Rs. in lacs)	Acre	Rs.	Rs.	(Rs. in lacs)	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	(Rs. in lacs)
1	2	3	4	5	6	7	8	9	10						11
1	Rabh Shikhargadh	125	56.25	28.13	0.46	1500	2,260,000.00	33.4	26089	49500	1500	5500	9800	92989	116.23
2	Village Fattahpur	150	67.5	33.75	0.56	500	2,420,000.00	13.55	963	49500	1500	5500	-	65463	98.19
3	Bhararíwal (sub-urban)	144	64.8	32.4	0.53	500	2,420,000.00	12.83	963	49500	1500	5500	6944	72407	104.26
4	Sakatribajh (sub-urban)	67	30.15	15.075	0.25	850	4,114,000.00	10.28	15237	49500	1500	5500	-	71737	48.06
5	Kala Ghanupur	240	108	54	0.89	500	2,420,000.00	21.54	-	49500	1500	5500	1462.5	66925.5	160.62
6	Village Mahal	518	233.1	116.55	1.92	1000	4,840,000.00	92.93	17026	49500	1500	5500	2896	77322	400.52
7	Guru ki Wadali	156	70.2	35.1	0.58	500	2,420,000.00	14.04	-	49500	1500	5500	-	65463	102.12
	Total	1400	630	315.005	5.19			198.57							1030

Source: City Development Plan, Amritsar

4.3.5 KEY ISSUES FOR URBAN POOR

The key issues emerging in Amritsar related to urban poor are:

- Rapid growth of slum population in the city from 17.35% in 1991 to 30% in 2001. No check on the proliferation of slums.
- Poor and dilapidated housing in slums.
- Concentration of slums on the southern part of the city.
- Lack of basic infrastructure and services in terms of water supply, sewerage, drainage, electricity etc.
- Absence of open spaces in slum areas.
- Un-hygienic condition due to dumping of garbage and accumulation of waste water and open drainage.
- Poor accessibility to basic services like health, education etc. leading to lower rate of literacy and high degree of health hazards.

- 76% of slum areas deprived of formal electric connections resulting into large scale theft of electricity due to use of kundi connections.
- Poor quality of life emerging from absence of basic necessities of life.
- 89 % of the private land encroachment of by slums.
- 28.13% of slum population devoid of proper water supply facility i.e dependant on make shift sources of supply such as hand pumps, public taps and wells.
- 31.25 % of slum population lacks access to sewerage.
- Lack of expertise with Municipal Corporation to evolve strategies for slum area development.
- Non-involvement of poor in the formulation and implementation of schemes regarding slum areas.
- Irrational identification of slum localities and beneficiaries.
- Lower share of overall budget i.e. 1.65% reserved to be spent on slums.

CHAPTER 5

EXISTING LAND USE AND TRANSPORTATION NETWORK

5.1 PREPARATION OF BASE MAP

The work of preparation of base map for the Local Planning Area, Amritsar was assigned to Punjab Remote Sensing Centre, P.A.U., Ludhiana. The base map of the core area is generated on 1:40,000 scale by very high and advanced satellite imagery using worldview data of .45m spatial resolutions. The base map for rest of Local Planning Area, Amritsar is generated on 1:40,000 same scale but using Cartosat I data of 2.5m. The Cadastral maps of the villages falling in Local Planning Area were procured from the State Revenue department by the office of District Town Planner, Amritsar and these maps have been scanned in the office of PRSC, Ludhiana and registered with Worldview data to demarcate village and musteel boundaries. The features like roads, rails, high and low lands, drains etc. have been captured from satellite imagery data, by the concerned agency and shown on the draft base map. After editing the map details, the attributes to different features were assigned. The officials of DTP office verified the data captured from satellite images & a non-spatial data was attached to it. The worldview data (satellite imagery) has been received by the PRSC, Ludhiana from National Remote Sensing Agency, Hyderabad.

5.2 ENHANCEMENT THROUGH FIELD SURVEYS-LAND USE AND ROAD NETWORK

The draft base map for the Local Planning Area, Amritsar and the densely built up areas (i.e. core areas) received from Punjab Remote Sensing Centre, P.A.U., Ludhiana were updated through ground truthing field survey by the office of D.T.P Amritsar. The various land uses have been identified at the site and earmarked accordingly. Similarly, the road network, drains, distributaries and other communication zones have been verified and checked at site. After conducting field surveys, the necessary feedback was supplied to P.R.S.C Ludhiana, which were ultimately incorporated and an updated base map was prepared by P.R.S.C, P.A.U Ludhiana. The Office of D.T.P Amritsar again conducted second round of field verification (ground truthing) and the updated (corrected) plans were then supplied to P.R.S.C, this exercise was repeated several times and the field staff of D.T.P office personally assisted the concerned staff of PRSC and a final Land Use map was thus prepared.

5.3 EXISTING LANDUSE PLAN

In order to understand, the breakup of the developed urban area of the Amritsar city and area under various uses including residential, commercial, industrial, traffic and transportation, recreational, utilities, public and semi-public uses; detailed analysis of the city structure has been done on the basis of existing land use plan prepared by the Punjab Remote Sensing Centre, Ludhiana. The Existing Land use Plan- 2010 for Local Planning Area, Amritsar, has been detailed out in the in Drawing No. D.T.P (A) 2/2010, Dated: 12/01/2010 of the department of the Town and Country Planning, Punjab. The detailed analysis is shown in the table given below.

Table 42: Land use Break up of Amritsar LPA, 2010

Land use	Area (Ha)	% of LPA Area
Residential	**11333.45**	**8.13**
Residential	9254.79	6.64
Plotted Land	2076.02	1.49
Official Residence	2.64	0.00
Mixed Landuse	**66.91**	**0.05**
Commercial	**658.58**	**0.47**
Retail and Wholesale Shopping	356	0.26
Godowns, Warehouses, Regulated Markets	232.6	0.17
Hotel and Marriage Palaces	69.98	0.05
Industrial	**949.65**	**0.68**
Brick Kilns	140.07	0.10
Service & Light Industry	674.31	0.48
Planned Industrial Areas	135.27	0.10
Public-Semi Public	**1090**	**0.78**
Educational and Research Institutions	652.05	0.47
Medical & Health	86.84	0.06
Social, Cultural & Religious	172.12	0.12
Cremation & Burial Grounds	41.42	0.03
Govt. Office	132.57	0.10
Govt. Quarter	1.17	0.00
Administrative Structure	3.83	0.00
Government Land	**2965.95**	**2.13**
Govt. Land (Use un- determined)	2965.95	2.13
Utilities	**98.27**	**0.07**
Water Works	28.47	0.02
Electric Grid	48.3	0.03
Sewage Disposal	11.23	0.01
Solid Waste	9.82	0.01
Communication	0.45	0.00
Traffic & Transportation	**4570.55**	**3.28**
Roads and Parking	3196.8	2.29
Bus Terminal	6.54	0.00
Railway station	94.29	0.07
Railway	550.28	0.39
Truck Terminus	0.63	0.00
Airport	722.01	0.52
Recreational	**186.8**	**0.13**
Parks/Public Open Spaces	157.32	0.11
Play Grounds	29.48	0.02
Special Areas	**22.67**	**0.02**
Heritage & Conservation Areas	22.67	0.02
Agricultural	**117476.62**	**84.26**
Agriculture	113089.63	81.11

Land use	Area (Ha)	% of LPA Area
Water Bodies	2098.6	1.51
Plantation & Orchards	1549.87	1.11
Dairy and Poultry Farms	24.36	0.02
Vacant Land	714.16	0.51
Total LPA	**139419.45**	**100.00**

Source: PRSC, PAU-Ludhiana, 2010

Note: The notified total area of LPA, Amritsar is 137042 hectares, which is as per census of India 1991 whereas; the area mentioned in the table above is 139419.45 hectares as calculated by P.R.S.C, P.A.U- Ludhiana. Therefore, for further calculations in the master plan, the area figures given by PRSC have been considered.

Amritsar L.P.A covers the revenue estates of 5 urban centers of Amritsar, Majitha, Rajasansi, Jandiala, Rayya and 310 villages (Refer Plan 1). It has been observed that Amritsar Local Planning Area is mainly agricultural covering 84.26% of the LPA. Only 8.13% of the LPA is under residential use, 3.28% under traffic and transportation and 2.13% under Govt. Land category. The detail of breakup of major existing land uses is given in the table above.

Existing Land use Amritsar M.C

The major urban settlements falling in the Amritsar LPA is Amritsar M.C having a total area of 14237.22 hectares in the year 2010. The detailed breakup of the existing land uses within the M.C Limits is described in the table below:

Table 43: Existing Landuse Plan for Amritsar City, 2010

Landuse	Area (Ha)	% of Developed Area	% of M.C. Area
Residential	**4245.08**	**50.94**	**29.82**
Residential	2927.22	35.12	20.56
Plotted Land	1315.22	15.78	9.24
Official Residence	2.64	0.03	0.02
Mixed Land Use	**66.48**	**0.80**	**0.47**
Commercial	**393.22**	**4.72**	**2.76**
Retail and wholesale Shopping	261.79	3.14	1.84
Godowns, Warehouses, Regulated Markets	98.73	1.18	0.69
Hotel and Marriage Palaces	32.7	0.39	0.23
Industrial	**445.73**	**5.35**	**3.13**
Brick Kilns	9.15	0.11	0.06
Service & Light Industry	341.1	4.09	2.40
Planned Industrial Areas	95.48	1.15	0.67
Public\Semi Public	**738.22**	**8.86**	**5.19**
Educational and Research Institutions	482.08	5.78	3.39
Medical & Health	64.82	0.78	0.46
Social, Cultural & Religious	72.36	0.87	0.51
Cremation & Burial Grounds	11.28	0.14	0.08
Govt. Office	106.51	1.28	0.75
Govt. Quarter	1.17	0.01	0.01
Govt Land	**882.14**	**10.58**	**6.20**
Govt. Land (Use un- determined)	882.14	10.58	6.20
Utilities & Services	**27.2**	**0.33**	**0.19**
Water Works	7.52	0.09	0.05
Electric Grid	5.07	0.06	0.04
Sewage Disposal	7.59	0.09	0.05
Solid Waste	7.02	0.08	0.05

Landuse	Area (Ha)	% of Developed Area	% of M.C. Area
Traffic and Transportation	**1388.67**	**16.66**	**9.75**
Roads and Parking	1185.94	14.23	8.33
Bus Terminal	4.17	0.05	0.03
Railway station	74.76	0.90	0.53
Railway	123.19	1.48	0.87
Truck Terminus	0.61	0.01	0.00
Recreational	**124.89**	**1.50**	**0.88**
Parks/Public Open Spaces	114.71	1.38	0.81
Play Grounds, Stadium	10.18	0.12	0.07
Special Areas	**22.42**	**0.27**	0.16
Heritage & Conservation Areas	22.42	0.27	0.16
Total Developed Area	**8334.05**	**100.00**	**58.54**
Water Bodies	153.71	-	**1.08**
Agriculture	4996.93	-	**35.10**
Plantation & Orchards	277.4	-	**1.95**
Vacant Land	474.17	-	**3.33**
Dairy and Poultry Farms	0.96	-	**0.01**
Total M.C	**14237.22**	**-**	**100.00**

Source: PRSC, P.A.U, Ludhiana

Note: The area of Municipal Corporation, Amritsar is 13600 hectares as identified by M.C whereas the area calculated by PRSC, PAU Ludhiana is 14237.22 hectares. Therefore, the later has been considered final for further use in the master plan.

As per the Existing Land Use Plan-Amritsar M.C 2010, it has been observed that 58.54% of the total municipal corporation area is developed while the remaining 41.5% of the area is under agriculture use or is vacant at present. Thus nearly, one third of the area within the M.C limits have already been developed for various uses such as residential, commercial, industrial etc. which have been discussed in detail below:

Residential

The area under residential use is the major component of the developed area in any city. Likewise, Amritsar city has 51% of the developed area under residential use, which includes both planned and unplanned development. The area under this use is on a higher side than the prescribed norm of 35%-40% as per U.D.P.F.I guidelines for metro cities. This shows that the city is characterized by low-density development with larger size of the plots.

The gross density of the city is of the order of 71 PPH. The walled city area, Amritsar has very high population density (> 300 PPH) while the areas outside it have medium to low density development which is mainly planned. The walled city is marked by mixed land use, narrow streets/lanes, high-rise and dilapidated structures with low light and ventilation. It has been observed that the planned development efforts in the city in the form of Town Planning and Development Schemes such as Bhai Gurdass Nagar (New Amritsar) etc have been concentrated mainly in the north of the city while the south of the city has mainly unplanned and haphazard residential development. Moreover, new residential developments in form of private colonies are

also making their way in the north of the city such as Impact Gardens, Impact Enclave, Global City etc along the Northern Bye Pass, Holy City , Heritage City, Heritage Vihar along Ajnala Road, S.G Enclave along Majitha Road, and Shubham Enclave, Dream city, Ansal City along G.T Road.

Commercial

The area under commercial use constitutes 4.72% of the total developed area of Municipal Corporation, Amritsar. The city has significant area under commercial use reflecting its importance and contribution in the economy of the city. The walled city area having 22 specialized markets such as Hall Bazaar, Katra Sher Singh, Katra Jaimal Singh, Guru Bazaar, etc of different nature is acting as the CBD. These are in the form of traditional bazaars spread along the roads. It is not only serving the wholesale and retail commercial needs of the residents of the city but also of the neighboring urban and rural settlements. These commercial areas have mixed land use with commercial on the ground floor and residential on above floors. These areas lack adequate parking spaces and public amenities/utilities.

Apart from the CBD, a city centre near Bus stand and District Shopping Complex is located at Ranjit Avenue, which is serving the commercial needs of the people residing in the north of the city and are also the major work areas in the city. The city also has commercial areas along major roads in the city such as Queens Road, Cooper Road, Lawrence Road, Mall Road etc.which have developed as major retail commercial markets in the city. All these markets whether planned or unplanned have witnessed the informal commercial activities in form of rehris, kiosks located outside bus stand, railway station and areas with major economic activities creating chaotic situation.

The commercial activity also includes the area under grain market, fruit and vegetable market located at Bhagtanwala and Vallah respectively.

Mixed Land Use

The walled city area of Amritsar is characterized by mixed land use that is with commercial use on the ground floor and residential on the upper floors. The total area under mixed land use in the city is 0.8% of the total developed area of the city.

Industry

The city of Amritsar houses large number of small-scale industrial units with 8 medium to large scale industrial units covering total area of 445.73 hectares which is 5.35% of the developed area and 3.13% of the M.C area of the city. Some of the major industrial units existing in the city

include Khanna Paper Mill, O.C.M, Amritsar Swadeshi Mills, Essma textiles, Partap steels and Nijjar Agro Foods etc. Apart from these several other units in textile and engineering sector exists in the city. Although, the city has scattered industrial development along major radials such as Batala Road, G.T Road, Majitha Road and Tarn Taran Road etc, it also has planned industrial areas such as Focal Point along Mehta Road and along Vallah Road, industrial estate near Chheharta and East Mohan Nagar development schemes.

Recreational

The total area under recreational use in the city comes out to be 1.5% (124.89 ha) of the developed area and 0.88% of the total M.C area. There are mainly three recreational spaces in the city, namely, Ram Bagh Garden located in the north of the city, Gol Bagh and Saktri Bagh in the south of the city. There is also one stadium commonly known as Gandhi Ground present in the city located on M.M. Malviya Road. Apart from these two, there are small parks/ playgrounds located within the planned residential colonies/areas of the city. The area under this use is much less than the prescribed norm of 20-25%, reflecting that the city badly lacks in the provision of recreational spaces, which requires attention.

Traffic and Transportation

Nearly 1388.67 hectares of the area which is 16.66% of the total developed area and 9.75% of the total municipal area of the city is under road network which comprises of roads, railway line, terminals such as bus stand, truck stand, railway station, airport and parking lots/areas existing in the Amritsar city. The existing area under this category is less than the prescribed norm of 15-18% for the metro cities.

The city has 11 radials emerging out or leading to the Amritsar city, which are Ram Tirath Road, Ajnala Road, Loharka Road, Fatehgarh Churian Road, Majitha Road, Batala Road, Sri Hargobindpur Road, G.T Road towards Jalandhar, Tarn Taran Road, Jhabal Road and Attari Road, which can be clearly identified on the Existing Land Use Plan drawing. Apart from these major radials, there are intra city roads, which are connecting several important places within the city such as Outer Circular Road, Mall Road, Lawrence Road etc and minor city roads existing in the city. The major problems related to this aspect is that of traffic bottlenecks, road encroachments, lack of parking areas resulting into on-street parking, lack of ROB’s and underpasses for both pedestrian and vehicular movement etc. The details of existing road network and other uses relating to traffic and transportation are shown in Existing Land Use Plan- Amritsar (Refer Plan 1).

Public and Semi Public

This use comprises of the area under educational and research institutions, medical and health institutions, social, cultural and religious buildings, cremation and burial grounds, Govt. /Semi Govt. offices, Govt. lands etc. The city of Amritsar has 738.22 hectares which is 8.86% of the total developed area and 5.19% of the total municipal area of the city under public and semi public use (refer table no. 43). Existing Land use Plan, Amritsar shows the spatial location of the educational, health, cultural and religious institutions existing in the city. It has the presence of number of educational institutions such as Guru Nanak Dev University, Khalsa College, 9 other degree colleges, 4 engineering colleges, 2 medical and dental colleges, nursing colleges and polytechnics existing in the city. The health institutions in the city include Guru Nanak Dev Hospital, Civil Hospital near Ram Bagh, S.G.T.B Hospital, ESI Hospital, Fortis-Escorts on Majitha-Verka bye-pass and many others.

Being the administrative headquarter, Amritsar houses number of district and city level govt. offices and quarters covering a total area of 107.68 hectares (0.77 % of total M.C area). It has been observed that the area under this land use category is less than the prescribed norm of 14% to 16% which shows that the city lacks in socio-cultural institutions/facilities such as libraries, museums, exhibition halls, convention centre's, music-dance and drama centre, meditation and spiritual centre etc.

Govt. Land

In the Existing Land Use Plan-Amritsar 2010, the govt. land has been referred to be the land under defense use. It covers a total area of 882.14 hectares that is 10.58% of the developed area and 6.20% of the total municipal area of the city (14237.22 hectares). This huge chunk of land is located on the west of the city that is at the backside of Guru Nanak Dev University and along G.T Road towards Attari adjoining the Northern bye pass. It is also spread in the LPA covering portion of the villages of Dhaul Khurd, Kotla Dal Singh and Saidopura etc.

To check the availability of government land in the region of Rayya, a detailed survey has been conducted. The revenue department has supplied the information regarding government land, which has been earmarked on the proposed land use plan (Refer Plan 4). Availability of government land is checked so that it can be efficiently used for the development purposes, to avoid large land acquisition and for public & semi public uses.

Utilities and Services

As given in the table above, 27.20 hectares of the area is under utilities and services which is 0.33% of the total developed area and 0.19% of the total municipal area of the city. The area under utilities and services includes the area under water works, sewage disposal, communication, electric grid/ sub-station, solid waste disposal etc. The spatial location of these can be seen on the Existing Land Use Plan for Amritsar City-2010. For further details, refer chapter urban infrastructure and service delivery.

Agriculture

Unlike Amritsar LPA wherein 81% of the area is under agricultural use, Amritsar M.C has 41.5 % area, which is approximately 5903.17 hectares under agricultural use. The area under this category includes area under water bodies, vacant land, plantation, orchards and area under agriculture/cropped land.

Special Areas

There are two prominent special areas existing in the Amritsar city that is 'The Gobindgarh Fort' which is declared as Protected Monument by the Archeological Survey of India and the other is 'Jallianwala Bagh' located near to Golden Temple. The Gobindgarh Fort is located opposite to the Durgiana Temple, one of the most visited tourist destination in the city. The total area covered under this use is about 22.42 hectares, which is 0.27% of total developed area and 0.16% of the total municipal area of the city.

While analyzing the existing land use pattern for Amritsar city, it has been observed that city requires rationalization of different land uses in order to bring it to the level of prescribed norms as per UDPFI guidelines. The city requires creation of large number of recreational/ open spaces and increased number of socio-cultural institutions that at present are absent in order to improve the quality of living in the city. It also requires provision of larger area under industries and traffic and transportation category

5.4 TRAFFIC AND TRANSPORTATION

For most inhabitants of the towns/cities of India, traffic hazards and the difficulties in commuting from one place to any other is one of the prime concerns.

5.4.1 VEHICULAR GROWTH

The table below shows the vehicular growth in Amritsar city from the period 2003-04 to 2007-08. The number of vehicles have increased on an average growth rate of 6.5% per annum. The passenger vehicles have greater share in the total number of registered vehicles and are observed to have increased every year although by marginal rate from 88.85% in 2003-04 to 90.08% in the year 2007-08 (Refer figure no.56)

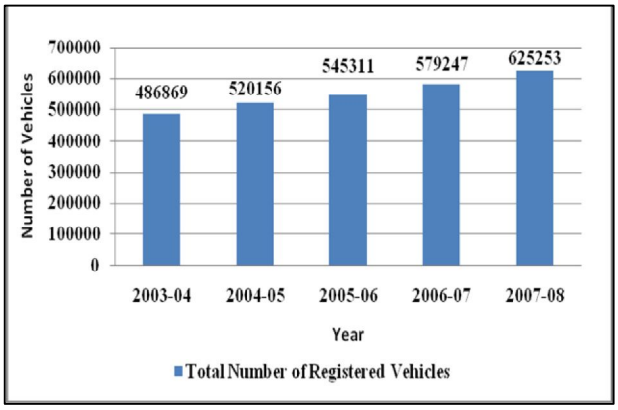


Fig no.60 Growth of registers Vehicle in Amritsar

Table 44: Growth of Registered Vehicles in Amritsar City

Type of Vehicle	2003-04	2004-05	2005-06	2006-07	2007-08
Passenger Vehicles					
Buses/Mini Buses	2082	2182	2207	2289	2379
Cars	42672	47199	50649	55232	63831
Jeeps	2330	2863	3250	3814	4414
2-wheelers	385476	411877	431995	458202	492587
Goods Vehicles					
LTV	1668	2103	2340	2807	3244
MTV	1524	1561	1574	1695	1845
HTV	3671	3887	4011	4436	4883
A/R	12149	12785	13298	14249	15176
GV	21	39	43	72	92
Others					
Tractors	35249	35631	35914	36360	36690
Combines	27	29	30	91	112
Total	**486869**	**520156**	**545311**	**579247**	**625253**

Source: District Transport Office, Amritsar

The personalized modes of vehicle such as two wheelers and cars together hold approximately 99% of the total passenger vehicles with an average annual growth rate of 7%. Other important issue is the increasing number of autorickshaws and their unregulated movement on all major/minor roads of Amritsar city. Number of auto rickshaws in Amritsar rose from 12149 in year 2003-04 to 15176 in year 2007-08. The percentage of these vehicles is 25% in year 2007-08 that proves their mushrooming growth in the city of Amritsar.

5.4.2 ROAD ACCIDENTS

Amritsar city is facing the problem of traffic so much that the ill effect of this is relevant from the figures of Accidents. The unprecedented growth of vehicles coupled with the large number of accidents may be seen in following table no.45.

Table 45: Trend of Road Accidents in Amritsar, 1997-2008

Details	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Cases Registered	125	118	146	105	149	143	128	114	126	131	166	190
Total Fatal Cases	72	61	89	71	80	75	69	76	79	101	103	99
Total Non-Fatal Cases	53	57	57	34	69	68	59	38	47	30	63	91
Total Person Killed	78	67	98	74	81	84	77	89	84	115	119	115
Total Persons Injured	91	123	140	83	116	122	132	91	98	80	123	161

Source: Amritsar Police Dept; 7/2/09

Observing the accident statistics for Amritsar city from the year 1997-2008, it has been concluded that the total number of registered accident cases have increased from 2004 onwards and is highest in the year 2008 which is of the order of 190. It has also been reported that upto 31st July 2009, total number of accident cases registered are of the order of 110 which is likely to cross the last year figure of 190 as well. This figure is highest among the last ten years, which implies that Amritsar city is facing traffic problems acutely which has resulted into large number of accidents in the city. On an average 60% to 70% of the total cases registered are fatal in nature. The cause of accidents (other than negligence of driver) is the blind curves, lack of signals/traffic lights/ road markings, encroachment reducing effective road width, poor road condition or poor road geometry, these requires improvements.

Fig no.61: Canal office Chowk

Fig no.62: Rambagh Chowk

The black spots have been identified both in the city Amritsar and in Amritsar L.P.A by department of Punjab police based on the number of accidents occurred at those junctions. The black spots in Amritsar L.P.A have been identified at village Chouhan, Manawala and canal bridge Rayya . the black spots within the city includes Maqboolpura Chowk, 100ft Chowk, Ram Talai, Jahazgarh, Sangam Chowk, Hussainpura Chowk, Ghee Mandi Chowk, Bhandari Bridge, Hall Gate near Peer Baba Dargah, Lohgarh Chowk, Sultanwind Gate Chowk, Ghee Mandi Chowk, Sheranwala Gate, Mahan Singh Gate, Chita Gumbad, Rambagh Chowk, Goal Hatti

Chowk, Bharawan Da Dhaba, Sadar Chowk, Chowk Office Neharwala, Ashoka Chowk, Mahal Chowk, Fatehgarh Churian Road Byepass, Hukam Singh Road, Majitha Road Bye pass, Batala Road and GT Road Daburji to Byepass India Gate via Taran-wala pul and Verka Chowk.

5.4.3 EXISTING ROAD NETWORK AND HIERARCHY

The road network of Amritsar LPA & MC is primarily "Ring Radial" with an intense network of eleven radial roads leading to core city like spokes of a wheel. There are 2 National Highways, 3 State Highways, 6 M.D.R's and 24 O.D.R's & number of other important roads passing through the L.P.A & city providing stronger regional linkages (Refer map 8). Rayya and its surrounding villages are well linked with N.H-1 and Amitsar LPA is well linked with nearby settlements, States and across border with these strong linkages. N.H-1 acts as the central spine cutting the city into two parts namely north and south. These eleven radials emerging out of the city have acted as important nodes for the development.

The road network in the city has been studied in two parts: (i) walled city, (ii) outside walled city (Refer map 9). Walled city carrying one-sixth of the city population is heart of Amritsar city as it generated lot of trade activities, which on other hand generates lot of traffic. A wall and a circular road that runs along the wall both outside and inside the wall bound the old city. There are 14 entry points/ gates of the walled city leading to the various residential areas, specialized bazaars, Golden Temple and other activities within walled city. It has a road network characteristic to a typical medieval town of North India. Narrow winding streets characterize the road network, lanes and by-lanes laid out into introvert planning units. This part of the city is built on human scale with the major thoroughfares and surprising open spaces. The dense road network with narrow width fails to meet the existing transit demands of multi-modal transport with majority of motorized vehicles.

On the other hand, later development includes areas built outside the walled city i.e. north side of the Amritsar – Jalandhar rail line which divides the city into two halves. It is characterized by wide roads. The city does not have any distinct ring although the Circular Road as well as bye pass exist in the northern portion of the city but it is completely absent in the southern portion. The table below lists the important roads passing through the city along with details of road cross sections and right of way.

Table 46: Statement showing the details of Road Cross-Section and R/W of Inter and Intra City Road Falling in Amritsar Local Planning Area

Sr. No.	Category of Road	Name of Road	Width of Road (Mtrs)				Remarks
			R/W	L/B	C\W	R/B	
National Highways							
1	R1(NH-1)	GT Road(Lahore to Delhi)	1) 60 2) 62.70 3) 54.4 4) 613.5F	NA 17.35 24.30 252.62F	NA 10+8+10 6.50+2+6.5 108.26F	NA 17.35* 15.30* 252.62F	*Near village Dhodhiwind *Dual carriage way Near Kot Khalsa *Near Doburji Distributory *Near Mehrabanpur
2	R1(NH-15)	Amritsar-Pathankot	30.48M	8.74	13	8.74	*Near village Alkare
3	R1 (NH-15)	Amritsar-Tarn Taran Road	32.56M	11.00	10.06	11.5	* Near village Chabba
State Highways							
4	R2 (SH-25)	Amritsar-Ajnala-Dera Baba Nanak	26.70	10.00	6.70	10.00	*Near village Nagal
5	R2 (SH-21)	Amritsar-Bhikhiwind-Khemkaran	27.95M	9.35	6.70	11.90	*Near village Bohru
6	R2(SH-22)	AmritsarSri Hargobind Pur	25.80M	9.70	6.40	9.70	*Near village Chapu Ramsingh
Major District Roads							
7	R3(MDR-65)	Amritsar-Chogawan-Rania	23.10	10.80	6.70	5.60	
8	R3 (MDR-64)	Amritsar-Fatehgarh Churian	24.10	4.5	(6.70+1.4+6.70)	4.8	* Dual carriage way Near MCA * Near Tungawala
9	R3 (MDR-63)	Amritsar-Ajnala-Chogawan	32	11.15	9.70	11. 15	*Near UBDC
10	R3 (MDR-61)	Attari-Jhabbal-Tarn Taran-Goindwal	0	26.40	26.40	12	-
11	R3 (MDR-66)	Rayya More-Baba Bakala/Batala	17.40	4.0	6.7	6.7	* Near Baba Bakala
12	R3	Link Road Between GT Road & Ajnala Road	21.7	8.1	5.6	8.1	*Near village Chahia

Source: PWD office, Amritsar

Note: R/W- Right of Way, L/B-Left Berm, C/W-Carriage Way, R/B-Right Berm

Table 47: List of O.D.R's falling in the Amritsar LPA along with Cross-sectional Details

S.No.	Category of Road	Name of Road	Length (kms)	Metalled Width (ft)
1	R4	Jandiala to Tarn Taran	16.22	23
2	R4	Harsa Chhina-Fatehgarh Churian	16.38	12
3	R4	Beas-Dera Baba Jaimal Singh-Sathiala-Butala	N.A	5.72-33' 9.60-18' 4.80-10'
4	R4	Jandiala-Veroval	21.62	18'
5	R4	G.T Road to Gehri Mandi Railway Crossing	3.10	18'
6	R4	Gehri mandi Bazar	0.50	23'
7	R4	Chheharta Dhand Bir Road	17.15	15.80-18' 1.35-22'
8	R4	Rajatal-Naushera Dhalla road	4.58	12'
9	R4	Approach to Warrpal Rly Station from NH-15	2.41	12'
10	R4	Approach to Attari Rly Station from NH-1	1.80	18'
11	R4	Majitha Bye pass	0.96	10'
12	R4	Mall Road Amritsar	4.34	48'
13	R4	Approach to Verka Railway station from NH-15	0.13	15'
14	R4	GT Road to Govt. Polytechnic	0.85	10'
15	R4	Albert Road, Amritsar	0.89	22'
16	R4	Approach to Jaintipur Rly Station from NH-15	0.24	10'
17	R4	Approach to Kathunangal Rly Station from NH-15	1.40	10'
18	R4	G.T. Road to Khurmanian-Bopa Rai Baj Singh	6.15	12'
19	R4	Rayya lidder jalalabad	16.76	18'
20	R4	Old GT road with in Amritsar MC	1.85	22'
21	R4	Mall Road Amritsar, Disst. Court to Lawerance Road Xing Lawerance road Xing to PWD complex	2.86 1.48	2x22' 48'
22	R4	Amritsar Sohian Fatehgarh Churian road	23.05	18'
23	R4	Fatehgarh Churian Ramdass road.	15.42	23'
24	R4	Cheecha Hoshiar Nagar road.	6.52	12'

Source: P.W.D Office, Amritsar

The total length of roads existing in the Amritsar M.C. area is 495.20 kms in the year 2001, which has increased to 524.41 kms in 2004 and 611.13 kms in 2006. There has been an increase of 29.21 kms in the total road length in the city in the last four years and an increase of 87 kms in past two years. This increase has been observed in the category of surfaced roads. Almost 90% of the city roads are surfaced (metalled) roads, among which, 98% are Black Top roads with remaining 2% as cement concrete and water bond macadam roads. The unsurfaced roads have been sub-divided into Motorable and Non Motorable ones. Motorable roads have major share among the unsurfaced roads, which is of the order of 95% in 2004. (Refer table no. 48).

Table 48: Length of Roads within Amritsar M. C. (in kms)

Year	Total Length (km)	Surfaced Roads (km)				Unsurfaced Roads (km)		
		Water Bond Macadam	Black Top	Cement Concrete	Total	Motorable	Non Motorable	Total
2001	495.20	3.40	431.45	7.60	442.45	48.00	4.75	52.75
2004	524.41	1.40	451.66	7.60	460.66	50.00	2.75	52.75
2006	611.13	10.70	527.03	13.40	551.13	55	5	60

Source: Municipal Corporation, Amritsar, Municipal Year Book (06-07)

5.4.3.1 Cross-sections of all Major Radial Roads and Inner City Roads

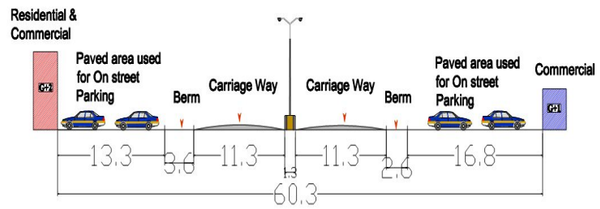
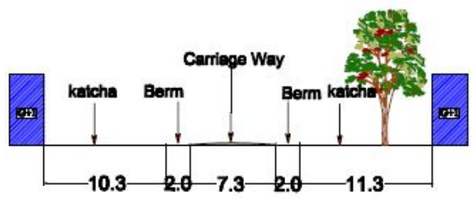
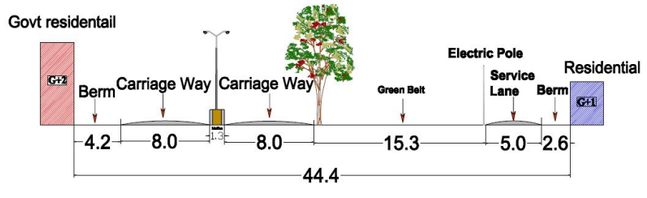
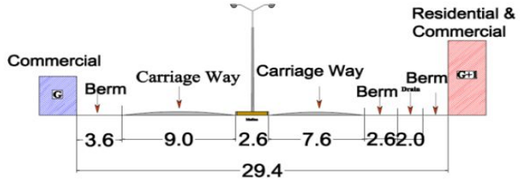
The laying of new road network in the city of Amritsar is the responsibility of PWD and Municipal Corporation, Amritsar while the provision of roads outside the municipal limit, link roads to the villages fall within the purview of PWD and that of the two National highways passing through the city under N.H.A.I (National Highway Authority of India). The details of cross sectional elements as supplied by PWD for these roads have been illustrated in the table no 48 as per the information provided, the width of the road varies from section to section especially in case of G.T Road and there is no sort of encroachments on these roads.

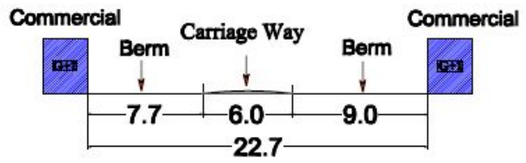
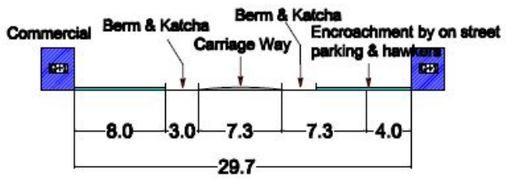
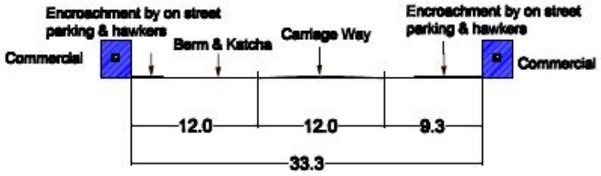
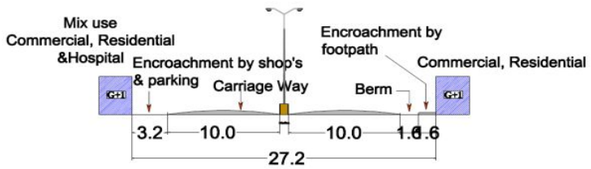
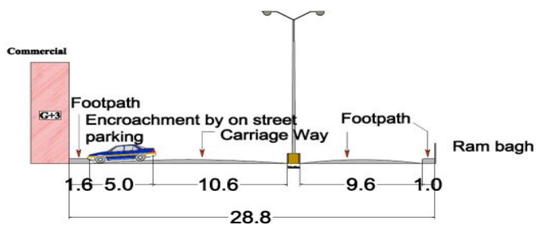
Road Sections Details: Primary Survey

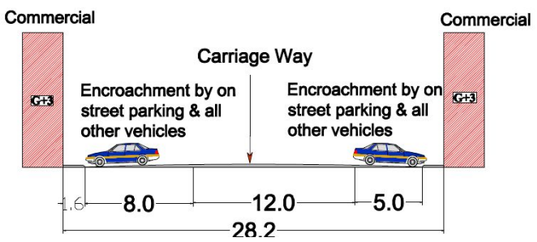
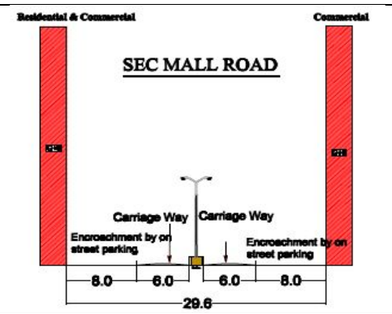
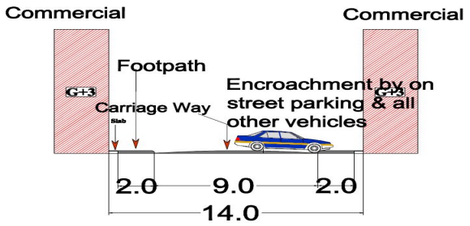
SAI team conducted primary survey of the important city roads and junctions to assess the critical sections/junctions in the city. The cross sectional details of all major roads have been assessed and encroachments along these roads has been identified and marked. It has been observed that the right of way at many places is encroached by the informal activity such as street hawkers, on street parking of vehicles, which has resulted in the reduction of effective road width. Further it has been observed that all the major roads are flooded with traffic of heterogeneous nature and the poor road geometry/elements has failed in alignment of different modes for smooth flow of traffic. At few junctions like Kitchlu chowk, putligarh chowk, Bhandari-Bridge, Hussainpura chowk and Railway Station chowk, pedestrian facilities are totally missing. These kind of problems are not an exception anywhere in the city which requires due consideration.

Elevated road is under construction from Hussainpura chowk to Bhandri Bridge, which will directly pressurize Bhandri Bridge, as it will create bottleneck and jams as traffic terminates at this point, which further creates congestion at various points like railway station, putligarh chowk etc. The other route i.e from Bhandri Bridge to Rego- Bridge via Goal bagh can be explored for releasing the pressure on Bhandri Bridge. The life of Rego- Bridge is expired and has been declared unsafe for heavy vehicles by government of India. This bridge should be reconstructed and widened. The elevated road is missing from Bhandri Bridge to Chheherta chowk. As the volume of traffic near Y-Junction of Railway Station, Putligarh chowk near Khalsa College and Chheherta chowk is very large, so elevated road from Bhandri Bridge to chheherta chowk can take care of the traffic problems of the city.

Table 49: Details of Various Road Cross-Sections

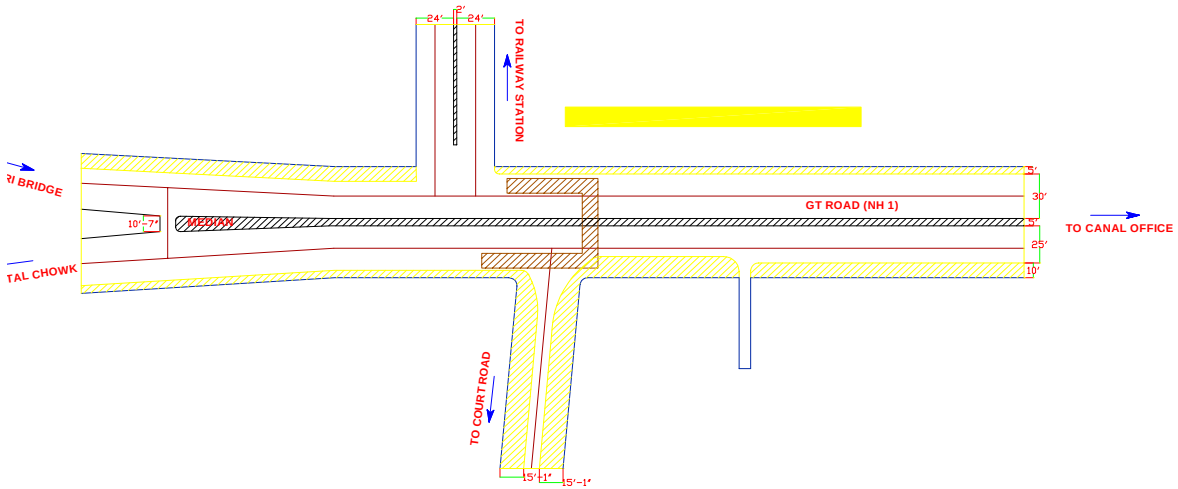
Sr. No.	Road Name	Cross Section		Remarks
1	G.T Road-Near Putlighar Chowk (NH-1)			• Variation of cross section details of NH1 because of encroachment • Reduction in effective road width due to parking of vehicles and informal sector • Road condition ranges from moderate to bad.
2	G.T Road-In Front of Railway Station (NH-1)			• Variation of cross section details of NH1 because of encroachment • Reduction in effective road width due to parking of vehicles and informal sector • Road condition ranges from moderate to bad.
3	Verka Byepass Chowk on Amritsar-Pathankot Road (NH-15)			• Encroachment on its both sides by parking of autorickhshaw, rickshaw, rehris, khokas. • Absence of any pedestrian facility on the road. • Moderate to bad road condition
4	Ajnala Road - Near District Courts (SH-25)			• Encroachment on its both sides by parking of autorickhshaw, rickshaw , rehris, khokas • Garbage dumping alongside road reducing road width • Moderate road condition
5	Ajnala Road (Byepass Chowk)			• Commercial and mix landuse on both sides • Good road condition • Bridge under construction.

6	Loharka Road			• Commercial area on both sides. • On street parking along road
7	Fatehgarh Churian Road-Byepass Chowk			• Commercial on both sides of the stretch. • Heavy concentration of informal activities along this stretch. • On street parking .
8	Majitha Road Near Bye pass			• Road and rotary under construction • Commercial development on both sides along with multiplexes coming in a huge flow in this stretch
9	Majitha Road (Internal City Road)			• Variation of cross section details of NH1 because of encroachment • Reduction in effective road width due to parking of vehicles and informal sector • Road condition ranges from moderate to bad
10	M.M. Malviya Road (Internal City Road)			• Encroachment on its both sides by parking of two, three and four wheelers • Many malls are located on this roads without parking facilities creates traffic problems • Road condition ranges from moderate to bad.

11	Lawrence Road (Internal City Road)			• Traffic jams due to informal sectors, encroachment by the shops and on street parking on its both sides. • Surrounding Land use residential cum commercial (Pvt. College , many Pvt. Bank and offices on this road) • Lack of parking place leads to On-street parking
12	Mall Road (Internal City Road)			• Conversion of surrounding land use from residential to commercial. • Encroachment on both sides of the road by On-street parking. • Haph-hazard parking in front of the commercial malls leads to traffic jams on the road.
13	Hall Bazaar (Internal City Road)			• High Degree of road encroachment on its both sides by parking of rickshaw, rehris, khokas and four wheelers. • On street parking alongside road reducing road width • Moderate to bad road condition.

5.4.4 JUNCTIONS DETAILS

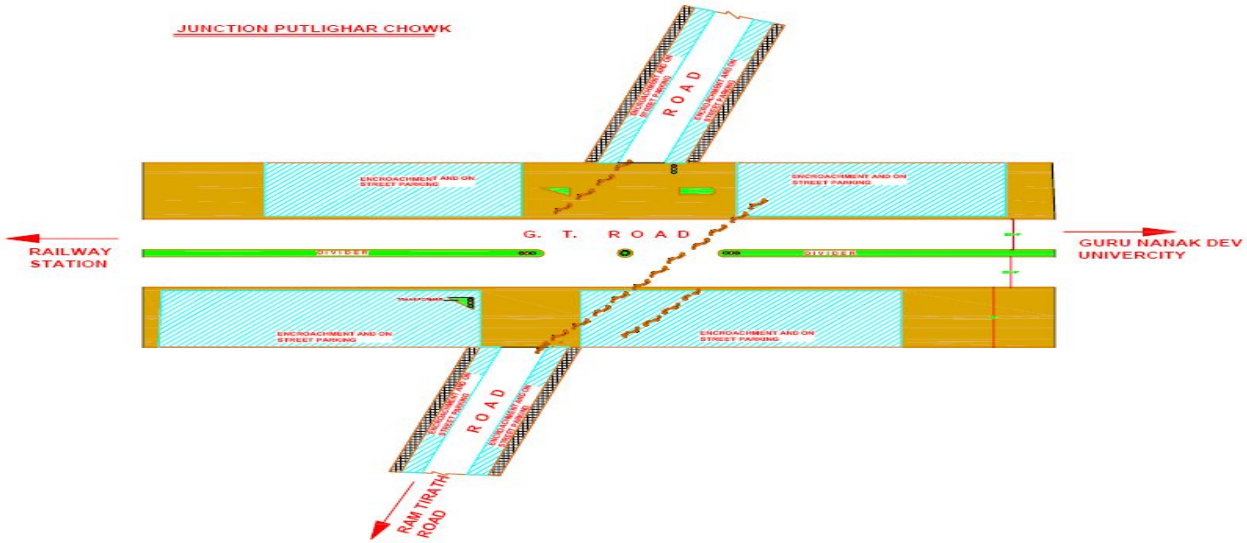
Fig no.63: Railway Station Chowk



- High Degree of road encroachments on its both sides by parking of rickshaw, rehris, khokas , shops and heavy movements of four wheelers and Mix traffic

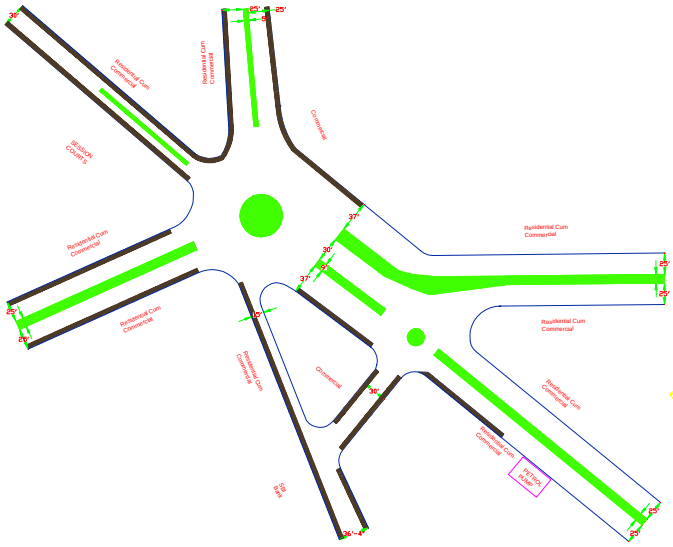
- On street parking's alongside both sides of road reducing road width
- Lack of usage of foot over bridge present across the NH1 near railway station.
- Moderate to bad road condition

Fig no. 64: Putlighar Chowk



- Heavy pedestrian movement due to commercial areas and labour chowk
- Encroachment on its both sides by parking of rehris, khokas, fruit & vegetables rehris/pharis etc
- Heavy movements of four wheelers ,Mix traffic and also Police barriers creates hindrance in the movements of traffic
- On street parking's along both sides of road majority of rickshaw and three wheelers reducing road width

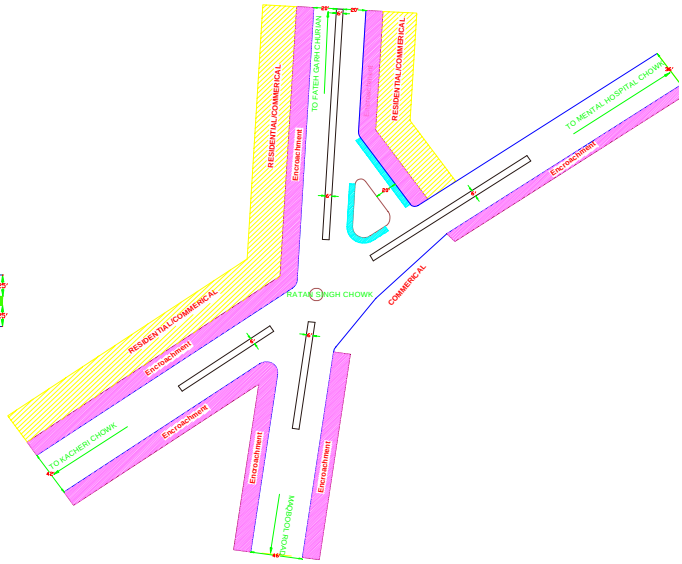
Fig no.65: Kichlu Chowk



- Pedestrian movement all through the stretch and junction.
- Encroachment on both sides by parking of rehris, khokas

  and shops
- Heavy movements of four wheelers, Mix traffic and also Police barriers creates hindrance in the movements of traffic
- Traffic mismanagement is observed

Fig no.66: Rattan Singh Chowk



- Pedestrian movement all through the stretch and junction.
- Encroachment on both sides by shopkeepers, by informal activities and onstreet parking of vehicles
- Mixing of fast and slow moving traffic
- Traffic mismanagement is observed
- Labour market (group of (100-150) labourers hinders the movement of traffic.

Refer Annexure XII for Junction survey

As per discussion with the police officials and FGDs conducted with various important people during survey of the Rayya and its surrounding villages, some critical junctions have been identified from accidents, blind cruves, and geometric design point of views. They are:-

- Rayya Canal Bridge
- Baba Bakala Entry gate
- Y-Junction at Sathiala College
- Entry of Baba Bakala From NH-1
- Under pass near Beas
- Umra Nangal Gate

The primary survey of important city roads, reveals that NH-1 is the major corridor for movement of both inter and intra city traffic and hence caters to large traffic volume while all the radial routes are catering to the regional traffic. The provision of byepass in the northern half of the city has not been able to help much to relieve traffic problems in the city.

Major problem identified was lack of visibility of traffic signals from a distance. Traffic signal type, spacing, phasing and offsets should be optimized for all modes of traffic on all mobility corridors to ensure a speedy movement of traffic. Where possible actuated (demand response) traffic signals must be provided.

In terms of supply of parking area along the various stretches, there is no formal authorized parking space for any mode. Lack of Footpaths is also a major concern on all the stretches and junctions. As cross conflict occurs between the pedestrians and moving vehicles on the road, which may lead to accidents. At certain points/junctions, footpaths are present but have been encroached by hawkers and rehriwala's; as a result pedestrians have to walk on the road leading to conflict with vehicles. At railway station and another at Baba Deep Singh Ji Gurudwara, foot over bridges for movement of pedestrians have been provided but they are not being used. Guard rails are present at the median but people tend to jump them and cross the road. Planned parking spaces exists outside Golden Temple, Baba Deep Singh Ji Gurudwara, Durgiana Mandir and at Lawrence road which are always full, hence forcing people to park their vehicles on roads, thereby, reducing the effective width of the road. Specific parking locations are required to be proposed for regulating the traffic and reducing the On Street parking trend especially around Golden Temple and Durgiana Temple.

5.4.5 PARKING

Parking is another major area of concern for almost all towns/cities. With increasing number of vehicles, narrow road networks, absence of parking lots/spaces within majority of built spaces renders parking as a critical area for planning and development. Moreover, the local government policy allowing conversion of residential building to commercial use without taking in account adequate parking requirements has led to attracting large number of vehicles on the roads. Even the norms for provision of parking areas in the city also needs to be made more realistic as lack of proper norms leads to various parking related issues.

The city is observed to have a trend of on-street parking in general besides the provision of parking lots at different locations in the city. The table below gives list of parking lots demarcated by Municipal Corporation in the city of Amritsar. Most of these parking lots do not have a separate space but instead have line demarcation on the road itself, which is a regulated form of on-street parking that reduces the effective road width. This can be seen in case of Court Road, at ICICI Bank-Mall Road, at Telephone Exchange parking lots.

Table 50: Parking Lots Given on Contract Basis by Amritsar M.C

Sr.No.	Parking Lot Name
1	Court Road/Civil Line
2	Gol Bagh
3	Fish market
4	Telephone Exchange
5	Pandit Deen Diyal Parking Lot
6	Dr. Daljit Singh Hospital
7	Town Hall
8	Guru Nanak Bhawan
9	State Bank of India (Court Road)
10	State Bank of India (Town Hall)
11	Hartej Hospital
12	Shashi Hospital
13	Chatiwind Gate
14	Amandeep Hospital
15	Mata Kaulan Hospital
16	Sabzi mandi
17	DTO office
18	Dr. Navdeep Hospital
19	ICICI Bank Mall Road
20	Kakkar Hospital
21	Madaan Hospital
22	Chachhi Hospital

Source: Municipal Corporation, Amritsar

Along the major commercial areas such as Lawrence Road, Queens Road, Hall Bazaar etc. there is no provision of organized parking spaces, hence results into on-street parking.

Fig no.67: On Street Parking of vehicles creating traffic bottlenecks

Fig no.68: Encroachment of footpath due to On-street Parking

The off-street parking has also been observed at different locations such as Hussainpura Parking Lot, Railway Stations, Bus Terminal, Market complex at Mahan Singh Chowk and opposite Bus Stand Exit. It is observed that the demand for car parking is high at Hall Bazaar and stretch from the Town Hall to Golden Temple. The 2-Wheeler accumulation is high at the Railway Station, Bus Terminal and the Town Hall Complex. The demand for off-street parking of cycles is high at the Railway Station and Hall Bazaar. Further, another important spot Durgiana Temple also requires multistoreyed parking in the surrounding to cater the need of visitors.

Even the areas where organized parking spaces have been provided are still facing the problem of traffic congestions and bottlenecks due to onstreet parking of vehicles. This is seen on the stretch outside the Golden Temple, at Gurudwara Shaheed Ganj as the parking provided in the lot is free which remains full. In the case of Pandit Deen Dayal Upadhya Parking lot which have been constructed by the Amritsar M.C to decongest the walled city traffic especially Hall Bazaar and areas surrounding it, but it is still lying vacant because people had to walk longer distances to reach places. Number of parking lots have been proposed or are under construction in different areas of the city to solve parking related issues. The table below lists the details of various organized parking lots existing in the city.

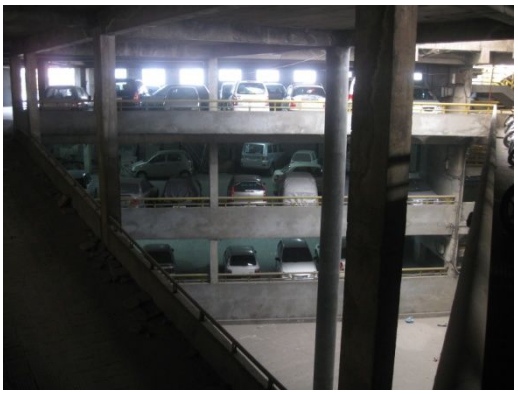


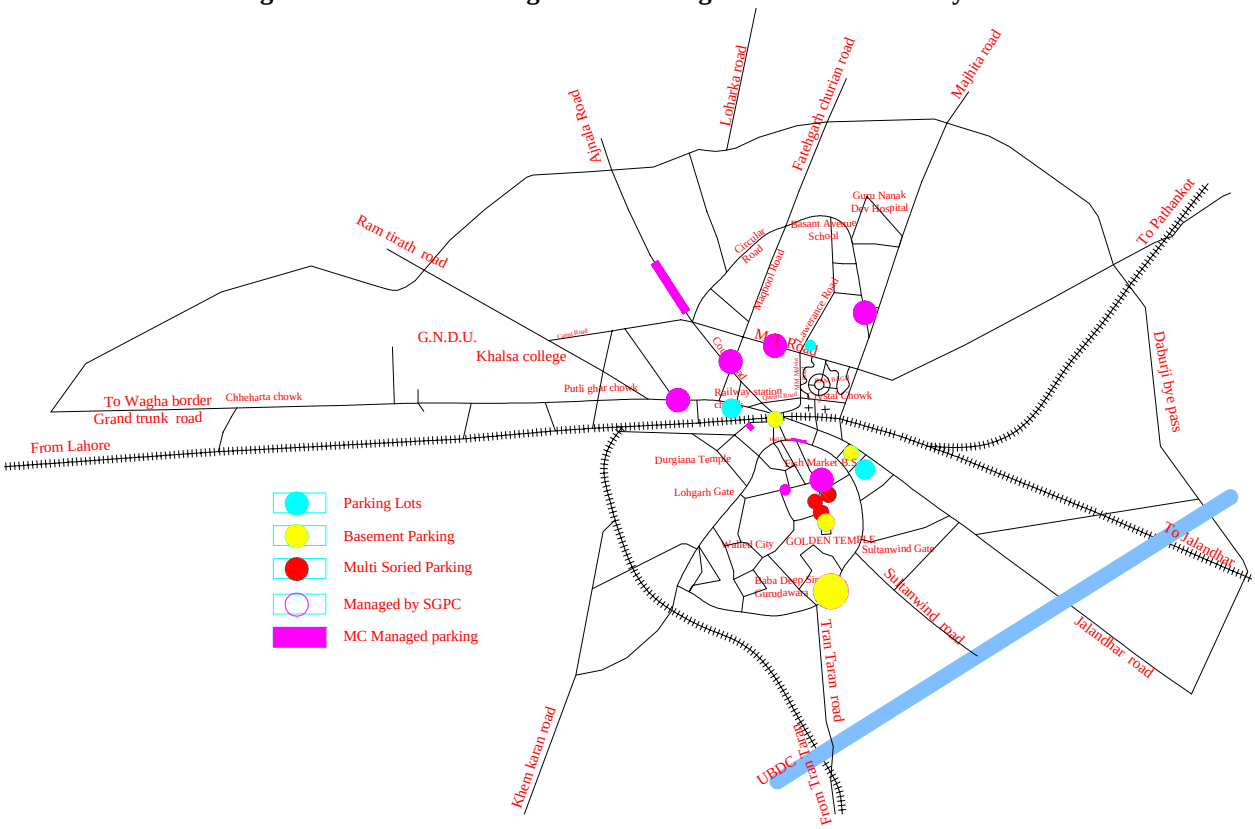
Fig no.69: Multi Storied Parking On Bhandri Bridge

Table 51: Organized Parking Lots in Amritsar City

S. No	Name of Area	Number	Type of Parking Lot	Existing/ Proposed	Free/Paid	Type of Vehicles	Managed By	Area
1	Near Golden Temple	2	Multistoried Parking	Existing	Free	2 wheelers & 4-wheelers	SGPC	-
2	Chowk Phowara	1	Multistoried Parking	Existing	Free	2 wheelers & 4-wheelers	SGPC	-
3	Gurudwara Shaheed Ganj	2	Basement Parking	Existing	Free	2 wheelers & 4-wheelers	SGPC	-
4	Municipal Parking at Bhandari Bridge	1	Basement Parking	Existing	Paid	2 wheelers & 4-wheelers	Municipal Corporation	22500 300(Cars, 300(Scooters)
5	Kairon Market (Old parking)	1	Surface Parking	Existing	Paid	2 wheelers & 4-wheelers	Municipal Corporation	18000 sqft
6	Kairon Market (New Parking)	1	Multistoried Parking	Proposed	Paid	2 wheelers & 4-wheelers	Municipal Corporation	-
7	Old Telephone Exchange	1	Surface Parking	Existing	Paid	Multipurpose	Municipal Corporation	3600 sqft
8	Fish Market	1	Surface Parking	Proposed	Paid	Multipurpose	Municipal Corporation	11970sqft
9	Galiara Parking	2	Basement, Surface & Multistoried Parking	Existing	Paid	2 wheelers & 4-wheelers	Municipal Corporation	4000sqft 1200sqft
10	Kesari Bagh Parking	1	Surface Parking	Existing	Paid	2 wheelers & 4-wheelers	Municipal Corporation	-
11	Saragarhi Parking	1 (adjoining elevated road)	Multistoried Parking	Existing	Paid	2 wheelers & 4-wheelers	Under Elevated Road Project	-
12	Bus Stand Parking	1	Basement	Existing	Paid	2 wheelers & 4-wheelers	Rohan & Rajdeep	-
13	Durgiana Parking	1	Surface parking	Existing	Paid	2-wheeler	Durgiana	3200 Sqft

Source: Municipal Corporation, Amritsar

Fig no.70: Location of Organized Parking Lots in Amritsar City



Source: Municipal Corporation, Amritsar

Specifically for walled city though lot of parking lots are provided but issue remains same. More parking availability attracts more traffic in heart of Amritsar (walled city) further creating problems. Further, wholesale markets like fish & iron market, plywood & furniture market of Katra Sher Singh, Bagh Akalian, iron and steel market, Cheel Mandi timber market and Bakarwala-ghee mandi-transport booking (loading & unloading) and subdivision of landuse remains catalyst in inviting traffic which requires urgent strategies on priority basis.

Fig no.71: Condition of parking with in Wall City

5.5 PUBLIC TRANSPORT

The city of Amritsar lacks in public transport facility for intra city operations. With complete absence of formal public transport system, there is increase in personalized modes of transport. The number of 3-wheelers in the city has increased at an average rate of 5.3% from 12149 in year 2003-04 to 15176 in year 2007-08 (Refer table no 44).

Three wheelers on one side are creating traffic problems but at the same time, many of these use kerosene oil/diesel etc, which creates lots of environment degradations in terms of air pollution and noise pollution as well.

The mini buses are also found to ply on all radial routes i.e they connect the city to the towns and villages in the near vicinity of Amritsar such as Rajasansi, Majitha, Jandiala etc i.e within the radius of 40 kms from Bus Stand. The frequency on all radial routes is high i.e 15 minutes.

Another form of public transport that exists in the city is free bus service from Railway Station to Golden Temple and Vice-Versa. This service is provided in a frequency of one hour by SGPC for tourists visiting Golden Temple.

Recently launched Mega Cabs in the city provides an intermediate private transport system in the city. The service is provided within 40kms radius of the city but is expensive as it charges at a rate of Rs.15 per kilometer. It provides pick up and drop services at any hour of the day and from anywhere in the city.

Thus, as the planning and development is assumed for the year 2031 where population and vehicular growth is an obvious feature, there is due need to think about the public transport system in Amritsar to reduce the use of personalized modes of transport.

5.5.1 TERMINALS

The study of terminals is also important in traffic and transportation as these acts as nodal points in transport network.

5.5.1.1 Bus Terminal

The Bus Terminal-Amritsar is located near the City Centre on G.T Road (NH1). It is spread over an area of 8.5 acres with two entry and exit points. The average number of daily passengers handled is 1, 25,000. Both local and regional route buses originate from here. The details of number of buses on different routes is given below: -

Fig no.72: Amritsar Bus terminal

Table 52: Details of Bus Routes from Amritsar to Other Places

S.No.	Route	Total No. of Buses Plying on Route
1	Amritsar-Ferozpur	61
2	Amritsar-Moga Route	79
3	Amritsar-Zira, Faridkot, Bathinda, Abohar Route	122
4	Amritsar-Tarn Taran, Chohla Sahib, Jalandhar, Kapurthala, Sultanpur Lodhi Route	159

S.No.	Route	Total No. of Buses Plying on Route
5	Amritsar-Patti via Tarn Taran Route	74
6	Amritsar-Jalandhar Route	67
7	Amritsar to Jalandhar, Ludhiana, Patiala, Hoshiarpur, Simla, Delhi etc. Route	247
8	Amritsar to Kapurthala	19
9	Amritsar to Talwara	8
10	Amritsar to Beas Budala Route	39
11	Amritsar to Fatehgarh Churian, Dera Baba Nanak, Gurdaspur	115
12	Amritsar to Jandiala, Khadur Sahib, Veroval	19
13	Amritsar to Wagha Border Attari Route	104
14	Amritsar to Dera Baba Nanak via Ajnala Ramdass Route	126
15	Amritsar to Fatehgarh Churian, Majitha, Sham Nagar, Bhangwan, Bhoma, Wadala	158
16	Amritsar to Mehta Sri Hargobindpur Route	64
17	Amritsar to Batala, Dhariwal, Gurdaspur, Pathankot & Back Route	37
18	Amritsar-Gurdaspur-Pathankot-Dalhousie-Dharmshala-Chamba Route	7

Source: Bus stand, Amritsar

The above table shows that most of the buses are running on Amritsar-Jalandhar-Ludhiana route followed by Amritsar-Tarn Taran-Chhohla Sahib route and Amritsar-Fatehgarh Churian-Majitha route. It signifies the fact that NH-1 is the central spine of the city and is a major link for the city with rest of the cities.

The Bus Terminus has recently been constructed by Rohan & Rajdeep Infrastructure Pvt. Ltd on BOT basis, for thirteen and half years all the revenue from the bus stand will go to the kitty of developer and after that it will be transferred to Punjab Govt.

The bus stand is provided with 300 seating berths and 48 bus bays for overnight parking of buses. Facilities like ramps and wheel chairs for handicap, luggage trolleys and first aid has also been provided in the bus stand area. For parking of vehicles, both basement and surface parking has been provided covering a total area of 43889 and 94000 square feet respectively.

Moreover One of the important issue is lack of integeration of Bus stand and its workshops which is at a distance of 2.26km with an area of 4.6 hectares. The area under workshop is at a very nodal position and at present is considered to be non compatible within the surrondings.

Further location of Bus stand along NH-1 makes it a critical area from traffic point of view. The NH-1 at present is catering to both regional and local level traffic, which makes it a critical zone. As most of the auto rickshaw routes also originate and terminate at Bus stand, it adds to the traffic problems in the area. Terminal also caters to large number of daily commuters and also attracts large number of informal activities. Thus, keeping in view the issue in relation to the

Fig no.73: Informal Market outside Bus Stand

existing Bus Stand, there is need to identify an appropriate location, mainly outside the city area so as to minimize the regional traffic of buses entering the city and hence decongesting the city.

There are only two bus terminal in whole of the region i.e. in Baba Bakala (which is not functional) and Dera Baba Jaimal Singh, other bus stops are along the road side and commuters face lot of problems in boarding and alightening the buses ,lack of bus-q- shelter is another problem which is faced by the commuters.

Fig no.74: Bus Terminal Baba Bakala

Further, the bus connectivity to the villages in Amritsar LPA has also been observed and it has been found that 87.1% (270 villages) of the villages out of the total of 310 have bus service facility which implies that they are connected through bus route. Out of the remaining 12.9% villages, 2.9% villages are uninhabited and 10% of the villages do not have access to bus service facility and have to travel a distance of 2 to 3 km to get an access to the bus service.

Table 53: Bus Service in Villages in Amritsar LPA

Villages in Amritsar LPA	Bus Service Facility			
	Available	Not Available	Uninhabited Villages	Total
	270 (87.1%)	31 (10%)	9 (2.9%)	310 (100%)

Source: Town & Village Directory-Amritsar, 2001

5.5.1.2 Truck Terminal

The city has one truck terminal of an area of 28 hectares located at Jahajgarh, G.T road adjacent to city centre. It has multiple entry and exit points. The truck terminal has all the facilities such as truck parking areas, repair shops, offices of transport agencies/operators and petrol pumps.

Existing Truck terminal is surrounded by the residential areas, which makes it a non-compatible use. Further, it creates congestion on roads like G.T Road, Chamrang Road, by unnecessary movements of trucks. Rather such kinds of facilities are required to be integrated with the major trade/commerce and industrial activities.

Fig no.75: The parking areas for trucks inside Truck Terminal

Fig no.76: The auto/ truck repair market inside Truck Terminal, Amritsar

Huge truck traffic inflow is observed mainly on two routes namely G.T road and Tarn Taran road. Mixing of heavy truck traffic and city traffic is observed to create congestion on both G.T road and Tarn Taran road. Hence, it requires to be shifted and provision should be made in integration with major trade & commerce and industrial activities in the city.

5.5.1.3 Railway Station

Fig no.77: Railway Station, Amritsar

The city of Amritsar is well connected by broad gauge rail network with other parts of country and with the neighboring country of Pakistan via Attari rail link. Major links are from Amritsar to Pathankot, Amritsar to New Delhi, Amritsar to Patti & Amritsar to Attari link lines. There are total of 14 railway stations that are falling in Amritsar LPA. Out of this 10 railway stations fall outside the municipal limit of Amritsar which are namely Beas, Rayya, Butari, Tangra, Jandiala, Manawala, Khasa, Majitha, Jaintipura and Attari. The remaining 4 railway stations exist within municipal limit of Amritsar namely Verka, Chheharta, Bhagtanwala and Amritsar. It is managed by Northern Railways and caters to approximately 28,000 passengers daily. Approximately 40 passenger trains both local and express and 9 goods trains originate or terminate at the Amritsar Railway Station. It is marked by the presence of passenger's facilities such as ramps and wheel chairs for handicapped, stairs, tourist information centre and waiting halls etc.

The area surrounding railway station is commercial in nature consisting of scooter and cycle repair market, tour and travel agents, hotels and eating joints. Apart from this, Liberty market exists opposite to railway station, which also attracts large volume of people, and informal activity, which occupies valuable road space, reducing the usable road width and in turn creating traffic bottlenecks at places, which need rectification.

Fig no.78: The commercial activity outside Railway Station

Fig no. 79: Traffic Congestion at Liberty market opposite Railway Station, Amritsar

Fig no.80: Railway Hault Rayya Baba Bakala

As the railway lines on different routes pass through the centre of the city and through different parts of LPA, it cuts the road network at number of level crossings which act as traffic bottlenecks. To provide smooth traffic flow, there is need for construction of ROB's /underpasses within LPA and city at these crossings. There are about 30 manned crossings in the city itself. Out of the 30 crossings only three have ROB's constructed to this date while other crossings such as Shivala Railway crossing, Rambagh Railway Crossing, 22 no. crossing, crossing at Islamabad area, Chheharta, Batala Road and Verka, Kot Khalsa, Vallah Sabji Mandi, Chabbal Road, Jaura railway crossing, Jawala Flour Mill railway crossing require immediate construction of ROB's/ underpasses within the city. Beas is only railway station in this region, which has a good regional connectivity. There is also a hault namely Rayya-Baba Bakala in the area, which is functional but cannot be used as a railway station without up gradation.

Fig no.81: ROB under construction

An ROB is under construction on Rayya- Baba Bakala Road, which will be functional after the completion of the stetch over railway line. But will not solve the problem of the visitors visiting Baba Bakala during festive days as the road on the other side (5 kms Stretch) is blocked for the motorized traffic because of the rush during mela days, starting from Rayya and uptill Sathiala. Visitors have to travel through another route of 12 kms (via Beas-Dera Baba Jaimal Singh), which stretches the journey by further 7 kms to reach Sathiala. Therefore, there is a need for secondary road or a kind of

diversion along the existing used road, which can be used by the commuters during the festive days.

5.5.1.4 Airport

The city of Amritsar has an international airport, namely "Rajasansi International Airport" also known as Guru Ram Das International Airport or Amritsar International Airport. It is located 11 kms North-West of the city of Amritsar on Ajnala Road near village Rajasansi. The international airport serves not only the city of Amritsar but also the state of Punjab by extensive network of highways. While private transport in form of automobiles is the most popular way of reaching the airport, public transport infrastructure (with the exception of taxis) has remained weak and needs to be strengthened.

The integrated terminal building at Amritsar have peak hour passenger handling capacity of 1200 passengers and annual handling capacity of 14.6 lakh passengers. It handles around 150 flights a week to different locations within India and abroad. The major destinations abroad include London, Toronto, Abhu Dhabi, Dubai, Muscat, Sharjah, Doha, Tashkent, Ashgabat etc. The apron area has been extended to cater to parking of total of 14 aircrafts instead of ten earlier. Moreover, 44 acres of land area has been acquired by AAI for construction of second runway. Keeping in view the international status of Amritsar Airport there is need to think about its expansion keeping in mind the State of Art Infrastructure to be developed.

5.6 ON GOING PROJECTS/PROPOSALS

Elevated road project and other projects identified under JNNURM (As per CDP Amritsar)

Table 54: Projects identified under JNNURM

Sr. No.	Project	Project Description	Amount (Crores Rs.)
1	**Accessible Amritsar (Walled City)**		**95.00**
1 a	Road Development/ Pedestrianisation	Developing 'Pedestrian Friendly Precincts' with the traffic being rerouted. Besides, 1.5-2 meter wide pedestrian pathway, 3.0/2.5 meter wide bicycle way and amenities sit-outs, toilets, trees and shrubs, street vending places, etc. Bus Stops, Benches, Dust Bins, Spittoons, Signages: directional, building wise and Information Kiosks.	15
1 b	NMV Support	Developing 'No Vehicle Zones' inside the walled city, facilities for non motorized mobility, demarcation of zones for informal activities and vendors so that traffic is not hindered.	10
1 c	Parking Management	Organised parking and multi storied parking lots to be introduced where possible, at present; about 4 such locations are under consideration.	30
1d	Visual Intrusion (Cables, poles advt. etc.)	Making of overhead wires underground, removing of Electric/Telephone poles and street signages, etc.	40
2	**Road Network Improvement at City level**		**1720**
2 a	Road Development	Development of major roads of the city (Resurfacing, Paving of pedestrian pathways, laying of Median, Introduction of traffic islands, etc. Feeder Roads to facilitate the transit)	100

Sr. No.	Project	Project Description	Amount (Crores Rs.)
2 b	Bridges/Culverts/ROB	Construction of Bridges and Culverts	10
2 c	Construction of Elevated Road to	i) Golden Temple and over G. T. Road, Phase I (Rs. 210 Crores) ii) G. T. Road Phase II (Rs. 300 Crores)	510
2 d	Construction of ROB	i) Near Emergency Ward ii) Jora Phatak iii) Phatak No. 22 iv) Chheharta Main Bazaar v) Near Sabji Mandi	100
2 e	Construction of Southern Ring Road		1000
3	**Mass Transit System Development**		**752**
3 a	Appropriate System Development	DPR Preparation for technology choice and system design	2.0
3 b	System Infrastructure Development	The focus is to enhance accessibility with the core area (Golden Temple) with other parts of the city	750
3 c	System Operation	PPP	N. A.
Urban Transport TOTAL			**2567**

Source: CDP Amritsar

5.6.1 RECENTLY COMPLETED PROJECTS

- The multi storey parking lot in front of Municipal Corporation, Amritsar has completed and opened for public last year.

5.6.2 ONGOING PROJECTS

- 4-laning from Dhilwan to Verka Chowk and from Verka Chowk to Attari-Wagha Border is under progress.

- Elevated Road Project from Partap Avenue to Bhandari Bridge and to Golden Temple is under construction. (Refer annexure X)

- The Railway Over Bridge at Baba Bakala on the Amritsar-Jalandhar Railway line is still under progress.
- Acquisition of 10 acres of land at Attari for setting up of parking lot.
- Project for the strengthening of rural link roads started and more than 50% work has been completed.

Fig no.84: ROB at Aproach road to Baba Bakala Under progress

- Acquisition of 44 acres of land for Airport expansion is going on.

5.6.3 PROJECTS IN PIPELINE

- 4-laning of road from Amritsar to Pathankot has been finalized and the actual work was will start later in this year.
- Parking lot at Attari-Wagha Border - with a view to provide proper parking place to the public visiting Attari Border, a 10 acre land has been acquired and development of which is under progress.
- Introduction of City Bus Service in the city.
- Introduction of Personal Rapid Transport System in the city connecting Railway Station, Bus Terminal and Golden Temple, reducing travel time to about 3 minutes. The total route length is about 2.8kms.
- Berms of all the rural link roads shall be widened and upgraded with a view to provide safe passage to the public.
- Completion of expansion plan of Attari Railway Station at the total out lay of Rs.19.50 crores.
- Upgradation and modernization of Amritsar Railway Station as “Model Railway Station” and expansion of number of platforms to 9 shall be taken on priority.
- The R.O.B at Jawala Floor Mill is also under construction. An R.O.B. on San Sahib Road stemming out from Chheharta Railway Station too is proposed.
- Amritsar-Ferozepur Rail Link is to be established. The Ministry of Railways has already completed the survey work. The construction work is likely to be started soon this year.
- A brand new cargo handling facility at the airport due to increased demands from exporters in Punjab, Haryana and H.P.

- The proposed site for the Permanent Perishable Cargo Centre is located close to the air cargo complex, which has a capacity of 200 tonnes per day.
- The much congested Bhandari Bridge will be redesigned and widened in the wake of the extra traffic it may carry because of the under construction Elevated Road passing through it.
- The improvement and widening of GT Road from Daburji Byepass to Naraingarh via Railway Station with dedicated paths for pedestrians and cyclists. This stretch includes the Elevated Road under construction.
- The Widening & construction of Canal Over Bridges on Taran Wala Pul and Tarn Taran Road over UBDC.
- The widening and improvement of Circular Road around the Walled City in the form of parking places, green belts, lamp posts, etc.
- The widening and improvement of various roads falling within the municipal limits, like Mall Road, Airport Road, Approach Roads to Golden Temple, Durgiana Temple and other religious places. About 240 km of roads of various widths will be covered under this project. Apart from road surface, it will cover roundabouts, central verges, footpaths and entry gates to city.

Fig no.85: Existing Status of Fish market Parking

- The construction of multi level car parking at various places of the city to reduce traffic congestion: a) Outside Hall Gate, b) Outside Durgiana Temple, c) Kairon Market, d) Telephone Exchange and e) Fish Market.
- The construction of Foot Over Bridges and under passes with escalators at various locations in the city for pedestrians a) Putlighar Chowk, b) Crystal Chowk, c) Lawrence Road, d) Opposite General Bus Stand.
- The plantation of various types of ornamental trees on various roads of the city.
- The construction of concrete cement flooring on the roads in the internal wards of the city.
- The construction of dry brick flooring on the roads in the external wards of the city.

5.7 KEY ISSUES

- Increased number of registered vehicles in Amritsar, which have directly impacted increasing road jams and accident cases. Most of these are private rather than being public ones.
- There is no limit to the no. of licenses to the auto rickshaws, which are one of the main pollutants of the city.
- However, the efforts are being taken to convert three wheelers into LPG but it requires drive at Large scale.
- The entry of private heavy vehicles and four wheelers inside the Walled City is creating lot of congestion on the roads. Not much parking provisions, like the one on Bhandari Bridge, have been given outside the Circular Road running around the Walled City to prevent the entry of this kind of traffic.
- Parking is a major problem in Amritsar city. On road parking is common, leading to jams and delays.
- There is much of dust and pollution near bus stand, this is due to the slow progress of Elevated road project, and whole city is getting affected due to this.
- Amritsar Railway station lies along the G.T. Road, which creates problem of traffic congestion on the entry & exit of Railway Station. The countless number of auto rickshaws adds to the problem.

- There is a major religious attraction in Amritsar i.e. Golden temple, visitors/pilgrims come here from all part of world, it is observed that daily there is 1 lakh floating population in Amritsar. There is lack of direct connectivity of Hall Gate with Airport, which is a major need of time.
- Amritsar Airport lies at distance of 11 Km from Amritsar city, which is in itself an issue as there is no proper public transport connectivity.
- Bye-pass is towards North of Amritsar city, but there is no Bye-pass in Amritsar city Southern side, so this directs passengers to pass through city to reach Airport, passengers suffer from problems of long delays and congestions.
- The quality of roads is questionable as they can't last even one rainy season.

- The width of most of the roads may not be sufficient for the traffic of 20-30 years, keeping in view the existing trend of encroachment.
- Lack of any mass transit system within the Walled City. Trams or CNG run mini buses may be introduced in this regard.
- Due to construction of elevated road traffic will increase tremendously at bridge. So it requires redesigning and widening.
- Similarly Rego bridge has been declared unsafe it also requires redesigning and widening and alternative route from Bhandari bridge to Rego bridge via goal bagh area is also required.
- The elevated road should be exluded from Bhandari Bridge to Chheherta chowk to release the congestion near Railway Station, Putligarh chowk, Khalsa college chowk and Chheherta chowk.
- The problems of the region include poor connectivity to Baba Bakala from various villages. In addition to this, the approach road to Gurudwara Baba Bakala is congested, and therefore need to be widened and strengthened. The road condition of approach roads leading to Village Baba Bakala is poor. There is also lack of a Ring Road for better connectivity to Baba Bakala during mela days. Moreover, the region lacks in terms of proper bus stops/bus stands/bus-q-shelter. Gurudwara Baba Bakala being a religious important centre faces the problems of inadequate parking spaces and resting places.

CHAPTER 6

INFRASTRUCTURE AND SERVICE DELIVERY

The sustainability and quality of life in urban centers is closely linked to the quality and efficiency of physical as well as social infrastructure. Accordingly, providing better physical and social infrastructure assumes critical importance.

6.1 PHYSICAL INFRASTRUCUTRE

6.1.1 WATER SUPPLY

6.1.1.1 Sources of Water Supply

All the urban and rural settlements falling in the LPA are dependent on the ground water as the source for meeting their daily needs of water supply. The system of water supply in Amritsar and settlements falling in the LPA is entirely based on ground water, which is extracted through tube wells and supplied to the residents through a system of OHRs. Initially, water supply in the walled city was based on a network of 40 *khuhs* (wells) located outside the city through which water was extracted and supplied through a well designed and properly laid down network. Over a period of time, numbers of tube wells have been installed to extract ground water and meet the increased needs of its residents. This has resulted to rapidly falling water table in the range of 180 to 460 feet. With the fast depletion of ground water, shallow tube wells used for water extraction have to be abandoned.

In addition to piped water supply, the hand pumps, stand posts and wells are also used for extracting the ground water essentially in the slum areas and the areas not covered by the water supply network, especially the villages in LPA.

Table 55: Total Number of Tube wells in Amritsar LPA

Amritsar	Jandiala	Majitha	Rayya	Rajasansi	Villages in LPA
300	4	3	3	3	196

Source: Punjab Water Supply and Sewerage Circle, Amritsar, 2008

In order to improve the status of ground water, it is important to consider other options of water supply, including canal water and rejuvenation of 40 wells area that was earlier used for city's supply. In addition, the option of rainwater harvesting, recycling of the waste water, minimizing the wastage in the water supply system and creating awareness among community for water conservation needs to be explored to minimize the pressure on ground water and recharge the ground water. At present, rainwater harvesting is practiced neither at city level nor at individual house level as there are no guidelines for making this as

mandatory provision. So a minimum size of plot should be fixed for water harvesting and it should be included in the building byelaws too.

6.1.1.2 Area and Population Coverage

MUNICIPAL CORPORATION AREA

Looking at the existing status of water supply within the corporation area, it has been observed that out of the 142.37 sq. kms, which falls under the jurisdiction of local body, only 80% of the area is presently covered by water supply (Refer map 10). In terms of population coverage, the network is serving 80% of total city population.

The population served by piped water supply includes service through the house connections, stand posts and independent institutional set ups. Despite the fact, the water extracted is higher (240 MLD) than the actual consumption (137.6 MLD), but the water available to the residents is of much lower order due to high wastage (about 43%) of the water supply. Major reason for wastage of water is leakage in the network, which is more than 50 years old, poor maintenance and lack of awareness on the part of the community.

Table 56: Water Supply information in Amritsar (MC)

Items	Percentage/No.	Remarks
Area Covered (MCA)	80%	
Population served (MCA)	80%	
Total No. of Wards Fully Covered	51	Total number of wards taken are 60
Total No. of Wards Partially Covered	9	
Total amount of ground water extracted	240 MLD	
Total Average Daily Water Consumption	137.6 MLD	
Water Supplied per capita per day (By M. C.)	135 LPCD	
%age of water unaccounted	43	
Total No. of Tube Wells	300	Depth varying between 180-460 feet
No. of O.H.S.R.	29	Capacity:23.15 MLD
Average running hours of water supply	12	
Population served by House Connection	856512	
Population served by Stand Post	31622	
Population served by Independent Institutional Set up	36750	

Source: Municipal Corporation Amritsar, 2007 Punjab; Water Supply and Sewerage Circle, Amritsar (2008)

OTHER URBAN SETTLEMENTS IN LPA

Among other four settlements, the population served by water supply is 85-90%, which shows a good sign of development (Refer table 43). In terms of duration of water supply, Rayya has the same level of service delivery as that of Amritsar, i.e. at the rate of 12 hours per day, whereas in the case of Majitha and Jandiala, it is 10 hours per day. The minimum supply hours have been observed in the case of Rajasansi, where the duration is hardly 6 hours a day.

Table 57: Water Supply Information in Other Urban Settlements of Amritsar LPA

Name of Towns	Population Served	Duration	Unaccounted
Jandiala	85%	10	26%
Majitha	90%	10	12%
Rayya	90%	12	26%
Rajasansi	85%	6	24%

Source: Punjab Water Supply and Sewerage Circle-Amritsar, 2008

In terms of unaccounted water, minimum wastage (12%) has been found in case of Majitha, whereas in case of Amritsar it as high as 30%. Similarly, Jandiala and Rayya have been found to be most inefficient in terms of service delivery among the LPA settlements where the wastage is of the order of 26%. There is a requirement to improve the efficiency, which will further minimize the need of creating new infrastructure leading to higher cost efficiency in the water supply**.**

VILAGES IN LPA

Piped water supply is not restricted to urban sector only. Majority of rural settlements in Amritsar LPA also enjoys the facility of piped water supply. The water is supplied by direct system of pumping through tube wells. Among villages, there are total of 196 tube wells serving 310 villages. Therefore, on an average one tube well serves up to maximum of 2 villages in LPA.

As per the data available, out of 310 villages falling in Amritsar LPA, 259 villages are served by tapped water supply under the rural water supply scheme. On the other hand, the rest 51 villages (16.4%) are meeting their water requirements through hand pumps, individual boreholes and tube wells. This means that every sixth village is yet to be provided with organized system of water supply.

6.1.1.3 Water Treatment

No formal system of water treatment is in operation in all the settlements due to the absence of water treatment plant. Water is treated through a system of chlorination or bleaching powder, which is added at the level of water extraction. No scientific system is available in all the settlements to check the quality of water supplied. The practice of water sampling to determine the quality of water is not practiced in any of the settlement.

However, in case of Amritsar, bacteriological test is carried out occasionally to determine the level of bacterial contamination and bleaching powder is used for the disinfection of water. However, this practice is also not carried out in accordance to the BIS, {ISI-10500, 1991(clause 3.1)}.

6.1.1.4 Distribution System

At present 91% of water supply in the city is made through tube wells under direct supply system and 9% is through 29 over head reservoirs (OHSR). Out of the total 29 OHSRs, only 19 are operational with total capacity of 17 MLD, whereas rest of 10 OHSRs are not working due to problems related to leakage, structure, etc. On an average, each over head tank has a capacity of 9 lakh liters. In the walled city, 4 OHSRs and 8 tube wells are in operation. Rest of the tube wells and 25 OHSRs serve the population outside the walled city.

Table 58: Water Supply Network in Amritsar LPA

Name	Total length of Network (kms)	No. of OHSR	Capacity (MLD)
Amritsar (M. C.)	990	29	23.15
Jandiala (M. CI)	32	1	0.91
Rayya (N. P.)	32.50	2	0.60
Majitha (M. Cl.)	26.50	-	-
Rajasansi (N. P.)	36.50	1	0.23

Source: Punjab Water Supply and Sewerage Circle, Amritsar

In case of other settlements falling in LPA, all have a system of OHSR except Majitha where direct system is available.

The water supply to individual households, commercial establishments and industrial units is made through water connections. The table below gives details of water connections in Amritsar MC:

Table 59: Year-Wise Trend of Water Connections in Amritsar (MC)

Year	No. of Domestic Connections	%age growth	No. of Commercial Connections	%age growth	Total Number of Connections	%age growth
2002	99451	-	11385	-	110836	-
2003	104304	4.88	11497	0.98	115801	4.48
2004	107649	3.21	11571	0.64	119220	2.95
2005	111497	3.57	11667	0.83	123164	3.31
2006	115063	3.20	11754	0.75	126817	2.97
2007	118399	2.90	11830	0.65	130229	2.69
2008	130802	10.48	11950	1.01	142752	9.62

Source: Punjab Water Supply and Sewerage Circle, Amritsar

Due to rapid increase in population, there has been a simultaneous increase in water connections for domestic use. Because of large number of commercial establishments in Amritsar, number of connections in commercial categories has also been found to be very high.

Further, a dual system of water supply is operational in Amritsar MC, which includes both metered and un-metered water supply with majority of connections falling in the category of metered connections (90.4%). The unmetered connections are only of the order of 9.6%. In case of other settlements falling in LPA, the entire water supply is unmetered. In the absence

of metering system, major wastage of water has been observed. Accordingly, in order to conserve the water and rationalizing the system of water charging, system of water metering needs to be immediately put in place.

Table 60: Number of Metered and Un-Metered Connections in Amritsar LPA

Name	No. of Metered Connections	No. of Unmetered Connections	Total
Amritsar (M.C)	129005	13747	142752
Jandiala (M. Cl)	-	4600	4600
Rayya (N. P.)	-	2200	2200
Majitha (M. Cl)	-	2360	2360
Rajasansi (N. P.)	-	2300	2300

Source: Punjab Water Supply and Sewerage Circle, Amritsar

Apart from the water connections, the supply system also includes 747 public stand posts, which meet the water requirement of 31,622 persons, i.e. 3.5% of the total population of the Amritsar Municipal Corporation.

6.1.1.5 Ongoing Projects/Proposals

Most of the proposed water supply schemes of corporation through tube wells and over head supply reservoir (OHSR) fall in the periphery of city. Under JNNURM (Jawaharlal Nehru National Urban Renewal Mission), most of the water supply projects are coming up in which 28 OHSRs, 20 tubewells and 77 km water supply lines will be laid down at the cost of Rs. 19.02 crores. The project is in advance stage and almost 60% work is completed. (1 OHSR has capacity of 1 lakh gallons or 3.78 lakh liters).

6.1.1.6 Key Issues

- 20% of the population and area not covered by water supply network in Amritsar.
- Network problems due to obsolescence and aging (30 years).
- High wastage due to water leakage, i.e 43%.
- Fast depletion of ground water table. This can be lessened by drawing more water from UBDC, which can be supplemented by discharging extra water into UBDC from Madhopur Headworks.
- Limited water treatment based on chlorination.
- Wastage of water due to unmetered water supply.
- Absence of water treatment plant in Amritsar and urban settlements in LPA.
- Absence of check on quality of water.
- Intermittent water supply leading to higher wastage.
- Low overhead storage capacity.

- Large number of illegal connections.
- Poor maintenance of service network.
- Irrational water charges.
- Lack of use of rainwater harvesting techniques.
- Mixing of supply water with the sewage at several places because of breakages. In some low lying localities people have illegal openings below meter lines even with plugs remain opened. During the rainy season and in case of blockage of sewer lines, sewer water & rain water get mixed in water supply lines. The reason being inadequate gap between both lines as well as having a regular check up.
- Water released from tanks of Golden Temple and other religious institutions goes waste, which otherwise can be used for irrigation and so can minimize the exploitation of ground water.
- The water supply to the villages in Rayya and its surrounding villages is not efficient enough, and most of the water supplied is through govt. tube wells and individual hand pumps.

Considering the rapid growth of Amritsar metropolis, it becomes critical that alternative source of water supply should also be explored, so as to minimize dependence on the ground water and to minimize the fast depletion of water table. Appropriate strategies and mechanism needs to be explored, including recycling of the waste water by the industry. Mechanism of rainwater harvesting should also be encouraged at the household/institutional/industrial level in order to reduce dependence on the ground water.

6.1.2 SEWERAGE SYSTEM

The disposal of sewage generated by industrial, commercial, domestic and institutions is also one of the basic function of the local bodies. Providing sewage disposal network is mandated due to its impact on the quality of life and quality of environment. Accordingly, sewage disposal has also been considered as one of the critical component of urban infrastructure determining the quality of life in urban sector. In this context, while preparing the future planning framework for the city, it is important to examine the issues and status related to sewerage in Amritsar and the urban settlements located in the LPA.

6.1.2.1 Area and Population Coverage

Table 61: Sewerage Details of Urban Settlements in Amritsar LPA

Name of Settlement	Total Population (31.03.08)	Average Daily Sewage Flow (MLD)	%age pop served	Population Served by sewerage System	Population Served by soakage pits/septic tanks
Amritsar	1159795	192	64.06%	743000	356500
Jandiala	28385	-	03.50%	980	27405
Majitha	15460	2.10	10.32%	1596	13864
Rayya	15002	2.90	85.96%	12897	1502
Rajasansi	13930	-	01.79%	250	13680

Source: Punjab Water Supply & Sewerage Circle, Amritsar

AMRITSAR MUNICIPAL CORPORATION

Nearly 70% of the area of Amritsar Municipal Corporation is covered by sewerage network serving 64% of the city population (Refer map 11 and table no.61). The remaining 30% of area and 36% of the population is still devoid of the provision of formal network. At present, 192 MLD of sewage is generated on daily basis. The total length of sewerage network in the city is of the order of 569kms. However, in the absence of the formal network, the remaining population is dependent on the system of septic tanks/soak pits and independent institutional set ups. Moreover, the people living in slums and population below poverty line, who have no access to these facilities, either use the community toilets created by local bodies or defecate in open fields.

Fig no.87: View of Blocked Sewer at Mahan Singh Gate

OTHER URBAN SETTLEMENTS OF LPA

Looking at the pattern of sewerage system, it has been found that none of the urban settlements falling in the Amritsar LPA has total coverage in terms of population and area. The highest percentage of population covered by sewerage system has been observed in case of Rayya, where it is of the order of 85.96%, and minimum in case of Rajasansi, where it is of the order of 1.79%. However, the remaining population devoid of formal sewer facility in these urban centers is being served by a system of septic tanks or soakage pits. Alternatively, people defecates in open.

VILAGES OF LPA

Apart from the urban settlements in LPA, the villages falling in LPA also do not have proper laid out sewerage network. They are dependent on the alternative system of septic tanks/soakage pits. From the available data, it can be observed that despite the role and

importance of sewerage, provision of these services has been highly deficient calling for major action by the local bodies in order to improve the status of sullage disposal.

6.1.2.2 Sewer Connections

URBAN SETTLEMENTS IN LPA

The details of the connections available in different settlements as on 31.3.2008 are given below. With regard to number of sewer connections available in different towns, highest number of connections have been made available in case of Amritsar, which is of the order of 1,18,005.

Table 62: Details of Number of Sewerage Connections

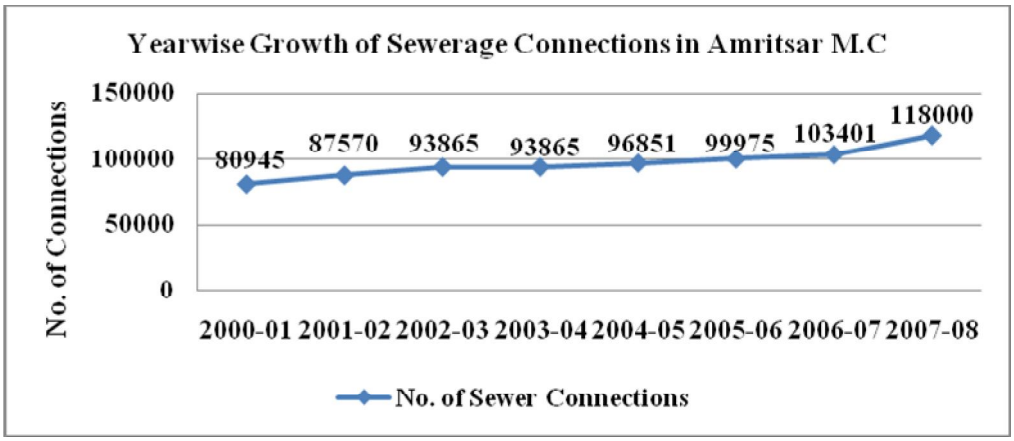
Name	No. of Individual Connections	No. of Institutional Connections	Total Connections
Amritsar (MC)	1,18,000	5	1,18,005
Jandiala (M Cl)	-	2	2
Rayya (N. P.)	2300	1	2301
Majitha (M Cl)	191	3	194
Rajasansi (N. P.)	-	2	2

Source: Punjab Water Supply & Sewerage Circle, Amritsar

Amritsar M.C.

With increase in population, number of sewer connections in the Amritsar has also shown an increasing trend. Total number of connections have increased from 80945 in the year 2000-2001 to 118000 in 2007-08, recording 40% growth in the last 8 years. The figure below details the year wise growth of number of sewer connections.

Fig no. 88: Year-Wise Number of Sewer Connections in Amritsar (MC)



Source: Amritsar Municipal Corporation, Amritsar

6.1.2.3 Sewerage Treatment and Disposal

Sewerage Treatment

The total quantity of daily sewage generated in the Amritsar city is of the order of 192 MLD, whereas in the case of Rayya it is 2.90 MLD. The quantum of sullage generated in Majitha is

2.10 MLD, whereas in case of Jandiala Guru and Rajasansi, there is no sullage collected due to absence of sewerage system. Unfortunately, none of the urban settlements including Amritsar, has a system of sullage treatment, hence untreated sullage is pumped into the nearby drains or water bodies.

Seweage Disposal

In case of Amritsar, the entire city is divided into three catchment zones for collecting the sullage. It includes North Zone, South Zone and West Zone (Chheharta). The North Zone includes the portion of the city falling on the North of the Amritsar-Jalandhar Railway Line. The sullage of this area is collected at Mahlan, from where it is pumped for disposal. About 1/3rd (32%) of the sullage is collected at this station. The South Zone includes most of the area falling on the southern side of the railway line. The sullage collected in this zone is collected at the pumping station located at Fatehpur, from where it is pumped into the Gandha Nallah. This zone generates the largest sullage, which is of the order of 63%. The remaining 5% of the sullage is generated in Chheharta, which is the west zone of the city. The sullage generated in this area is collected at the pumping station located at Gumanpura, from where it is pumped into the Ganda Nallah.

Fig no.89: Disposal Work, Fatehpur

In all, there are 20 pumping stations in Amritsar serving the system of disposal. 11 of these stations have been designated as Temporary Sewage Disposal Sites by the Municipal Corporation Amritsar, which pumps sewage directly into the nearby water course/storm water drainage or nallahs. Ganda Nallah, Hudiara Drain and Tung Dhab Drain, which ultimately meets the Hudiara Drain, are the three major drains where the city's sullage is disposed off. Remaining 9 pumping stations pump sewage into other manholes. These pumping stations were primarily constructed during the last 15 years in order to overcome the problem of sewage outflow. All these pumping stations are manually operated working on three shifts a day.

Fig no.90: View of Ganda Nallah used for Disposal

All other settlements falling in LPA follow the system of pumping the untreated sullage into the nearby water bodies/drains. In the absence of sewerage treatment plant in the Amritsar city, all the sewage collected i.e. domestic and industrial, is being disposed off into the Gandha Nallah without any treatment, which has caused high degree of soil and ground water

pollution in the city. In addition, large number of industrial units operating within and outside walled city also discharge their effluents directly into the network without making any initial treatment. All industries are required to treat their effluents to neutralize the chemicals before discharging into the network. Presence of chemicals and toxins not only damages the network but also creates numerous problems in treatment of sullage. All these industrial units need to be brought under stringent controls as far as the discharge of their sullage/effluent into the network is concerned.

Accordingly, it is important that sewerage treatment plants are installed on priority to treat the sullage generated in order to minimize the pollution. However, three sewerage treatment plants are proposed to be installed in Amritsar with a total capacity of 200 MLD. With the construction and operationalisation of these plants, Amritsar will become one of the few towns of the state having capacity of treating majority of the sullage generated. The total installed capacity of these 3 plants is equal to the average daily sewerage flow. Therefore, in order to serve the future population, the need will be to enhance the installed capacity or setting up of new treatment plants.

6.1.2.4 Ongoing Projects/ Proposals

As already stated, in order to treat the sullage water generated in the case of Amritsar, it is proposed to set up 3 Sewerage Treatment Plants under Sri Guru Ram Das Development project for Sewerage Treatment Plants by JICA (Japan International Cooperation Agency). Three sewerage treatment plants proposed will have a total installed capacity of 200 MLD. These treatment plants are to be located at Mahal with a capacity of 80 MLD, Fatehpur with 95 MLD and Chheharta with 25 MLD. The plants are yet to start and are in the process of finalization. The proposed sewerage project including its extension/upgradation & treatment shall cost Rs. 360 crores and would be taken up jointly in collaboration with JBIC.

There is also a proposal for provision of sewerage network and sewerage treatment plant in Majitha by the Punjab Water Supply and Sewerage Circle, Amritsar. The detailed report for the project has been prepared and tenders for the projects are invited. Moreover, a project on augmentation and replacement of sewerage in the Walled City is also approved under JNNURM. A sum of Rs. 36.90 crores has already been approved for it.

6.1.2.5 Key Issues

Major issues involving Sewerage System in Amritsar and LPA are detailed below:

- 30% of the city area and 36% of the city population is uncovered.
- Partial coverage of population in Rayya & Majitha.

- Absence of sewerage system in Rajasansi & Jandiala.
- Absence of Sewerage Treatment Plant in Amritsar and in urban settlements of LPA.
- Use of drains/water bodies for disposal of untreated sullage.
- Absence of recycling and reuse of waste water techniques.
- Inadequate capacity of the existing network leading to overflow of sullage.
- Large scale usage of soak pits, septic tanks and open drains for sullage disposal.
- High degree of soil and water pollution of the Ganda Nallah, Tung Dhab Drain and Hudiara Drain used for sewerage disposal. The practice of disposing untreated sewage into these should be immediately stopped.
- Disposal of untreated industrial waste.
- Poor maintenance and upkeep of existing network, especially in the Walled City.
- Low efficiency of network in congested areas.
- The Rayya and its surrounding villages too lack in well developed sewerage network.

6.1.3 STORM WATER DRAINAGE NETWORK

With the creation of large area of hard surface by bringing agricultural land into urbanization, large volume of storm water drainage is generated in urban areas. Draining the rain water assumes importance because of the numerous problems created due to inefficient disposal of storm water. Due to inefficient or non-existence of storm water drainage network, most of the city now face a problem of water logging and flooding causing heavy loss to property and human lives.

6.1.3.1 Area and Population Coverage

Fig no. 91: Water Logging outside Bus Stand

The city of Amritsar has high degree of deficiency in the storm water network. Considering the existing status of storm water network, it appears that this critical network has low priority on the agenda of Municipal Corporation. At present only 20% of the city area and population is covered under the storm water network. This means that remaining 80% of the city and population remains outside the purview of the storm water network. The walled city, Amritsar has system of open drains while for the areas outside it, the disposal of storm water is combined with sewerage network leading to choking of the pipes, overflow of the sullage and backflow of the sewerage water. Storm water also gets into low lying areas flooding them in the process. The problem of acute water logging

during heavy rains has been experienced in the entire city of Amritsar. This is mainly due to the trough or saucer shape of the city, which requires adoption of specialized approach to drain off the rainwater due to its typical topography. The network available is hardly 10 Kms in length, which is highly inadequate considering the size of city. The details of population and area coverage in Amritsar are given in table below:

Table 63: Length of Drainage Network in Amritsar Municipal Corporation Area

Item	Length (km)	Area under Coverage (%)	Population under Coverage (%)
Storm Water Line	10	20%	20%

Source: Municipal Corporation Amritsar, 2006-07.

6.1.3.2 Drainage Network

Amritsar M. C.

Amritsar has the advantage of having a network of both natural and manmade open drains/nallahs, which have a general slope of East to West. The gradient of these drains is shallow due to its flat topography. There are two major nallahs serving the city, namely Ganda Nallah, located on the south of the city, whereas Tung Dhab is located on the northern side of the city. Both these nallahs ultimately discharge into the Hudiara Drain, which is located west to the city. Further, Hudiara Drain joins the river Ravi over the international border with Pakistan and accordingly, storm water is released into the river Ravi. Thus, Hudiara Drain remains most critical for discharging the storm water as well as sewage.

Despite the fact that there is a network of drains and nallahs available in Amritsar, most of them are unfortunately used for carrying the untreated sullage and domestic refuse. Since the area close to these nallahs/drains has been urbanized by mushrooming of residential colonies including slums, most of the household waste and sullage is dumped into these nallahs/drains. In the absence of any sewerage treatment plant in the Amritsar urban area, 20 temporary and permanent pumping stations discharge the untreated sullage into these drains. This practice has led to not only high degree of health hazard to the adjoining communities, but has emerged as the major threat to environment and quality of life. These nallahs have become a major eyesore and has led to high degree of pollution of ground water resource making it unfit at most of the places for human consumption.

In view of the existing scenario, it becomes critical that practice of discharging untreated sullage into the drains/nallahs should be immediately stopped and these drains/nallahs are restored to their lost glory. The precious storm water should be harvested to be used as alternative source of water supply reducing pressure on the vital ground water resources. The institutions having large area like Guru Nanak Dev University, Khalsa College, Verka Milk

Plant, Grain Market and Defence area, which have large open land available with them should be involved in the system of rain water harvesting. In addition, building byelaws of the Municipal Corporation, Amritsar Development Authority and Improvement Trust, should include rainwater harvesting as integral part of development of buildings and it should be enforced strictly. Further individual households, industries and Development Authorities should be actively involved in the rain water harvesting, so as to reduce/minimize the amount of rain water generated, which require disposal and which can be used for different activities reducing the quantum of water supply required to serve the city. The percolation wells for rainwater harvesting could be considered along with the option of open trenches for improving rainwater harvesting. In addition, existing drainage network should be preserved as an integral part of development process by declaring them as protected areas. This would help in preserving these natural resources besides helping in better management of storm water drainage.

Other Urban Settlements in LPA

In all the other four urban settlements falling in LPA, none of them has storm water drainage network. The towns like Rajasansi and Jandiala have absolutely no storm water drainage network compared to Majitha, which has total of 27 kms of storm water drains. The length of the major drains in Majitha is 2 kms, whereas that of minor drains is 25 kms. The town has open drains, which are connected to nearby nallah for disposal. The underground sewerage also exists in very small portion of the Majitha town. In case of Rajasansi, the laying of pucca open drains is in progress.

Despite the fact that city is facing acute problem of flooding and water logging, still there is no proposal for creating/augmenting storm water drainage network to solve the existing problem of the city. In this context, it will be important to consider the option of making all new development coming up within the urban settlements to provide for storm water drainage network as integral part of urban development process. In addition, all Development Authorities should be mandated to provide storm water drainage network in the area undertaken by them as development projects. The rainwater harvesting at the community/local level or at the scheme level should also be included for conserving water and reducing the outflow of storm water. In the old areas, it will be appropriate to consider levy of a cess on water/sewerage bills, so as to generate resources for improving the area and population coverage under the drainage network. Efficient drainage of storm water would

also require the designing of road network in a manner that for shorter distances, roads should act as drains and the slope provided should be able to drain off the water quickly.

6.1.3.3 Projects-Ongoing/Proposals

There is an ongoing project of laying of pucca and open storm water drains in the town of Rajasansi. 50% of the work has already been completed. The covering and desilting of Ganda Nallah from Bhadarkali Temple to Lahori Gate, and Annagarh to Bhagtanwala is also under progress.

6.1.3.4 Key Issues

Looking at the existing status of storm water drainage, following major issues emerge;

- 80% of city area and population is devoid of storm water drainage facility.
- None of the urban settlements in Amritsar LPA has storm water drainage network.
- Acute water logging problems during heavy rainfall observed in majority areas of city resulting to pot holes on many of the city roads and ultimately reducing their life.
- Lack of any proposal for augmentation or creation of storm water drainage network in the city.
- Lack of new techniques, such as rainwater harvesting, which can help in conserving the water. Hence, the outflow of storm water reduces.
- Disposal of domestic refuse and untreated sullage in the storm water drains has led to high degree of health hazard, emerging as major threat to environment and quality of life.
- Use of storm water drains/nallahs for disposal of sewerage.
- Encroachment of area around these drains reducing their capacity.
- Low gradient of drains/nallahs.
- Low capacity of the existing network.
- Lack of disiltation at proper interval of time.
- Theere is absence of drainage netwok in Rayya and its surrounding villages.

6.1.4 SOLID WASTE MANAGEMENT

Solid waste management is the prime responsibility of the Municipal Corporation Amritsar involving collection, storage, segregation, transportation and disposal. Health Officer of the Corporation has been vested with the overall responsibility for management of the solid waste. He is assisted by Assistant Medical Officer of Health and other support staff. Corporation organizes the collection and transportation of the solid waste through its own

conservancy workers and a fleet of vehicles deployed. In Amritsar urban limits, house to house collection of the solid waste is carried out through a number of sanitary workers deployed by the Municipal Corporation, payment of which is made on shared basis by Corporation and Mohalla Sudhar Committee, which are constituted at Mohalla level and support the system through household contributions. In all, there are more than 2406 sanitary workers deployed, which include 1443 by the Corporation and 963 through Mohalla Sudhar Committees. In addition, there are 51 drivers and 24 Sanitary Inspectors, besides 20 Sanitary *Jamadaars* (Head of Sanitary workers), 7 Naib Darogas (Supervisors looking over the work of *Jamadaars* and sanitary workers) and 4 Chief Sanitary Inspectors.

6.1.4.1 Generation

The total generation of solid waste in the city of Amritsar is estimated to be 600 tons per day (TPD). This large amount of solid waste generated is disposed off on the landfill site located outside Bhagtanwala. Seeing the large amount of generation of solid waste in the city, Municipal Corporation of Amritsar has undertaken the project of Integrated Solid Waste Management Project under JNNURM to scientifically dispose off the solid waste. This MSW project is divided into two phases. The first phase of the project includes collection, segregation, storage and transportation of the municipal solid waste, which has been accorded to M/S Antony Waste Handling Cell, and the second phase of the project includes processing and disposal of solid waste, which has been allotted to M/S AKC Developer Limited, Noida. The first phase has been in operation since Feb '09. The table below describes the generation of solid waste in Amritsar LPA:

Table 64: Generation of MSW in Amritsar LPA

Name	Generation (TPD)	Collection	Area of existing Landfill Site (as on 31.12.05) Hectares
Amritsar (M. C.)	600	600	8.10
Jandiala (M. Cl.)	2.25	2.25	3.00
Rayya (N. P.)	3.00	3.00	1.40
Majitha (M. Cl.)	4.00	4.00	0.60
Rajasansi (N. P.)	2.00	2.00	1.50

Source: Municipal Corporation- Amritsar, Municipal Council Rajasansi, Draft Interim Report on Solid Waste Management at Majitha (Punjab)

It has been observed that there has been 100% collection of waste generated in all the towns of LPA. Majitha has the largest amount of solid waste generated among the other four urban settlements falling in Amritsar LPA but the least area under existing landfill site.

6.1.4.2 Composition

Solid waste comprises of waste generated from different sources. Major sources of generation are individuals, households, industries, trade and commerce, hotels and restaurants, healthcare institutions including dispensaries and hospitals, animals and floating populations in terms of tourists, hawkers, etc. Solid waste generated can be broadly classified into four categories i.e **Organic Waste,** which includes kitchen waste (food items), leaves, remains of animals slaughtered, etc., **Recyclable Waste,** which includes paper, plastic, glass, metal, rags, packing materials, twigs, bark, etc., **Inert Waste** including bricks, cement, building debris, furniture waste, etc. and **Industrial Waste,** which includes the byproducts. In addition, large amount of waste is also generated by number of hospitals, dispensaries and other health care institutions, which are operational in the city. The current addition is E-Waste generated from electronic products whose quantity is alarmingly increasing in the city.

In terms of waste generated, organic waste comprises of more than half of the total waste whereas inert waste is more than 1/4 of the total waste generated. Industrial waste as well as recyclable waste comprises of approx 1/10th each of waste generated. There is no segregation of waste at the point of generation.

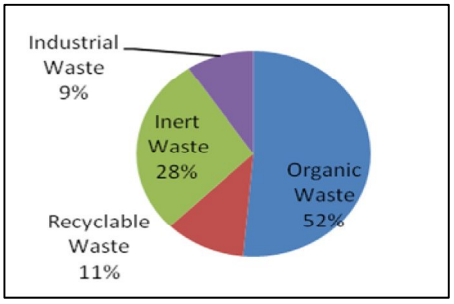


Fig no.92: Composition of Municipal Solid Waste

6.1.4.3 Collection, Storage and Transportation

COLLECTION & STORAGE

The present system of waste collection, storage and transportation in the Amritsar Municipal Corporation (MCA) is of primitive age old type. They are not in compliance with MSW Rules 2000. The daily collection of solid waste in the city is reported to be 100 percent, which is not the case. Different methods of collection of solid waste are practiced in the city. At the household level, Door to Door collection of waste is practiced. Since household waste has high contents of organic waste, no system of segregation is used at the generation level. In the process, the quality of recyclable material gets distorted due to mixing of the dry and wet waste.

Fig no. 93: Garbage dumping along roadside

Fig no.94: Dumping of Garbage in open drain passing through Bangla Basti

No house to house collection of solid waste was done in the LIG areas and in slum areas of the city, such as Sultanwind and Fatehpur. In such areas, the solid waste is dumped mostly in the available open lands, vacant plots and nearby low lying areas/water bodies. In addition, people living in such areas also make use of community bins provided by the Corporation. But launching of the MSW project in the city has ensured collection of waste from at least the collection points.

For the house to house collection of waste, 500 waste collection trolleys, 120 rickshaw rehris and tricycles having back space as storage bins are operational in Amritsar. The areas where house to house collection system is not provided, community bins are strategically provided by the corporation for their direct use by the surrounding inhabitants. The Corporation has deployed about 125 metallic bins of 4.5 cu. m. and 10 bins of 10 cu. m. capacities for community storage by the households and the sanitary workers. However, numbers of bins provided by the Corporation are inadequate to take care of the waste generated and accordingly, at many places open spaces and roadsides have emerged as the preferred dumping sites.

In all the other four urban settlements, each ward has been considered as a zone for collection of solid waste. The house to house or door to door collection of waste is done by the *safai sewaks* (sanitary workers) in all the wards using hand carts or push carts or tricycles. The collected waste is taken in a wheel barrow or in polythene bag and dumped on the designated points, called as waste collection points or bins, which act as waste storage points from where they are transported for final disposal to the landfill site.

SEGREGATION

Most of the city inhabitants carry out segregation at the household level by salvaging resaleable material from waste such as newspaper, glass bottles, empty tins, plastic bags, old cloths, etc. and sell it directly to *Kabaris*. In addition, rag pickers also take rounds of the street and visit the collection centers for salvaging the recyclable waste for selling and income generation. As such, segregation of organic and inorganic waste at the source or generation point is not practiced.

TRANSPORTATION

For the transportation of the solid waste from the collection centre to the disposal site, Amritsar M.C. has deployed number of vehicles including 76 tractor trolleys, 7 mini trucks with a capacity of 4-5 tons and 3 large size trucks having a capacity of 10 tons (Refer table

no.65). These vehicles are used for primary collection of waste from the community bins and its transportation to designated landfill site. 7 front end loaders are also operational in the city for loading waste into trailers by lifting storage bins and emptying them into the tractor trailers before transportation. The present collection infrastructure and manpower available with MCA is observed to be inadequate as per the requirement. Hence, effective implementation of the Integrated Solid Waste Management Project for the city is required to be done at the earliest, which has just begun.

Fig no.95: Existing transportation vehicles in use in the city

Table 65: Solid Waste Collection & Transport Infrastructure in Amritsar LPA

Name of the Settlement	Primary Collection		Transportation						
	Garbage	Waste Collection Points	Ricks haws	Trucks	Open Bins Trucks	Tractor + Trolleys	Dumper-Placer	Wheel Barrows	Loaders
Amritsar (M.C.)	-	-	-	11	15	76	8	-	7
Jandiala (M. Cl.)	20	20	-	-	-	-	1	25	-
Rayya (N.P.)	13	-	20	-	-	2	-	15	-
Majitha (M. Cl.)	35	20	10	-	-	2+2	-	26	
Rajasansi (N.P.)	-	-	-	-	-	1+1	1	13	-

Source: Municipal Corporation- Amritsar, Municipal Council Rajasansi, Draft Interim Report on Solid Waste Management at Majitha (Punjab)

6.1.4.4 Disposal

Amritsar Municipal Corporation practices open disposal of waste without undertaking any pre-treatment of the waste. MCA has identified three landfill sites for open disposal of waste located outside Bhagtanwala Gate, village Fatehpur and village Bhararíwal. At present, waste is dumped at the Bhagtanwala Gate site with occasional odour control treatment. The site has been in operation from last 25 years and can be used for another 15 years. The other two sites located at Fatehpur (5.8 Hectares) and Bhararíwal (2.65 Hectares) are new sites for which land has been recently acquired by the MCA. In an effort to provide clean living environment to the nearby residents, the existing site needs to be improvised as per the MSW Rules 2000 and as suggested in the "Integrated Solid Waste Management Project-Amritsar". Since the existing grain market is situated 100 mts from the dumping site, which is against the MSW Rules 2000, a buffer zone should be provided. Details of the land fill sites for disposal of solid waste are given in table below:

Fig no.96: Open Dumping Ground at Fatehpur

Table 66: Details of Landfill Sites in Amritsar Municipal Corporation Area

Sr No.	Name	Area (ha)	Location	Distance (km) from city centre	Age (Years)	Present Status
1	Landfill Site No.1	8.1	Outside Gate Bhagtanwala	2 km	25 years	Could be used for next 15 years
2	Landfill Site No.2	5.8	Fatehpur	6 km	Recently acquired	Under development
3	Landfill Site No.3	2.65	Bhararíwal	5 km	Recently acquired	Under development

Source: Amritsar Municipal Corporation

In addition, informal dumping of the waste has been witnessed in nallahs, open spaces, vacant plots, along bye pass, etc. This informal dumping of garbage along bye-pass, nallah, etc. has lead to the creation of unhygienic environment in the areas of the city. Moreover, there is no formal system of solid waste management operating in 26 villages, which have been included within the urban limits from time to time. Large amount of industrial waste has been found to be dumped along the roads and outside the industrial areas. Fruit and vegetable markets and food grain markets located outside Bhagtanwala Gate and in Vallah have also been found to generate considerable agricultural waste, which needs proper collection, transportation and management. Accordingly, it will be critical to involve Punjab Small Industries & Export Corporation and Punjab State Agricultural Marketing Board to take care of waste generated in their respective areas.

Fig no.97 Waste littering in Vacant Plots in city

Fig no. 98: Dumping of waste along Bye-pass

With regard to the generation of bio-medical waste in huge quantities in the city due to large number of health institutions in operation, a separate system of disposal is involved, which is being privately managed. The disposal of hospital waste, including its collection and transportation, etc., is being carried out by two agencies namely Medicare Incinerators Private Limited, Ludhiana and Health Care Systems, Jhabal Road, Amritsar. These agencies are being paid by the health institutions based on the amount of waste generated. Herein, the MCA plays the role of a regulator.

Presently, none of the other urban settlements in the Amritsar LPA has waste processing facility. The entire municipal solid wastes collected from the towns are disposed at the landfill site. In case of Rajasansi, the municipal council has done an agreement with the Ajnala Municipal Council for the disposal of the town waste at their site located on Dera

Baba Nanak Road at an annual cost of Rs. 20,000. This has been done because of the guidelines of the Airport Authority of India as per which there should not be any waste disposal site in 10 kms radius of the Rajasansi Airport.

In order to effectively manage the solid waste, it will be important to involve all the stakeholders and creating awareness among the masses to manage the waste and keep the city clean. The best approach will be to ask people to generate as little waste as possible and to segregate the waste at the household level itself. Critical points generating large volume of waste should be identified and a separate strategy for collection and disposal of waste should be formulated in consultation with the local community. Industrial Associations should also be made partner in disposal and management of industrial waste. Further there should be strategies to deal with generation of E-waste in the city with the coming up of IT/ITES parks as envisioned.

6.1.4.5 Ongoing Projects/Proposal

In an effort to make Amritsar Metropolis a beautiful, clean and healthy city, Amritsar Municipal Corporation has undertaken the project of "Integrated Solid Waste Management" on PPP mode. The project is being divided into two phases, phase I comprising of collection, segregation, storage and transportation which has been accorded to M/S Antony Waste Handling Company, Mumbai, and phase II comprising of the processing and disposal has been awarded to M/S AKC Developer, Noida. The phase I has already began operations in Feb'2009, while phase II is yet to start.

6.1.4.6 Key Issues

Despite the fact that Municipal Corporation deploys the largest manpower and resources for the solid waste management, heaps of stinking waste can be seen all over the city. Not only households and individuals contribute to the present scenario, but manpower deployed has also been a major contributor in making the city unhygienic. The removal of garbage is carried out in arbitrary manner and cleaning of roads is done in most unprofessional manner. Solid waste management has emerged as the most challenging task for all local bodies. Keys issues involved in solid waste management in Amritsar Corporation area are:

- Absence of public participation and lack of public awareness.
- Absence of scientific collection and disposal.
- Absence of solid waste treatment plant in the city.

- Untrained and unqualified man power deployed in the process of solid waste management.
- Absence of segregation of waste at the generation level. This is preventing the use of degradable waste as manure.
- Inadequate and out dated collection and storage infrastructure in use by MCA.
- Unhygienic condition of dumping sites and absence of scientific system of landfill management.
- Open dumping along roadsides, railway lines, vacant plots, drains/nallahs, mandis, etc. The dumping of agricultural waste outside Bhagtanwala Gate is creating a lot of menace.
- Absence of involvement of rag pickers in recovery of valuable recyclable waste.
- Absence of involvement of institutions involved in generation of large quantity of waste.
- Mixing of industrial and toxic waste with the domestic waste.
- No proper system to collect and treat medical waste of the hospitals and nursing homes.
- Lower level of collection of solid waste generated on daily basis.
- Absence of mechanisms for converting waste into wealth.
- Lack of MSW management compliances as per the MSW Rules 2000.
- Rayya and its surrounding villages are devoid of proper solid waste management system and the waste is disposed off near the *phirnis* of villages

6.1.5 ELECTRICITY

6.1.5.1 Area and Population Coverage

The whole of the city of Amritsar is covered by electric supply. The Bhakra Nangal Dam, Ranjit Sagar & Shanan Power Extension are the three important sources of power supply to the city. The gap for electric demand and supply in the city of Amritsar is of the order of 34% approximately, as the total electricity demand for the city is 6700 MKWH against which the supply of 4400 MKWH is made. Looking at the consumption pattern, city has observed an increasing trend at the rate of 4.3% every two years. (From 3733.65 MKWH in 2001 to 3896.78 MKWH in 2003 and 4072 in 2005).

6.1.5.2 Distribution Network

The electric supply to the city of Amritsar is made through two 220 KV power stations located at Loharka and Khasa, which are now part of Amritsar city. Further, electric supply to different parts of the city is made through nine 132 KV sub stations, which are located in the four divisions namely **Civil Line Division**, which covers north-western parts, **Hakima Gate Division** that covers southern-western parts, **Industrial Division**, which covers south-eastern parts and **City Central Division** that covers central parts of the city. There are about 12 complaint centres in the city, which are strategically located to cover whole of the city. Each zone has 3 complaint centres for the residents. The table below gives details of electric sub stations along with their capacity and location both in the Amritsar M.C. area and Amritsar LPA.

Table 67: Electric Supply in Amritsar M.C and Amritsar LPA

Category	Capacity	Number	Location
Amritsar M.C.			
Power House/ Sub Station	220 KV	2	Civil Lines-Loharka, khasa
	132 KV	9	Hakima Gate, Sakatri Bagh, GT Road, Mall Mandi, Verka, Power Colony, Naraingarh, Hall Gate, G.T. Road
	66 KV	6	Hall gate, Golden Temple, Gawal Mandi, Hukam Singh Road-opp Dental College, Ranjit Avenue, OCM Mills
	11 KV	106	Spread across the city (Refer map)
	Complaint Centre	12	Hakima Gate, Golden Temple, Bazar Mai Sewan, Beri Gate, Ghee Mandi Gate, Hussainpura Chowk, Civil Lines, Rambagh Garden on M M Malviya Road, Tunda Talab, Hall Gate, Islamabad, Chatiwind Gate
Amritsar Local Planning Area			
Power House/ Sub Station	132 KV	3	Jandiala, Tangra, Kathu Nangal
	66 KV	14	Dhadde, Rajasansi, Rajatal, Majitha, H. Chhina, Chogawan, Attari, Sangna, Chabba, Bundala, Nawan Pind, Manawala, Warpal, Mudohal

Source: Punjab State Electricity Board, Amritsar

In case of Amritsar LPA, it has been observed that the supply is also made through the three 132 KV sub stations, which are located at Jandiala, Tangra and Kathu Nangal while supply within the villages is made through 66 KV sub stations which are spread across the LPA. (Refer map 12)

Table 68: Electric Connections in Amritsar M.C and Urban Settlements in LPA

	Domestic	Commercial	Industrial	Roads	Others	Total
Amritsar M.C.	172096	10777	52111	21430	221	256635
Jandiala M.Cl.	3780	126	650	440	0	4996
Rayya N.P.	1330	125	812	121	0	2388
Majitha M.Cl.	1760	14	558	16	150	2498
Rajasansi N.P.	2428	28	608	0	0	3064

Source: Census of India, 2001

The table above gives details of number of electric connections in Amritsar M.C. and in urban settlements of Amritsar LPA. Amritsar M.C has maximum number of electric connections (256635), which are majorly domestic (172096) followed by industries (52111). Among the urban settlements in Amritsar LPA, Jandiala has maximum domestic (3780) and industrial connections (650) followed by Rajasansi. The lowest number of connections is with Rayya.

6.1.5.3 Street Light

The provision of streetlight in the city of Amritsar falls within the purview of M.C. Amritsar. The provision in the city is made based on the budget expenditures on street lights in a particular year. 85% of the core city area is covered by street lights, while the remaining 15% area still requires wiring and new fittings. In case of the area outside the walled city and civil lines, only 50% of the area is served by street lights. Apart from this, there are abadi areas outside the Amritsar M. C. such as Verka, Sultanwind, Chheharta, Dhapai, Naraingarh, Guru Arjan Dev Nagar, village Bhararíwal and village Mahal that requires provision of streetlights. In case of villages in LPA, it has been observed that although all the villages have been electrified but the street light facility exists in few of the villages only.

6.1.5.4 Ongoing Projects/Proposal

- Amritsar M.C. has proposed to cover certain areas within the city with the streetlights which includes:
    1. Sultanwind Road to UBDC
    2. G. T. Road Jalandhar (Taranwala Bridge) to Amritsar M.C. Limit.
    3. At central verge on Batala Road
- To upgrade the existing street light facilities and to ensure their better functioning, MCA has proposed to replace the old wiring with new ones, which is of the order of 250 km of wires and requires placing of 3000 street light fittings and 500 electricity poles with new electric connections.
- For better provisioning of street lights in the city, newly developed markets need to have proper street light facility and as per the requirement decorative street lights is also proposed to be placed in parks or wherever required.
- Shifting of high tension electric poles and transformers from the major approach roads to Golden Temple and making them underground.

6.1.5.5 Key Issues

- 50% of outer part of walled city and civil lines is unserved with street light.
- Percentage of connection and consumption is rapidly increasing.
- Large number of illegal electricity connections in the city.
- Poor Maintenance of street lights.
- Most of the rural settlements lack street lights.
- Time duration for electricity supply is less, especially in rural areas of LPA.
- Irregular power supply is destroying the industries of the region, and promoting more and more use of diesel through generators, including Rayya and its nearby villages.
- Limited use of renewable sources of energy, like Solar Power, for power generation.
- The crisscross of overhanging surface wires within the Walled City is destroying the architectural beauty of the old buildings. It should be made underground.

6.2 SOCIAL INFRASTRUCTURE

Social infrastructure refers to the facilities and the process involved, which ensures education, better health facilities and community development in any town. The Social Infrastructure includes the education system, health care, social and cultural facilities, parks and open spaces, etc. The different components of social infrastructure will help to know how well a city or town is equipped with facilities. The provision of education, health, etc. defines the quality of life. As the city expands and population increases, the gap between demand and supply of these essential services increases, which deteriorates the quality of life in urban areas.

Public Semi Public: Social infrastructure falls under the Public-Semi Public land use classification as these areas are for common use of public and are easily accessible by all strata of the society. Hence, education, health, recreational area, socio cultural areas, post offices, cremation and burial grounds and religious sites together form part of social infrastructure, which falls under the category of Public-Semi Public. (Refer map 13).

6.2.1 EDUCATION

Educational facilities define the level of development of a city. They are criticial for growth of any settlement in terms of literacy rate, skill upgradation and improving quality of human lives. Higher level of education facilities have been considered vital for economic growth and development of any community or nation, besides improving the quality of life of human beings. Education is found to be a major determinant and promoter of growth and

development of any settlement and nation. Accordingly, providing appropriate level of education facilities is extremely important.

6.2.1.1 Institutional Network

The city of Amritsar has a well developed institutional network with one university namely Guru Nanak Dev University, 10 colleges, 2 medical and dental colleges, 9 nursing institutes and 4 engineering colleges, 2 B. Ed. colleges and 2 polytechnics. Apart from higher level institutions, it is well equipped with 258 primary schools, 36 middle schools, 41 secondary and 62 senior secondary schools. It strengthens the fact that Amritsar has developed its importance as an educational centre in the region (Refer table no.69).

Table 69: Level of Education Facilities in Amritsar LPA – Schools, etc

S. No.	Name	Primary Schools	Middle Schools	Secondary Schools	Senior Secondary Schools	Anganwari	Industrial School	Training Schools	Adult Literacy Center
1	**Amritsar**	258	36	41	62	191	-	-	46
2	**Majitha**	1	4	4	2	-	-	-	-
3	**Rajasansi**	1	3	2	2	-	-	-	-
4	**Rayya**	4	5	4	4	-	-	-	-
5	**Jandiala**	5	10	11	2	-	-	-	-
6	**Villages in LPA**	357	58	73	23	-	13	14	28

Source: District Education Office, Amritsar and Census 2001

Table 70: Higher Level of Education Facilities in Amritsar LPA

Name	University	Colleges	Medical	Dental	Nursing	Engineering	B. Ed. Colleges	Polytechnics	Distance Education Centers
Amritsar	1	10	2	2	9	4	2	2	4
Majitha	-	-	-	-	-	-	-	-	-
Rajasans	-	-	-	-	-	-	-	-	-
Rayya	-	2	-	-	-	-	-	2	-
Jandiala	-	1	-	-	-	-	-	1	-
Villages in LPA	-	3	-	-	-	-	-	-	-

Source: District Education Office, Amritsar and Census 2001

In case of other urban settlements falling in Amritsar LPA, it is found that they are self sufficient in terms of basic educational facilities but for higher level facilities they are dependant on city of Amritsar. In villages of LPA, It is noticed that each village is marked by presence of a government elementary school, whereas middle school is provided for every two villages, secondary school for every four villages and senior secondary school for every thirteen villages. Higher-level facilities, such as 13 industrial schools, 14 training schools and 3 colleges exist in villages of LPA (Refer table no. 70).

6.2.1.2 Spatial Distribution

The matter of concern is the distribution pattern of these educational facilties, which is uneven in the city. Moreover, these facilities are located on narrow roads/streets having mixed land use, which creates traffic bottlenecks at peak hours because of the on street parking of vehicles. This is because these educational facilities do not have sufficient land area to provide parking as well as other required facilities to the students. As per the primary survey of some schools and colleges in the city, it has been analysed that some private schools are running in the residential complex located on internal city roads and do not have separate area for parking, playground, library etc., whereas the city also has presence of some schools, such as DAV Public School and Harkrishan Public School, which are run by trusts and are in good condition with presence of all

the facilities for the students and staff and also have the provision of fire safety equipments installed and ramps for handicapped children. (Refer figure no…)

Fig no.99: View of a school located on internal street with no separate area for parking, playground etc

Fig no. 100: Good condition of DAV Public School building located on Lawrence Road with all required facilities

On the survey of colleges, it has been found that colleges located in walled city area such as DAV College at Hathi Gate and Hindu Sabha College at Dhab Khatikan are located on narrow city roads and lacks in adequate areas for parking, playground, reading rooms etc. Moreover, it has also been observed that govt. or semi govt colleges such as S.R Govt. College for Women in Rani Ka Bagh and BBK DAV College for Women on Lawrence Road in the city have all the adequate facilities while the private colleges such as SSSS College lacks in adequate facilities.

Apart from these, Rayya and the surrounding villages have number of institutions, which have regional level significance, like Shaheed Darshan Singh Pheruman College, Sacred Heart Convent School, Mata Ganga Girls Sr. Sec School, Govt. ITI Baba Bakala, GTB Govt. College Sathiala, etc.

Fig no.101: Adequate parking facilities provided within BBK DAV College for Women, Lawrence Road

Fig no.102: View of spacious college building of SR Govt. College for Women

6.2.1.3 Ongoing Projects/Proposals

- Govt. of India shall set up a World Class University at Amritsar for which Govt. of Punjab is to procure 750 acres of land. The total cost of the project is estimated to be Rs.1250 crore.
- Government College for Boys has been decided to be set up at Verka in Amritsar. The 12-1/2 acre land has been identified and the construction work shall start soon.
- Punjab state government has taken the initiative to set up 141 Adarsh schools (one in each block) for poor students. Each school will be having an area of 10-12 acres and capital cost of approximately 4-5 crores. Six more Adarsh Schools, at a cost of Rs.2.5 crores each in an area of 10 acres each, shall be set up in the district.
- One Navodaya Vidyalaya (Govt. of India Residential School) in an area of 18 acres shall be set up at village Bhilowal (Chogawan) entirely for the students belonging to Scheduled Caste category.
- Sarvashiksha Abhiyan under implementation.
- A Dairy Training Centre shall be set up in 1-1/2 acre of land at a cost of Rs.2.00 crores in Amritsar city. The land for the purpose has already been earmarked and funds have been allotted.
- One private degree college shall be opened at Ramdas.

List of various projects that have been undertaken in the district of Amritsar in the year 2008

- One Adarsh School at Chogawan spread over 15 acre of land at the cost of Rs.2.5 crores has been set up.

- Navodaya Vidyalaya at village Awan spread over 20 acres of land has been commissioned. The school has already started functioning.
- Satya Bharti Elementary Schools set up for the rural areas at the cost of Rs.25.00 lacs each.

6.2.1.4 Key Issues for Education

- The Education facilities are not well distributed over the city area.
- Traffic congestion and parking problem is caused by educational institutions.
- Lack of adequate playgrounds, parking areas, etc. in the institutions located in the congested areas.
- Lack of higher-level facilities, such as colleges, in the LPA Amritsar creates pressure on the existing educational infrastructure of the city.

6.2.2 HEALTH

There is critical need of improving the health of poor as there is lack of hygienic living conditions in the slum colonies because of the open drain system, improper solid waste disposal mechanism. Besides, there is a need to improve the basic human conditions in the entire LPA, where there is a need of the health organizations for improving the existing conditions along with the hospitals and dispensaries.

6.2.2.1 Institutional Network

Looking at the health institutional network in the city of Amritsar, it has been observed that the city is served by 1 civil hospital, 154 other specialized hospitals and nursing homes (govt. and private both), 8 Urban Family Welfare Centers, 6 MCW Centres, 5 satellite hospitals and 6 govt. dispensaries. It makes the city an emerging medical hub of the district Amritsar. It has number of specialized hospitals such as Escorts for heart speciality, Ram Lal eye & E.N.T Hospital, ESI Hospital, Guru Nanak Dev Hospital, Guru Ram Dass Dental Research Institute cum Hospital, etc. The table below gives details of the various medical institutes located in city of Amritsar and in urban settlements in LPA Amritsar.

Table 71: Medical Infrastructure in Amritsar LPA

Level	Medical Facility			
	Hospital	**PHC**	**CHC/FWC / MCW**	**Dispensaries**
Amritsar MC	155	1	14 (16)	6 (16)
Majitha M. Cl	1 (30)	-	1	-
Raja Sansi N.P	2	1	2 (36)	-
Jandiala M.Cl	9	1	1	1
Rayya N.P	2	-	2	1 (4)
LPA villages	3	10	85	101
Total	172	12	153	109

Source: Civil Surgeon Ofice, Amritsar, fig. in brackets () refers to no. of beds

Among the urban settlements in LPA, Rajasansi and Jandiala have Primary Health Centers while Majitha has presence of Community Health Centre. Apart from the govt. health institutions, there are number of private hospitals in each urban settlement to cater to the needs of the population of the town. For higher level/specialized treatment, they are dependent on city's hospitals.

Among the villages in Amritsar LPA, only Baba Bakala is marked by the presence of Civil Hospital while others have presence of either Dispensary or Family Welfare Centre or Maternity and Child Welfare Centre or Maternity Home. (refer table no.)

The civil hospital "Guru Nanak Dev Hospital" in Amritsar is located adjacent to the Govt. Medical College on Majitha Road with easy accessibility from all sides. The hospital (114 acres) together with Medical College is spread over an area of 163 acres having total bed capacity of 1050 beds and serving 700 patients per day approximately. The institution apart from serving the whole district's population, has retained its eminence in providing medical facilities to vast area of north India including Himachal Pradesh, J&K, Rajasthan, U.P., etc. with its spacious OPD complex, emergency, surgery and super specialities viz. nephrology, cardiology, plastic surgery, urology, neurology, cardiothoracic surgery, etc. It also houses ultra modern operation theatre complex, ICU, ICCU, clinical laboratory, radiology, sonography, de-addiction and mental health facilities, and blood transfusion and blood component separation unit. Since the hospital is attached to the Medical College, nearly 320 students are trained every year in MBBS, BDS, nursing and MD/MS courses. The hospital is observed to have sufficient medical, para medical and allied facilities. In terms of disposal of bio-medical waste generated, the segregated waste is collected by a private agency namely "Amritsar Health Care Systems" from hospitals in the city. The waste collected is incinerated in an incinerator, which is located at the village Iban Kalan on Jhabal Road.

Table 72: Veterinary Institutions in Amritsar LPA

Level	Veterinary Institutions		
	Hospital	Dispensary	Total
Amritsar M.C	**4**	4	4
Majitha M. Cl	1	-	1
Raja Sansi N.P	1	-	1
Jandiala M.Cl	1	-	1
Rayya N.P	1	-	1
LPA villages	34	58	92
Total	42	62	100

Source: Civil Surgeon, Amritsar

Besides this, there are 4 govt. veterinary hospitals and 4 govt. dispensaries existing in the city of Amritsar. Each of the four urban settlements has one govt. veterinary hospital while the other villages in LPA have veterinary dispensaries. Out of the total 310 villages, approximately 30% of the villages have presence of veterinary dispensaries, while the rest are dependent either on these villages with dispensaries or on the city of Amritsar.

6.2.2.2 Spatial Distribution

On primary survey of the health institutions in the city, it has been found that private sector holds a larger share in creation of health infrastructure in the city. Although, govt. facilities do exist in the city as well but requires considerable upgradation for improving the desired level of services to the people. Apart from this, number of hospitals and nursing homes in private sector have been in operation in the residential areas without adequate facilities in terms of parking areas and quality health infrastructure. They have been observed to be functioning in every corner of the city, which makes it evident that they are spread evenly throughout the city, especially in walled city areas where these health institutions exist in the residential areas. Further to this, it has also been observed that most of the medical facilities and specialized hospitals exist in the northern side of the city. This reflects that people living in the northern half of the city have better access to both private and govt. facilities while those in the south are devoid of the same.

Fig no.103 View of Hospital facility located in a residential area in walled city, Asr

The hospital run by the Dera Baba Jaimal Singh situated in Budha Theh along NH 1 is the major point of healthcare facilities for the nearby villages.

6.2.2.3 Ongoing Projects/Proposals

- Major upgradation of Medical College Amritsar under PMSSY has been approved and the estimated cost of the project is Rs 120 crores.
- New multi specialty block inaugurated in Guru Nanak Dev Hospital.
- Upgradation of Guru Nanak Dev Hospital in Amritsar with capital outlay of Rs.75.39 crores shall be achieved with the following facilities to be set up:-

  a) Bebe Nanki Centre for Mother & Child Care.

  b) Swami Vivekanand Drug Deaddiction Centre.

  c) Services Block.

  d) Guru Teg Bahadur Block for imaging & diagnostic services with superspeciality.

  e) Nursing College.
- With a view to provide artificial limbs to needy handicapped persons, District Disability Rehabilitation Centre shall be set up in the District Red Cross Society, Amritsar.
- District Red Cross Society shall launch a project of Health Care of Rural adolescent students. The rural girl students shall be medically checked up with a view to improve the health standards of especially anemic girls. The supplementary iron and other mineral/vitamin doze shall be administered

List of various projects that have been undertaken in the district of Amritsar in the year 2008

- District Blood Transfusion Society set up with a view to improve the quality of services at the Blood Bank. Blood Bank upgraded with the modern facilities.
- National Rural Health Scheme successfully implemented in the district with the view to provide quality health services to the masses.
- Community Care Centre for HIV/AIDS patients was set up in the District Red Cross Society with the help from State Aids Control Society.
- Bhangura Scheme for protection of unwanted newly born children inaugurated. During the year, 8 newly born kids saved through Bhangura.
- Drug Deaddiction Control Committee formed.

6.2.2.4 Key Issues for Health

- Health facilities are not as per the population requirement.
- Facilities distribution pattern is such that city fringe areas lack in the medical infrastructure.
- Hospitals with in walled city alongside residential uses create parking problems and land use violation.
- The problem is not mere of public versus private, but this trend will lead to a gap widening between rich and poor. So facilities must have adequate government share so that population from all segments of society will have easy access (Govt. is having 1% share in comparison to private health facilities)
- The facilities are not adequate as well as unevenly distributed.
- In rural areas, medical facilities are inadequate. Even where these are provided, the medical staff is unavailable.

6.2.3 PUBLIC SPACES /RECREATIONAL SPACES

Public and recreational spaces within the city add to the city picturesque and healthy environment. With rapid rate of urbanization, land area under green spaces in the cities is decreasing and more space is used for construction purposes. An optimum share of open/recreational spaces in the city is required for providing the quality life to its citizens.

There are two city level parks/open spaces, namely Ram Bagh Garden and Gol Bagh, and one stadium, namely Gandhi Ground, existing in the city.

6.2.3.1 Major Public Spaces

Ram Bagh Garden: It is the major open space located in the heart of the city covering an area of 34.34 hectares. It is surrounded by roads on all the four sides namely M. M. Malviya Road, Mall Road, Hukam Singh Road with major access from Mall Road and M. M. Malviya Road. It has some monuments such as Maharaja Ranjit Singh Summer Palace and few others, which are important from heritage point of view and needs preservation. Already Summer Palace and Ram Bagh Gate are notified as Protected Monument by the ASI.

Fig no.104 Rambagh garden

At present the garden houses children's park, three clubs namely Lions Club, Lumsden Club and Service Club, which are illegal, and milk booths. It is used as children's park with recreational activities like skating, as well as for morning and evening walks by the citizens. The garden is marked by the presence of public toilets and drinking water facility but lacks in the provision of parking areas. The road berms are normally used for parking of vehicles.

Fig no.105 Children Park at Gol Bagh

Gol Bagh: Spread over an area of 18 acres is another city level recreational/open space. It is located opposite to the Durgiana Mandir on the internal city road. The park mainly serves the residents of the southern portion of the city. It is poorly maintained. The maintenance work for the garden is under progress. As such, there are no designated parking areas or public utilities, such as public toilets and drinking water for the users.

Gandhi Ground: Measuring an area of 6.34 hectares, it is the only stadium existing in the city and is located on M M Malviya Road. It has two entry and exit points, one from Malviya Road and another from Taylor Road. It is maintained by Municipal Corporation Amritsar and has adequate parking facilities and public conveniences present inside the complex.

Another major open space in the city is the "Dusshera Ground" adjoining Lakar Mandi at the back side of Durgiana Mandir. A part of this area has been walled and converted to parking lot due to the opening of Gobindgarh Fort for the public in near future, which is opposite to it. Apart from the above described major open spaces, there are nearly 241small colony gardens existing in the different residential areas of the city.

Hence, there is need to develop more recreational spaces in the city as the share of recreational spaces has decreased from 2.02% in 1975 to merely 0.74% in 2001 and the existing open spaces are unable to serve all the residents of the city. There is need to develop more of green spaces such as parks for recreational purposes, buffers along roads, railway lines and water bodies.

6.2.3.2 Spatial Distribution

As far as spatial distribution of the open spaces in the city is concerned, it has been observed that Ram Bagh Garden is located in the northern portion of the city while Gol Bagh is located in the southern portion of the city. Further, the walled city area of Amritsar lacks in open areas/parks where these only exists in form of tot lots. There is no park left as such within walled city area, as they have been encroached or converted into commercial spaces such as

Bagh Akalian and Bagh Ramanand. Hence, the already congested core with influx of commercial activities does not provide for recreational requirements of its residents. The only garden existing is Jallian Wala Bagh, which is a tourist destination Hence its use for public in general is debarred.

Fig no.106 open Space existing within the walled city area used

6.2.3.3 Ongoing Projects/Proposals

- Setting up of Amrit Bagh in 30 acres of land in Ranjit Avenue.
- A drive for plantation of 10 lacs trees in the district shall be undertaken.
- Landscaping and upgradation of Rambagh Garden including conservation of Summer Palace and Civil Defence building at a cost out lay of Rs.5.00 crores.

6.2.3.4 Key Issues

- Decreased area under recreational use (0.74% of total land use in 2001from 2.)
- Lack of open areas in walled city, Amritsar
- Small colony gardens exist only in the planned colonies, which are mainly located in the northern portion of the city.
- Improvement of Rose Garden at 40 *Khuh* (Wells).
- Only 1% of the total area of Rayya and its surrounding villages are under recreational spaces. It especially lacks in terms of planned recreational areas.

6.2.4 SOCIO-CULTURAL FACILITIES

The presence of socio cultural facilities such as clubs, art galleries, public libraries, etc. in the city provides avenues for its residents to spend their leisure time in a productive manner.

Table 73: Socio Cultural Facilities in Amritsar (MC)

Sr. No.	Facilities	Number
Amritsar MC		
1	Community Halls	3
2	Swimming Pool	4
3	Corporation Playgrounds	2
4	Gymnasium Hall	6
5	Public Library	4
6	Art Galleries	2
7	Museum	1
8	Cinema Hall	12
9	Open Air Theatre	1
Villages in LPA		
1	Recreational cum Cultural Facilities *	591
2	Stadium cum Auditorium Facilities*	8

Source: Municipal Corporation, Amritsar; Census of India, 2001
Note: * figures for LPA are no. of villages having such facilities

In terms of socio-cultural facilities, Amritsar lacks in the presence of sports facilities or playground areas for hosting state or country level tournaments, etc. or even to train the students. This can help in boosting the tourism in the city. Further, in terms of marriage palaces, they are ample in number and are functioning with in residential areas or in proximity to educational or health institutions, which are creating nuisance.

In case of urban settlements in Amritsar LPA, Rajasansi has presence of sports club while Jandiala has a cinema hall, which is not in good condition. In case of villages in Amritsar LPA, there are 8 villages having stadium cum auditorium facility. The facility is on a small scale where village level sport events are conducted occasionally. Hence, the socio-cultural needs of the population of these settlements are fulfilled by the city of Amritsar (Refer table no.73).

6.2.4.1 Spatial Distribution:

The socio-cultural facilities are observed to be concentrated mainly in the northern portion of the city. All the 3 recreational clubs existing in the city are located within Ram Bagh Garden, which in turn is located in the northern half of the city. Likewise, cinema halls located on M.M. Malviya Road, Taylor Road, Court Road, opposite bus stand are in good condition while those located in the walled city and in the southern half of the city are not in good condition and generally not preferred by residents for entertainment purpose. Moreover, the socio-cultural facilities in the city are not in synchronization with the rising population needs. Hence, development of more community rooms/halls, recreational clubs, meditation halls, spiritual center, drama and dance center is required on priority basis. Recently two multiplexes have opened up on Batala Road and Jalandhar Road to provide quality entertainment facilities.

6.2.4.2 Ongoing Projects/ Proposals

- Beautification of surroundings of Durgiana Temple after acquisition of necessary properties at a cost of Rs. 29.00 crores. The main access of 16 feet to the temple shall be widened to about 60 feet. The shopkeepers are proposed to be relocated by constructing a commercial complex under the scheme. The existing Police Post and Post Office shall be relocated.
- Setting up of Heritage Village in Guru Nanak Dev University: - Govt. of India has already sanctioned a sum of Rs. 6.84 Crores for setting up of Heritage Village in GNDU Campus.

- Gobind Garh Fort shall be open to public after completing the conservation of its buildings at a cost of Rs. 2.5 crores.
- A beautiful open Plaza shall be set up in front of Golden Temple at a cost of Rs.7.00 crore by shifting Ghanta Ghar market to the newly constructed shopping complex in front of Shani Mandir.

6.2.4.3 Key Issues

- Lack of adequate socio-cultural facilities in the city.
- Concentration of existing socio-cultural facilities in the northern half of the city only.

6.2.5 CIVIC AMENITIES/SERVICES

The other amenities of the city include Post Offices, Fire Stations, Cremation Grounds, etc. Each urban area must have these amenities to serve its growing population, as the requirement of these amenities increases with the increase of city population and area.

6.2.5.1 Post Office/Fire Station/Police Station/Graveyard

POSTAL AND COMMUNICATION FACILITIES

Post offices are one of the essential services required by residents of any city. The Amritsar city consists of 4 main post offices located at different locations with one Head Post Office located on Court Road. It is a heritage building built during the time of British and is in good condition having required facilities in terms of parking for the employees and visitors, public toilets and drinking water.

Fig no. 107 Head Post office on Court Road, Amritsar

All the four urban settlements falling in the Amritsar LPA are having branch post office on which number of surrounding villages are dependent. Among, 310 villages falling in Amritsar LPA, 98% of the villages (303) are having post and telegraph facilities while 33.5% (104) villages are having post offices.

In terms of communication facilities, the city of Amritsar is equipped with 12 telephone exchanges with 4.2 lacs landline connections, 5600 public telephones and 5.6 lacs mobile connections in the city. There are nearly 12693 telephone connections in 310 villages of LPA

FIRE STATION

The city of Amritsar at present has four fire stations located at Town Hall, Beri Gate, Gilwali Gate and Civil Lines. As per the UDPFI standards of one fire station for 2 lakh population,

the city should have 5 fire stations to serve the population. Therefore, the city has a backlog of one fire station. All the four fire stations are located on major city roads, which are wide enough to allow free movement of these vehicles. The vehicles at the time of disaster are available from these fire stations. The Civil Lines fire station serves the northern portion of the city, while Town Hall, Beri Gate and Gilwali Gate fire stations serve the walled city area and its surrounding that is the southern half of the city. Hence, it can be said that northern portion of the city is served with only 1 fire station, which is insufficient and requires one more fire station. Besides, the existing backlog of one fire station, there is also requirement of another 5 fire stations in the city to cater the needs up to 2031.

Apart from four fire stations, city also has nearly 400 fire hydrants at different locations to combat with the fire. The fire brigade wing in the city has total of 8 fire fighting vans and total staff strength of 126 out of which 51 posts at present are vacant. This implies that the city does not have required number of personnel, which needs to be taken care off. Moreover, the existing fire fighting infrastructure needs upgradation as new buildings of greater height are being constructed.

There is no provision of separate fire station or fire fighting facilities in either 4 urban settlements or in 310 villages falling in LPA. They are dependant on Amritsar for fire fighting facilities in case of any disaster. Therefore, it can be analysed that the existing fire facilities in the city of Amritsar are over burdened that needs to be reduced.

POLICE STATIONS

There are total of 14 approved police stations in the district of Amritsar, out of which 11 police stations fall within the city and remaining 3 in LPA. The list of 11 police stations along with their location is given in the table below:

Table 74: Police Stations Falling in Amritsar LPA

S.No.	Name of the Sub Division/ Police Station	Location
Police Stations in Amritsar M.C.		
1	PS A-Division	Near Ram Bagh Chowk
2	PS B-Division	Near Sultanwind Gate
3	PS C-Division	Near Gilwali Gate
4	PS D-Division	Near Lahori Gate
5	PS E-Division	Near Town Hall
6	PS Civil Lines	Near District Courts
7	PS Sadar	Near Petrol Pump, G.T. Road
8	PS Islamabad	Near Putlighar
9	PS Chheharta	Chheharta, Near Naraingarh
10	PS Sultanwind	Near Village Daburji
11	Temp PS Majitha Road	Near Guru Nanak Dev Hospital
Police Stations in Amritsar LPA		
12	PS Rajasansi	Rajasansi, Amritsar-Ajnala Road
13	PS Gharinda	G.T. Road, Attari

Source: Police Dept. Amritsar

At present, there is backlog of 2 police stations within the city as per the UDFI guidelines standard of one police station for 90,000 persons. Further, there is a demand for 12 more police stations up to the year 2031 for the city of Amritsar.

CREMATION AND BURIAL GROUNDS

Table 75: Cremation and Burial Grounds in Amritsar M.C

Type of Facility	Number	Location
Cremation Ground	6	Shiv Puri-Near Durgiana Mandir, Chatiwind Gate(Opp Shaheed Ganj Gurudwara), Kot Khalsa(2), Naraingarh-Chheharta, Wadali Guru-Chheharta
Burial Ground	3	Opp Shaheedan, Jhabal Road, Near Boharwala Phatak-Islamabad Islamabad Road, near Cantt area

Source: Municipal Corporation, Amritsar

The city of Amritsar is served by 6 cremation and 4 burial grounds (Refer table no.75). The Shiv Puri Cremation Ground near Durgiana Mandir is located on the circular road adjoining walled city and serves the major Hindu population of the city while the another cremation ground at Chatiwind Gate-opposite Shaheedan serves the sikh population of the city. The remaining 4 cremation grounds are located in the west of the Amritsar city. All these cremation grounds have been provided with facility of public toilets and drinking water.

Fig no.108 Shivpuri Cremation ground

A burial ground for children is existing opposite Gurudwara Shaheed Ganj for both Hindu and Sikh population of the city, while the remaining burial grounds are serving the Muslim and Christian population in the city, which are in minority.

Looking at the spatial distribution of cremation and burial grounds, it has been observed that they are concentrated in the central and western part of the city while eastern part of the city lacks them. Further, there is demand for 2 more cremation grounds by 2031 to serve the rising population needs.

There is one Electric Cremation Ground at Shivpuri, but it is not in function presently because of the bad odour it produces during cremation. In spite of this electric crematorium, an LPG/CNG based crematorium can be made.

6.2.5.2 Spatial Distribution

Out of the 11 police stations existing in the city, only one is situated inside the walled city that is Police Station of E-Division at Town Hall, while 4 police stations are located on the outer circular road adjoining walled city. The remaining 6 police stations are serving the area outside the walled city area.

6.2.5.3 Ongoing Projects/Proposals

- Proposed opening of new fire stations at Ranjit Avenue, Batala Road and Focal Point. The first 2 locations proposals have been sanctioned by Punjab government and the location of fire station at Focal Point is under consideration
- Purchase of the 2 proposed fire tenders approved by Commissioner Corporation is under process.
- Purchase of turntable ladder on hydraulic platform of 150 ft height is under consideration.

6.2.5.4 Key Issues

- Lack of adequate civic amenities in the city.
- Fire department lacks disaster management equipments. The existing vehicles are not able to serve the population in case of any disaster. No such vehicles exist to enter narrow streets of walled city in case of huge fire in high rise buildings.
- Irrational distribution of fire stations in the city
- Lack of a Forensic Institute in the city to tackle the numerous cases happening in the city and the surrounding areas.
- The rural area is also dependent upon city infrastructure in terms of fire stations and recreation.

CHAPTER 7

ENVIRONMENT

Today's environmental problems faced by the inhabitants of Punjab, its causes and pressures can easily be traced back directly or indirectly from urban areas. The forces and processes that constitute urban activity have far-reaching and long-term effects not only on its immediate boundaries, but also on the entire region in which it is positioned.

7.1 ENVIRONMENTAL POLLUTION: GENERATION AND CONSEQUENCES

7.1.1 AIR POLLUTION: - One of the major areas of environmental concern in the Amritsar city is that of rising air pollution levels which are result of increasing personalized modes of transport and intermediate modes of transport such as auto rickshaws in the absence of efficient public transport system in the city. 60% of goods vehicles are auto rickshaws (2.43% of total registered vehicles). Most of them are using kerosene as the fuel thus creating air pollution. The personalized vehicles (99.6% of passenger vehicles) are 89.7% of total registered vehicles making congestion on roads and creating pollution. Apart from this, narrow roads carrying high volume of traffic, frequent jams, etc. have been observed creating air pollution along major roads such as Lawrence Road, Cooper Road, Hall Bazaar and chowks such as Bhandari Bridge Chowk, Hussainpura Chowk, O/s Bus Stand, O/s Hall Gate etc.

Fig no.109 Industry releasing plume without adopting pollution control devices

Apart from the automobile pollution, the other major source of air pollution in the city is industrial emission of gases. The various industrial units like rice shellers situated on Tarn Taran Road, units in industrial focal points and other scattered industries in the city releases intensive air pollutants into the atmosphere, which affects the environment of the surrounding residential areas. From planning point of view, neither any sufficient buffer zone nor any landscape elements are provided there to reduce the impact of air pollutants.

The other sources of air pollution in the city include pollution from developmental activities, handling and burning of municipal and domestic waste and from agriculture waste burning etc. With a view to clearly assess and monitor the status & quality of ambient air in Amritsar, several monitoring stations in different parts of the city i.e. industrial, residential and

commercial zones have been established by the Punjab Pollution Control Board. These stations have been placed at the most vulnerable parts of the city, which not only carry large volume of traffic but also have large number of industrial/residential/commercial units. The data collected from these monitoring stations with respect to SPM, SO_2 and NOx in the year 2006 reflects higher SPM levels in the air in both residential and commercial areas against the permissible limit of 140µg/m^3 indicating deteriorating quality of air in these areas. The higher SPM levels have also been recorded in the industrial areas of the city then permissible level of 360µg/m^3 with monitoring stations located at Indian Textile - Amritsar, Mehta and Avan. With regard to the level of SO_2 and NOx, it has been found that the permissible limits are well below the prescribed standards in all the areas.

Table 76: SPM, SO_2 and NO_x levels in Industrial Area of Amritsar at different Air Monitoring Stations from 1997-2001 (Units: µg/m^3)

Year	Indian Textile, Amritsar			Mehta			Avan		
	SPM	SO_2	NO_x	SPM	SO_2	NO_x	SPM	SO_2	NO_x
1997	440	17	44	-	-	-	-	-	-
1998	447	16	42	-	-	-	-	-	-
1999	439	20	43	389	18	40	446	20	40
2000	396	17	20	361	13	18	371	18	21
2001	-	-	-	373	11	16	443	12	18

Source: PPCB, Patiala

Although, the air monitoring stations have been established by PPCB but still there is no continuous recording of database relating to air quality. Hence, it is required that these monitoring stations should do monitoring on regular intervals.

7.1.2 WATER POLLUTION

7.1.2.1 Surface Water Sources & Pollution

Rapidly increasing urbanization and industrialization of Amritsar has not only adversely impacted the quality of ambient air in the city but also has affected the city's water resources.

There are two rivers, namely river Beas and Ravi, flowing in the catchment area of Amritsar LPA and delimiting it. While river Beas forms the eastern boundary of the LPA, river Ravi bounds the district from the western side. The upstream characteristics of the river Beas and Ravi have been studied by PPCB in Dec 2000 under the Govt. of India scheme.

MINAR (Monitoring of India National Aquatic Resources) and it has been observed that all parameters of surface water characteristics are within the permissible limits prescribed by BIS (ISI) except BOD and total coliforms.

Upper Bari Doab Canal

Fig no.110 UBDC (1) near Mehta road

Fig no.111 UBDC (1) at Tarawala Pul

Apart from the two rivers, Upper Bari Doab Canal (UBDC) also flows through the LPA in the form of two branches, which can be termed as UBDC 1 flowing on the Eastern side of the LPA while UBDC 2 flows in the Western part of the LPA and both these enters into Tarn Taran district in the South of LPA. Apart from these, there are two distributaries of UBDC flowing through LPA namely Warpal Distributory and Jhabal Distributory, and other fresh water bodies such as Kasur Branch and Rajasansi Minor. All these water bodies carry fresh water mainly to be used for irrigation purposes, but the portion of these flowing from city area till downstream faces severe impacts from solid waste and other domestic refuse disposal, causing deterioration in water characteristics. On the basis of visual observation and certain physical parameters, it has been observed that the water characteristics may be in the tolerant limit of the class A to B of surface water. Similar phenomena have also been observed in all surface water sources flowing especially along the populated abadi areas within the LPA.

Apart from fresh water sources, there are four drains namely, Patti Drain, Tungdhab Drain Hudiara Drain and Kohali Drain and two nallahs (Kasur Nallah and Ganda Nallah) passing through Amritsar LPA. All these drains are storm water drains but at present are used for discharging untreated domestic and industrial effluents.

Among these, three drains namely Hudiara Drain, Tungdhab Drain and Ganda Nallah, carry maximum quantity of dumped untreated sewage, industrial effluents and solid waste generated from the city and within LPA, thereby leading to contamination of underground water. The level of pollution in these drains is extremely high.

Ganda Nallah

Within Amritsar LPA, Ganda Nallah, originating from North Eastern part of the LPA flows in two directions, one towards North West covering villages of Nag Khurd, Nag (New Abadi), Bal Kalan, Pandori Waraich, Naushehra, Nangli, Gumtala, Kherabad, Kala Ghanupur, Wadala Bhitewadh, etc. The other flows towards the South of the city from North East. Both of these ultimately drain out in the Hudiara Drain flowing from the north to west of the LPA.

Existing Status

Gandha Nallah at present not only carries untreated industrial and domestic effluents, but also dense weeds, shrubs, dumped industrial ash/soils, polythene bags, plastics, other domestic refuse, hazardous waste, biomedical waste, heavy silts, mud, cow dung, etc. The numbers of residential colonies developed along the nallah face the problem of foul smell and have developed mosquito zones upto 1000 meters from it. Apart from these, there are number of industrial units such as Khanna Paper Mill, Shankar Textile Mill, Kwality Pharmaceutical Pvt. Ltd, etc., which are existing along the Gandha Nallah and discharging their untreated industrial effluents into the nallah.

Fig no.112 Untreated industrial effluents of Khanna Paper Mill drain out into Ganda Nallah

Fig no.113 Untreated industrial effluents of Shankar Textile Mill drained out into Nallah

Due to discharge of untreated domestic and industrial effluents, the pollutants have leached to the ground water table and have deteriorated the quality of ground water in the villages situated along the nallah. The colour of water found is deep yellow, odour is strong and suspended particles can be visualized by naked eyes, rendering it unfit for potable use.

On the primary survey, the residents of the colonies or villages situated along the nallah have claimed to be suffering from various diseases such as gastroenteritis, jaundice, diarrohea/ dysentery due to consumption of contaminated water and malaria due to breeding of mosquitoes around the Gandha Nallah.

Fig no.114 Groundwater Sample having objectionable colour, odour taste & suspended solids

Tungdhab Drain

The Tungdhab Drain flowing in the northern side of Amritsar city along the Northern Byepass is another important drain originating from north east of the city and finally merging into Hudiara Drain flowing in the west of Amritsar LPA. Along its course, it covers many areas/village abadis such as Pandori, Verka, Othian, Khan Kot, Kot Mit Singh, Sultanwind etc.

Existing Status

Tungdhab Drain is also carrying untreated industrial and sewage effluents and other waste materials, dense weeds, shrubs, silts & mud and is extremely polluted. The flow of drain is moderately high in its downstream side and along its course, spread strong odour and nuisance towards concerned residential areas within the LPA.

A high power pumping station have been installed near Verka Chowk to drain out the untreated industrial and sewage effluents from upstream side of drain to the adjoining nallah (drain) in the downstream side. This pumping station is a collection point of untreated industrial and sewage effluents of the entire industrial area (Focal Point) and after their collection into the sump simultaneously pump out into adjoining drain, which finally joins to Ganda Nallah towards downstream side. The physio-chemical characteristics of the effluents pumped out into the drain are objectionable in various aspects such as colour, odour, suspended solids, D.O., B.O.D., C.O.D. and microbial contamination. As per visual observations, colour of the water is brick red having strong odour with high turbidity level which is objectionable as per prescribed standards by CPCB.

Fig no.115 Untreated industrial effluents pumped out near Verka Chowk create unbearable odour

Hudiara Drain

The Hudiara Drain entering into the Amritsar LPA from North Eastern side crosses a number of villages along its course in LPA i.e. Nangal Pannuwan, Sohian Kalan, Birbalpura, Loharka Kalan, Miran Kot Kalan, Sehchandar, Rudala, Kotla Dal Singh, Dhaul Khurd, Kaler, Khiala Khurd, Khiala Kalan, Boparai Khurd, Kaulowal, Nurpur, Chhiddan, Lohorimal, Gharinda, Achint Kot, Hoshiar Nagar, Mahawa, etc. It leaves the LPA from the south western side and enters into Tarn Taran district.

Fig no.116 Villagers using untreated effluents of the drain for irrigating fields

Existing Status

The Hudiara Drain, which at once was fresh water drain used for irrigation purpose, is now carrying disposed untreated industrial and sewage effluents of the Amritsar LPA. At many places, the water from the drain is used for irrigating the fields, which is harmful for consumption.

Kasur Nallah and Patti Drain

Kasur Nallah and Patti Drain are the other two drains flowing through the Amritsar LPA. Both these drains enter Amritsar LPA from North East direction and leaves LPA region from south side to enter into the Tarn Taran district.

Both the drains carry untreated sewage and domestic effluents and refuses containing solid waste, mud, silts and other waste materials from the number of villages from which it passes before it enters Tarn Tarn district in the south. The nallah also carries storm water during rainy season and also becomes eutrophic containing higher concentration of nutrients like NPK. High level of eutrophication of nallah/drain favours the excessive breeding of mosquitoes, which causes malaria and other water borne diseases.

Fig no.117 Upstream of Patti Drain near Malhian village (Jandiala) showing excessive algae growth

Fig no.118 Kasur Nallah flowing near village Manawala shows excessive eutrophication

7.1.3 GROUND WATER POLLUTION

Fig no. 119 Gandha Nallah carrying untreated sewage, MSW, biomedical waste, etc.

The ground water pollution in Amritsar is the result of seepage of polluted water from the drains (Tungdhab, Hudiara and Ganda Nallah), release of industrial effluents and heavy metals, leaching of agricultural chemicals, pesticides and fertilizers to groundwater aquifers.

Accordingly, the ground water characteristics within the city are also not good. Ground water in most of the industrial estates and in few residential areas has become unfit for drinking. In comparison to deep water aquifer, shallow water is seriously affected. The city accordingly faces a severe water pollution problem. In the process, majority of the residents of Amritsar city, especially along the Nallah and drains and that of other adjoining villages are forced to consume contaminated vegetables and drink unsafe water, thus exposing themselves to the risk of water-borne diseases. Major issues emerging from the ground water pollution have been listed below:

i) Excessive pumping has lead to contamination of ground water. Persons residing in Abadies in close proximity to Ganda Nallah, Tungdhab and Hudiara Drains and other adjoining villages have been found to be exposed to water borne diseases due to polluted ground water.

ii) Considerable level of ground water pollution has been found to exist up to a depth of 100 ft. along the 1000 meters belt on either side of Ganda Nallah, Tungdhab and Hudiara Drains. The physico-chemical characteristic of water has been found to be unsuitable for supporting aquatic life.

iii) Hand pumps and shallow tube wells drawing water from first aquifers are found susceptible to ground water pollution in areas close to industrial units and Ganda Nallah, Tungdhab and Hudiara Drains.

iv) Pollution of the soil & ground water has also been caused by the dumping of the industrial wastes (effluents and solid waste) into the open ground leading to stagnation and the generation of the leachate.

v) The use of polluted ground water for agricultural purposes has also led to the degradation of the soil and presence of heavy metals into soil and vegetable crops grown in the area.

The study of ground water characteristics in the city has been done by Regional Office (R. O.), PPCB Amritsar on 31.5.2005 at five different sampling stations in the city i.e., H. P.

(handpump) outside Dhabha of Sh. Ramesh Chand, Fatehgarh Churian Road, H. P. near Scooter Stand of Sh. Darbar Sahib, H. P. near Sangam Dhabha, Ajnala Road, H. P. near Sg. Babu Ram Tea Stall opposite B. chemical and H. P. near Sacred Heart Day Boarding School. The physico-chemical characteristics of ground water of all five different sampling stations within the city areas were under permissible limit prescribed by IS 10500, 1991 (clause 3.1) except total hardness of water of H. P. near Sacred Heart School, where it is of the order of 640 mg/l and exceeds the standard of below 600 mg/l prescribed by IS 10500, 1991 (clause 3.1). The colour of water at H. P. outside Dhabha of Sh. Ramesh Chand and H.P. near Sg. Babu Ram Tea Stall is light yellow, which should be clear. The details are summarized in the table no.77.

Table 77: Ground Water Quality at Five Sampling Stations of Amritsar city

S. No.	Parameter	Sampling Station				
		H.P.* outside Dhabha of Sh. Ramesh Chand, Fatehgarh Churian Road	H.P. near Scoter Stand of Sh. Darbar Sahib	H.P. near Sangam Dhabha Ajnala road, Amritsar	H.P. Sg. Babu Ram Tea Stall opposite B. Chemical	H.P. near Sacred Heart Day Boarding School
1	PH	7.2	7.4	7.3	7.2	7.1
2	Colour	Light Yellow	Clear	Clear	Light Yellow	Clear
3	Cond (mho/cm	200	840	714	740	130 0
4	TSS mg/	ND	ND	ND	ND	ND
5	Cl mg/l	70	60	62	70	40
6	SO_4 mg/l	30	24	26	29	32
7	TDS mg/l	846	533	536	658	820
8	F mg/l	0.4	0.6	0.3	0.4	0.2
9	T. Hard mg/l	530	440	420	510	640
10	Ca mg/l	160	160	136	156	200
11	Mg mg/l	31	10	19	29	96
12	Zn mg/l	ND	ND	ND	ND	ND
13	Ni mg/l	ND	ND	ND	ND	ND
14	T. Alk mg/l	170	160	130	140	160
15	Na mg/l	48	40	20	28	52
16	K mg/l	12	10	9	10	14
17	Fe mg/l	0.3	0.1	0.1	0.2	0.1
18	COD mg/l	ND	ND	ND	ND	ND
19	BOD mg/l	ND	ND	ND	ND	ND
20	T.Coli MPN//100	ND	ND	ND	ND	ND
21	F.Coli MPN//100	ND	ND	ND	ND	ND

Source: R.O., PPCB, Amritsar
*Handpump

7.1.4 RAIN WATER HARVESTING

Ground water is the major source of water supply in the LPA region apart from the few surface water sources. Increased dependency on the ground water due to rapid urbanization, for industrial needs and agricultural practices has rendered its exploitation as inevitable in

Amritsar LPA. Accordingly, there is urgent need for conserving and recharging the ground water table by using techniques such as Rain water Harvesting. At present, the use of this technology is not popular among the residents due to lack of awareness. On discussion with officials of the authority such as Improvement Trust, it has been quoted that rain water harvesting has been implemented only in few government buildings and still not made mandatory as part of Building Bye Laws and Development Control Regulations. This is necessary for effective implementation of the technique that can help in longer run in recharging the ground water. Proper guidance and financial assistance may be provided to the citizens in this regard.

7.1.5 NOISE POLLUTION

Increasing urbanization, overcrowding, industrialization and higher traffic volumes have resulted in increased noise levels in Amritsar city leading to noise pollution. Construction work also plays an important role in causing noise pollution.

Fig no.120 High Traffic Volume and glaring horns by auto rickshaws cause Noise Pollution

The noise has already reached a level, high enough to cause annoyance capable of creating temporary to permanent hearing impairment, particularly to those people who remain exposed to such noise level for longer duration of day. The street venders and shopkeepers doing business along both sides of road have been found to be most vulnerable to this hazard.

Ambient Noise level in Various Zones (2006)

The study of ambient noise levels in industrial and commercial zones of Amritsar city have been done by Punjab Pollution Control Board, Amritsar during the year 2006. The findings of the study states that the noise levels in all the zones, residential, commercial and industrial, were greater than the standards prescribed by the CPCB, New Delhi. The details of analyzed noise level data are summarized in table no.78.

Table 78: Noise Level (dB) Monitoring during the year 2006 in Amritsar

Recording Zone	Day		Night	
	Standard	Recorded	Standard	Recorded
Residential	55	71	45	65
Commercial	65	85	55	72
Industrial	75	88	70	75

Source: Pollution Control Board, Amritsar 2006

Further, it has been observed that the city lacks in computerized noise monitoring stations. These stations are necessary to assess realistically the problem of noise pollution in different

areas of the city at different times of the day and can plan for appropriate intervention to overcome the problem.

7.1.6 KEY ISSUES

Air Pollution

- All the zones, residential, commercial and industrial have higher levels of SPM in the air against the permissible level.
- Heavy congestion in major areas of Amritsar city especially on Bhandari Bridge Road, Hall Bazar, Lawrence Road, Crystal Chowk, etc. These areas are facing intolerable impact from air pollutants (SO_2 and NO_x), SPM and RPM.
- Use of kerosene oil as fuel by auto rickshaw in the city has lead to the deterioration of air quality.
- High smoke emission due to prolonged jams on railway crossings in absence of ROBs and increased use of personalized vehicles.

Water Pollution:

- Discharge of untreated industrial and domestic effluents, solid and biomedical waste into nallahs, drains and low lying areas of the city.
- Leaching of liquid from decomposed municipal solid waste to water table, and agricultural chemicals, pesticides and fertilizers into aquifer.
- Unawareness among the residents for use of scientific techniques of water conservation such as Rain water harvesting.
- Untreated sewage is disposed off into surface sources of Ganda Nallah, causing high degree of environmental pollution.
- Water is polluted due to untreated industrial effluents disposed off into the nallah.
- Deterioration of ground water characteristics in the village abadis situated near to nallah/drains have rendered it unfit for potable use and for irrigation purposes. The use of such polluted water has resulted in people suffering from water borne diseases.
- Lack of periodic monitoring of water quality in different areas of the city.

Noise Pollution

- Lack of regular computerized noise as well as air and water monitoring stations in the city to assess the levels in different areas at different times of the day. Moreover, no regular publication of the data monitored to aware the public about it.

- Lack of delineation of Silence Zones covering education, health, etc. related buildings which could be separated from other zones.
- Lack of administrative and political will to take stringent action against the parties causing pollution.

Land Pollution

- Non compatibility of landuse is also creating land pollution.
- Lack of a mechanism to centrally dispose off used batteries, electronic waste, CFC gases, fused tubes, CFL bulbs, etc. to control mercury and other emissions.

7.2 DISASTER MITIGATION AND MANAGEMENT

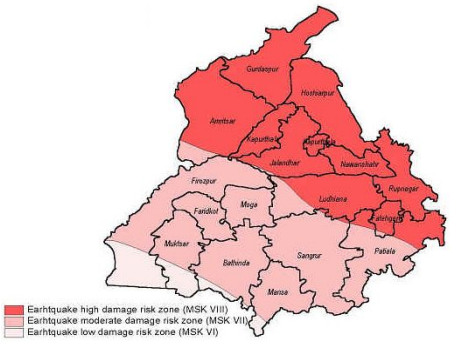


Fig. 121: Earthquake Zoning of Punjab

Disasters have always co-existed with civilization. With technological advancement, development initiatives resulted in the creation of lot of infrastructure and permanent assets. Gradually material development detached man from nature on one hand, and increased vulnerability of the human population, on the other. The progressive increase in loss of life, property and deleterious effect on environment due to disaster caused the international community to look at disaster management in a new perspective, which transcends international barriers, anticipates possible threats and enables tacking of disaster from the pre-stage. Disaster can be classified as natural, industrial and manmade disasters. Natural disasters include earthquake, flood, cyclone, landslide, tsunami, drought, etc. Industrial disasters include fire, chemical hazard, etc. Manmade disaster includes accidents.

7.2.1 EARTHQUAKE

Fig no.122 Old age buildings in dilapidated condition in the walled city

The whole of Amritsar district along with Amritsar city, which is an important religious and cultural center of international repute, falls in seismic zone IV. Amritsar district is situated in a region, which is liable to slight to moderate damage due to earthquakes. The Great Himalayan Boundary fault zone, which runs from Assam to Kashmir, has witnessed some of the great Indian earthquakes. It has also experienced occasionally the fringe effect of the earthquakes originating in the Karakoram and Hindukush region.

7.2.2 FIRE

Apart from being the part of seismic zone IV, the city of Amritsar is also threatened by fire hazard due to following reasons:

- Non- implementation of fire safety norms as part of building byelaws.
- Illegal and loose electric connections.
- Sub-standard wiring and over loading of electricity system.
- Illegal storage and hazardous commercial activities.
- Inadequate availability of special fire fighting equipments.
- No practice of Soil Test before construction by the individuals in spite of the region being in the Seismic Zone IV.

Moreover, due care needs to be taken in designing storm water drains to control the flooding during time of cloud burst or heavy rains. The buildings in this region should be designed keeping in mind the wind speed of entire region, which is 47m/s (169km/hr as per IS 187 (part 3).

The district is having a District Disaster Management Committee, which involves all important stakeholders of the District. The overall in charge of the committee is the Deputy Commissioner, Amritsar. Important stakeholders for City Disaster Management Committee includes representatives from M.C. Office, all Gazetted officers of DC office, PWD, NGOs, etc. The Walled City area of Amritsar has been identified as critical in case of any disastrous situation because of the age-old buildings. Further the new buildings being constructed should be in compliance with the design parameters given under IS 1893 with taking due consideration of prevailing housing constructions and development guidelines and National Building Code.

To fight with disasters, the city has 13 zone level committees, which have been made to take decisions at zonal level for disaster management. Each committee consists of ward councilors, medical officers, fire officers, police in charge of divisions, civil defense officers, NGOs etc. The responsibility of the committees is to identify volunteers within each zone and carry out the training, and social and vulnerability mapping within each ward.

7.2.3 ONGOING PROJECTS/PROPOSALS

UEVRP (Urban Earthquake Vulnerability Reduction Project)

In terms of disaster management, city area is covered under the UEVRP project, which is under Govt. of India-UNDP Disaster Risk Management Programme. The project is of Ministry of Home Affairs in collaboration with UNDP, under which the funding to the nodal

agency (Amritsar District Administration) is from UNDP. The project initiated in the city in 2004. It involved five major components:

- Awareness Generation
- Earthquake Preparedness and Response Planning
- Training and Capacity Building
- Techno Legal Regime
- Networking

7.2.4 KEY ISSUES

Earthquake

- The LPA falls in Seismic Zone IV of Earthquake Zoning Map of India, with possibility of quakes up to 7.9 Richter scale.
- Poor condition of building structures especially within the walled city area.
- Negligence of design parameters for construction of buildings as per compliance with IS 1893.
- Insufficient attention to the implementation of earthquake safety measures while construction/repairing of building.

Flood and Water Logging

- Poor condition of storm water drains & slow process of adopting Rainwater Harvesting Technology within city & LPA to prevent city from water logging, specially in low lying areas.
- Negligible measures taken up to prevent water logging, because of its concentration in rainy season only.

Fire Hazard

- Non-implementation of fire safety norms as part of building byelaws.
- Illegal and loose electric connections & sub-standard wiring and over loading of electricity system.
- Illegal storage of hazardous commercial activities & inadequate availability of special fire fighting equipments.

Rainwater Harvesting

- Lack of awareness among the residents.
- Not made a part of Building Bye Laws and Development Control Regulations till now.

CHAPTER 8

FINANCIAL ASPECT

The chapter details out the municipal finances of the Municipal Corporation and other entities involved in the provision of services and outline the receipts and expenditure over the last five years. The attempts have also been made to connect the financial income and expenditure with the implementation part of planning aspects.

REVIEW OF EXISTING FISCAL AND FINANCIAL SITUATION

The purpose of this section is to review and analyze the existing financial situation in terms of trends in revenues and expenditures and authorities concerned with the development of city. The entities, which have been studied, are:

- Municipal Corporation Amritsar
- Amritsar Improvement Trust
- Amritsar Development Authority (ADA)

8.1 MUNICIPAL CORPORATION, AMRITSAR

The municipal finances of the Municipal Corporation, Amritsar have been reviewed for the last five years, commencing from the financial year 2003-04 to 2007-08. The items of both receipts and expenditure are classified under revenue and capital accounts as per their sources and uses.

The revenue income of Municipal Corporation has grown to a level of Rs 10109.49 lakhs in FY 2007-08 from Rs 8060.21 lakhs during FY 2003-04, registering a CAGR of 5.82 percent, while revenue expenditure increased at a CAGR of 8.52 percent. It projects not a good financial condition of Municipal Corporation. However, the pressure of capital expenses on the revenue account is increasing year after year. This situation demands expenditure control measures and planned capital investments on the part of Municipal Corporation.

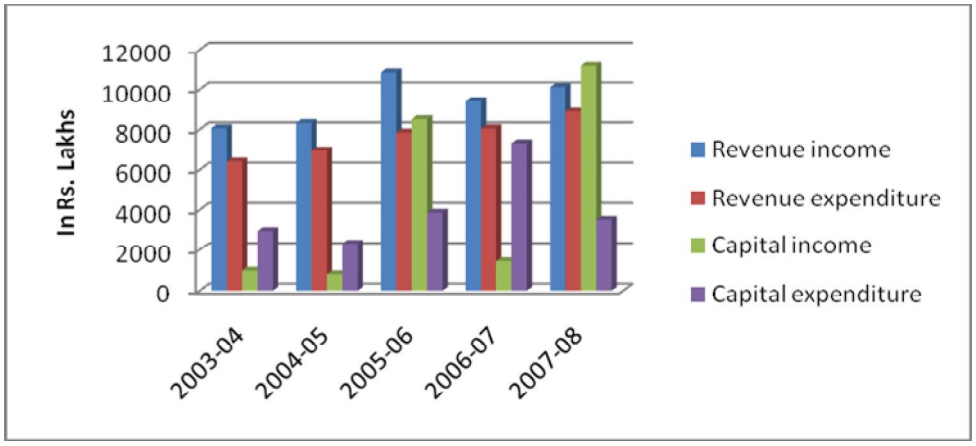
Table 79: Financial Status at a Glance

Item	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR
Revenue Account						
Opening balance	147.22	244.38	719.56	420.9	147.76	
Income	8060.21	8316.78	10834.16	9411.6	10109.49	5.82
Expenditure	6397.46	6962.69	7842.52	8047.95	8873.52	8.52
Surplus	1809.97	1598.47	3711.2	1784.55	1383.73	(6.49)
% of Revenue Surplus	22.4	19.2	34.2	19	14	
Capital Account						
Income	970.57	793.86	8506.50	1437.69	11162.69	84.15
Expenditure	2943.05	2313.02	3857.17	7320.17	3501.51	4.43
Surplus/Deficit	(1972.48)	(1519.16)	4649.33	(5882.48)	7661.18	0

Source: Income & Expenditure Budget 2003-04 to 2007-08, Municipal Corporation

The capital income of Municipal Corporation comprises of loans, grants and internal transfers from revenue to capital account for utilization towards asset creation. It is observed that external sources in form of grants contribute in the capital income during the review period.

Fig no.123: Trends in MC income and expenditure

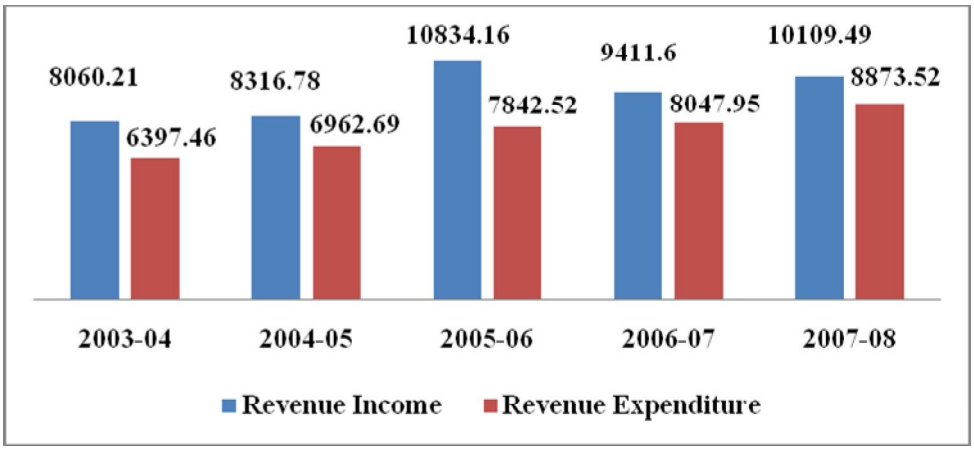


The following sections provide in-depth review of the revenue account in order to assess the Municipal Corporation fiscal status and to provide a base for determining the potential of each source and the ability of Municipal Corporation to sustain the extent of planned investments identified under the Master Plan.

8.1.1 REVENUE ACCOUNT

The revenue account comprises two components – revenue income and revenue expenditure. Revenue income comprises internal resources in the form of tax and non-tax items and external resources, which are constituted of shared taxes/transfers and revenue grants from the State and Central Government. Revenue expenditure comprises expenditure incurred on salaries, operation & maintenance cost, contributions and donations and debt servicing.

Fig no. 124: Revenue Account of Municipal Corporation



A) Revenue Income

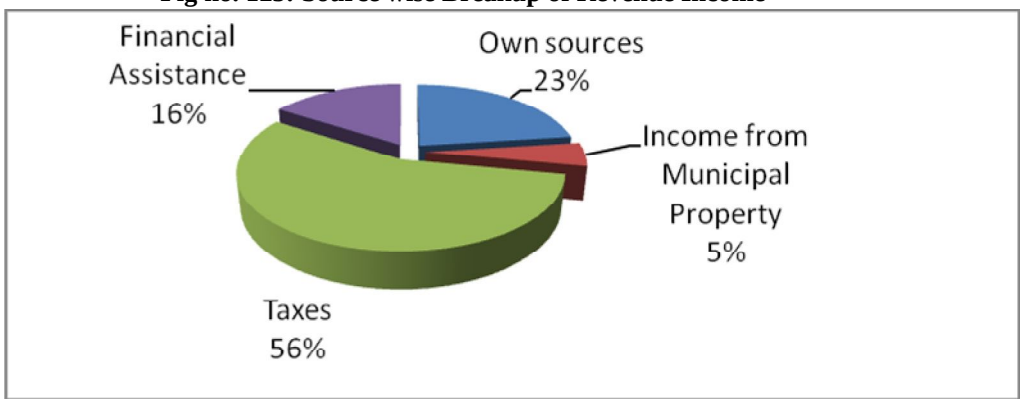
The revenue sources of Municipal Corporation can be broadly classified into own sources, income from municipal properties, taxes etc. The source wise income generated during the period is presented in table below:

Table 80: **Source-Wise Revenue Income**

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR	% Share of total income
Own Sources	1976.97	2380.04	2592.44	1765.91	2111.58	1.66	23
Income from M.Property (excl. Sale of Land)	534.31	225.46	209.53	657.08	462.81	(3.52)	5
Taxes	5548.93	5711.28	8032.19	4525.14	2411.94	(18.80)	56
Financial assistance (in lieu of abolition of octroi)	0.00	0.00	0.00	2463.47	5123.16	0	16
Total	**8060.21**	**8316.78**	**10834.16**	**9411.6**	**10109.49**	**(5.82)**	

Source: Income & Expenditure Budget 2003-04 to 2007-08, Municipal Corporation

Fig no. 125: Source wise Breakup of Revenue Income



Own sources

Own sources income includes income from Revenue fee (slaughter house fee, copying fee, building application fee, etc.), Revenue service account, income from Tehbazari etc. Income from own sources is 23% of the revenue income, which shows that sources are not sufficient to cover the expenses of corporation. So it depends highly on external resources for its operations.

Taxes

The major source of income for MCA is taxes. It is decreasing at a rate of 18.8% and contributing about 56% of total revenue income**.**

Table 81: Income from Taxes

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR	% Share of total income
House Tax	560.19	633.41	656.11	729.44	998.69	15.55	14
Excise Duty	161.81	171.41	2310.71	1393.11	624.52	40.16	18
Octroi	4805.54	4878.06	5026.68	2329.68	652.86	(39.28)	67
Other Taxes	21.39	28.4	38.69	72.91	135.87	58.75	1
Total	**5548.93**	**5711.28**	**8032.19**	**4525.14**	**2411.94**	**(18.80)**	

Source: Income & Expenditure Budget 2003-04 to 2007-08, Municipal Corporation

- **House Tax**

The revenue income from House tax has grown to a level of Rs. 998.69 lakhs in FY 2007-08 from Rs 560.19 lakhs during FY 2003-04, registering a CAGR of 15.55 percent.

- **Octroi**

Another source of income for Municipal Corporation is Octroi registering a decreasing CAGR of 39.28 percent.

Financial Assistance

Punjab Government has abolished Octroi on all goods except on petrol, diesel and electricity, which had played an important role in income from Octroi. And in lieu of that, government has make the provision of compensation in form of financial assistance against the loss of income from octroi. This compensation is provided on the basis of octroi collected during last five years. In year 2006-07, the financial compensation was Rs.2463.47, which increased to Rs.5123.16 in year 2007-08. (Refer table no 80)

Income from Municipal Property:

Income from Municipal property accounts for about 5 percent of revenue income and has registered a decreasing CAGR of 3.52 percent

B) Revenue Expenditure

The revenue expenditure of M.C. has been analyzed based on expenditure heads. These are broadly classified into two main heads General Department expenditure and Water Supply and Sewerage Department expenditure.

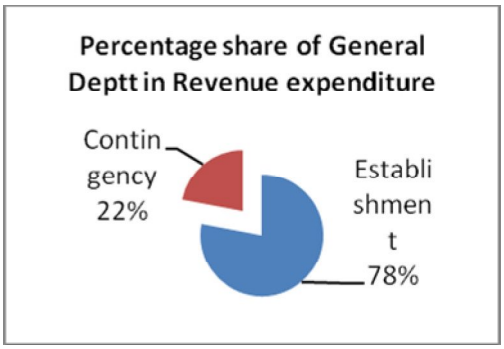
Table 82: **Application of Funds by Heads of Account**

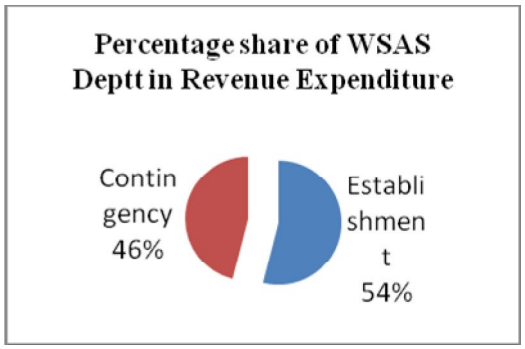
Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	% Share of total expenditure	CAGR
General Department	In Rs. Lakhs						
Establishment	3529.94	3982.05	4312.04	4463.19	5109.64	78	6.43
Contingency	1007.92	1059.32	1394.25	1388.62	1279.67	22	4.83
Total	4537.86	5041.37	5706.29	5851.81	6389.31		6.10

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	% Share of total expenditure	CAGR
WSAS Department							
Establishment	984.77	1067.64	1143.89	1184.61	1371.64	54	8.63
Contingency	874.83	853.68	992.34	1011.53	1112.57	46	6.19
Total	**1859.6**	**1921.32**	**2136.23**	**2196.14**	**2484.21**		7.50
Grand Total	6397.46	6962.69	7842.52	8047.95	8873.52		8.52

Source: Income & Expenditure Budget 2003-04 to 2007-08, Municipal Corporation

Fig no. 126 and 127 Percentage Share of General Deptt. and WSAS Deptt. in Revenue Expenditure

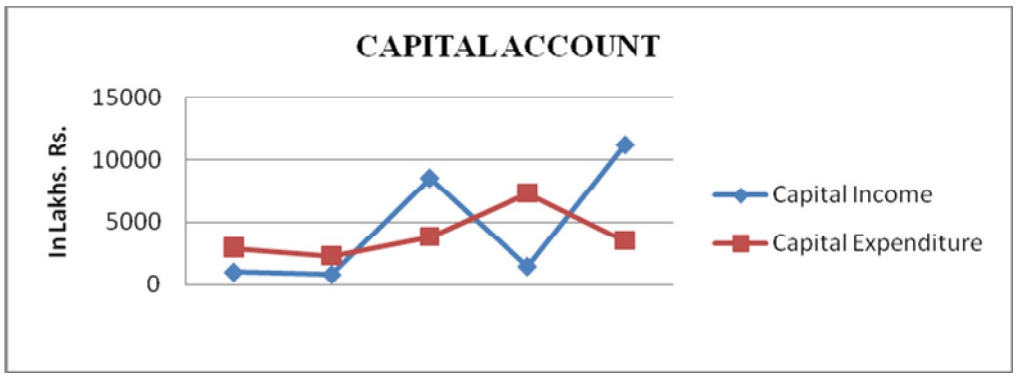




8.1.2 CAPITAL ACCOUNT:

The Municipal Corporation spends on capital works such as development of roads, construction of streets and drains, slum improvement, etc.

Figure No. 128 Capital Account of MC, Amritsar



A) Capital Income:

In general, the capital income of Municipal Corporation comprises of loans, grants, contributions and transfers from revenue surplus. Sale proceeds contribute the major part in Capital Income with 47 percent of total capital receipts during the review period, loans 46 percent and capital grants for the rest.

Table 83: Details of Capital Account (In lakhs Rs.)

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	% Share of total income/expenditure	CAGR
Capital Income (Rs. In Lakhs)							
Capital Grants	0.00	0.00	0.00	1026.21	689.58	7	-
Loans	515.78	0.00	0.00	0.00	10000	46	109.83
Sale Proceeds	454.79	793.86	8506.50	411.48	473.11	47	0.99
Total	970.57	793.86	8506.50	1437.69	11162.69		84.15
Capital Expenditure							
WSAS Department	1459.89	817.79	1342.25	1372.60	544.60	28	(21.84)
Development of Roads	375.46	301.03	686.72	1658.64	266.61	16	(8.20)
Mohalla Sudhar Committees	130.70	121.54	157.72	84.25	299.29	4	23.01
Construction of Streets & Drains	299.41	219.71	660.73	1082.57	379.80	13	6.12
Additional Street Lights	296.87	328.66	425	462.46	242.90	10	(4.89)
Slum Improvement	66.70	96.52	193.34	730.10	177.95	6	27.80
Others	314.02	427.77	391.41	1929.55	1590.36	23	50.01
Total	2943.05	2313.02	3857.17	7320.17	3501.51		4.43

Source: Income & Expenditure Budget 2003-04 to 2007-08, Municipal Corporation

The figure presented in Table 83 indicates that about 87 percent of Municipal Corporation capital expenditure during the review period is met from its capital receipts. The rest is contributed by the revenue/municipal surpluses.

On an average, over the past five years, the majority of capital expenditure has been directed towards public works. Major investments have been in the water supply & sewerage sector, which accounted for 28 percent of the total investment. Despite the major investment, there are no water treatment plants, which effect the quality of water. Also, there is no new/upgradation of water pipelines, due to which there is huge loss of water. As a result, 10% of population is still uncovered by water supply network. On the other hand, only 36% of population is covered by sewerage network with no facility for the Sewage Treatment Plant. Next higher 23% of investment has been directed towards others works i.e. on public toilets, sports activities & gymnasium, construction of municipal buildings, etc. Lastly, just 6% of investment has been spent on slum improvement.

In the overall municipal finance system, it is observed that Municipal Corporation has generated 56% of total revenue income through Taxes (octroi, excise duty, etc.) and 47% of total capital income comes from sale proceeds during last five years. The maximum revenue expenditure is incurred on general administration i.e. 78%, and just 28% of total capital expenditure is incurred by Water Supply & Sewerage Department on development works.

8.2 IMPROVEMENT TRUST

The financial position of the Improvement Trust has been reviewed for the last five years, commencing from the financial year 2003-04 to 2007-08. The items of both receipts and expenditure are classified under revenue and capital accounts as per their sources and uses.

The revenue income of Improvement Trust is reduced from a level of Rs. 1347.43 lakhs in FY 2003-04 to Rs 846.47 lakhs during FY 2007-08, registering a decreasing CAGR of 10.97 percent, while revenue expenditure decreased at a CAGR of 8.55 percent. Revenue account is registering a reducing revenue surplus at a decreasing CAGR of 23.12, which projects poor financial management of Improvement Trust. However, the pressure of capital expenses on the revenue account is increasing year after year. This situation demands expenditure control measures and planned capital investments.

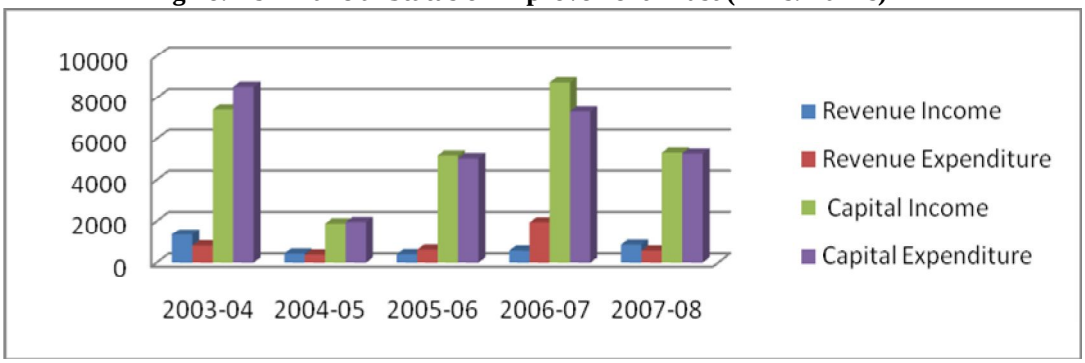
Table 84: Financial Status at a Glance

Item	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR
Revenue Account	**Rs in Lakhs**					
Opening balance	849.54	254.62	233.74	155.73	203.01	
Income	1347.43	424.96	395.82	559.12	846.47	(10.97)
Expenditure	806.01	373.03	608.08	1943.03	563.6	(8.55)
Surplus	1390.96	306.55	21.48	(1228.18)	485.88	(23.12)
% of Revenue Income	103	72	5.42	(220)	57.4	(13.59)
Capital Account						
Income	7406.96	1888.35	5146.41	8749.82	5279.57	(8.11)
Expenditure	8543.3	1961.16	5012.16	7318.63	5238.09	(11.51)
Surplus/ Deficit	(1136.3)	(72.81)	134.25	1431.19	41.48	-

Source: Income & Expenditure Budget 2003-04 to 2007-08, Improvement Trust

The capital income of Improvement Trust comprises loans, grants and internal transfers from revenue to capital account for utilization towards asset creation. It is observed that external sources in form of grants contribute in the capital income during the review period.

Fig no.129 Financial Status of Improvement Trust (in Rs. Lakhs)



The following sections provide an in-depth review of the revenue account, in order to assess the fiscal status and to provide a base for determining the potential of each of the sources and the ability of Improvement Trust to sustain the extent of upcoming investments.

8.2.1 Revenue Account

The revenue account comprises two components - revenue income and revenue expenditure. Revenue income comprises internal resources in the form of tax and non-tax items. External resources constitute of shared taxes/transfers and revenue grants from the State and Central Government. Revenue expenditure comprises expenditure incurred on salaries, operation & maintenance cost, contributions and donations.

A) Revenue Income

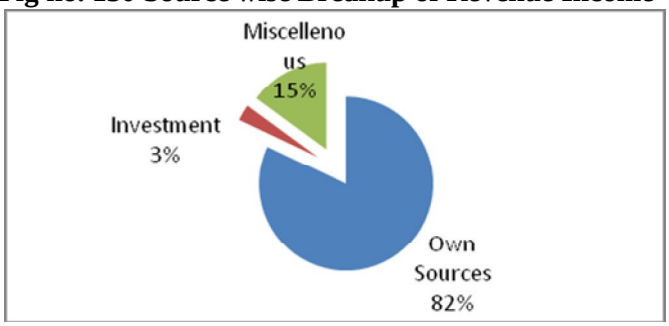
The revenue sources of Improvement Trust can be broadly categorized into own sources, investments, etc. The source wise income generated during the review period is shown in the following table:

Table 85: Source wise Revenue income (in Rs. Lakhs)

Item	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR	% Share of total income
Own Sources	1125.98	439.63	317.65	400.92	635.88	(13.31)	82
Investments	62.73	3.60	20.74	11.87	13.44	(31.96)	3
Miscellaneous & Unclassified	158.72	(18.27)	57.43	146.33	197.15	5.57	15
Total	**1347.43**	**424.96**	**395.82**	**559.12**	**846.47**	**(10.97)**	

Source: Income & Expenditure Budget 2003-04 to 2007-08, Improvement Trust

Fig no. 130 Source wise Breakup of Revenue Income



Own sources

Own sources income includes income from fines & penalties, fees, interest on deposits, income from earnest money, income from Cess charges, etc. Income from own sources is 82% of the revenue income.

Non-Tax Revenue (Miscellaneous & Unclassified)

Non-tax source include all non-tax revenue such as fees and charges levied. These sources include income from recovery of advances, suspended account, etc. The non-tax income of Improvement Trust contributes 15% of its total revenue income but it goes on increasing at a CAGR of 5.57 percent**.**

B) Revenue Expenditure

The revenue expenditure of Improvement Trust has been analyzed based on expenditure heads. It has been broadly classified into Establishment expenditure, Contingency and Miscellaneous category.

The application of funds by account head is given in table 86, which indicates that the overall revenue expenditure registers a decreasing CAGR of 8.55 percent against a reducing CAGR of 10.97 percent of revenue income.

Table 86: Application of funds by head of Account

Financial	2003-04	2004-	2005-	2006-	2007-08	% Share of total	CAGR
In Rs. Lakhs							
Establishment	282.87	324.04	353.36	382.95	399.93	41	9.04
Contingency	21.17	26.65	19.93	13.08	13.17	2	(11.18)
Miscellaneous	501.97	22.34	234.79	1547	150.5	57	(26.00)
Total	806.01	373.03	608.08	1943.03	563.6		(8.55)

Source: Income & Expenditure Budget 2003-04 to 2007-08, Improvement Trust

8.2.2 Capital Account

In general, the capital income of Improvement Trust comprises of loans, grants, and contributions and transfers from revenue surplus. The Sale Proceeds contribute the major part in Capital Income with 62 percent, Loans with 31 percent of total capital receipts during the review period, and Deposits of Earnest money and Grants for the rest.

Table 87: Details of Capital Account

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	% Share of total income/expenditure	CAGR
Capital Income (In Rs. Lakhs)							
Capital Grants	0.32	(0.24)	70.39	603.52	21.13	2	185.06
Loans	5000.23	0.66	0.28	3250.23	505.93	31	(43.6)
Sale Proceeds	2279.11	1852.39	4686.58	4094.23	4655.69	62	19.55
Deposit of Earnest Money	127.30	35.54	389.16	801.84	96.82	5	(6.61)
Total	7406.96	1888.35	5146.41	8749.82	5279.57		(8.11)
Capital Expenditure (In Rs. Lakhs)							
Cost of Land	5883.61	5.38	3.51	3343.88	624.50	35	(42.92)
Works & Schemes	609.81	310.64	663.80	1414.16	493.75	12	(5.14)
Tools & Machinery	9.97	14.37	18.81	19.84	18.46	0.29	16.64
Law Charges	2.88	6.73	7.31	8.58	4.58	0.10	12.29
Maintenance of Open Spaces	52.86	52.97	106.65	3.50	3.83	1	(48.11)
Tribunal	0.66	1.13	1.07	1.36	1.49	0.02	22.57
Sale of Trust Land	49.05	56.00	352.43	121.47	644.53	4.35	90.39
Audit Fees	4.50	3.18	6.83	7.31	7.65	0.10	14.18
Repayment of Loan	1507.89	1100	2700	140.55	1902.27	26	5.98
Other Works	422.07	410.76	1151.75	2257.98	1537.03	21	38.14
Total	8543.3	1961.16	5012.16	7318.63	5238.09		(11.51)

Source: Income & Expenditure Budget 2003-04 to 2007-08, Improvement Trust

The figure shown in above Table 87 indicates that the capital expenditure has been fulfilled by capital income during review period.

On an average, over the past five years, the majority of capital expenditure has been directed towards purchase of land, which accounted for 35 percent of the total investment, followed by Repayment of loans, which is 26%. As the main function of Improvement Trust is to develop & maintain the various developmental works and schemes, but from the above figures it is observed that only 12% of total development expenditure is spent on them. It means that resources are not efficiently utilized and are being diverted towards repayment of loans, which is not on healthier side.

Table 88: Scheme Wise Details of Development and Maintenance Expenditures (in Rs. Lakhs)

Works/Schemes	2003-04		2004-05		2005-06		2006-07		2007-08	
	Development Exp.	Maintenance Exp.	Development Exp.	Maintenance Exp.	Development Exp.	Maintenance Exp.	Development Exp.	Maintenance Exp.	Development Exp.	Maintenance Exp.
Truck Stand	32.22	2.25	3.75	1.77	91.53	12.86	47.57	10.61	23.18	7.21
Opposite Guru Nanak Dev University	14.77	7.68	4.54	5.39	44.09	11.05	13.50	13.69	1.84	6.21
Ajnala Road Exp. Scheme (97 Acres)	133.87	0.00	83.91	24.31	224.44	0.00	257.45	0.00	136.66	33.35
Ajnala Road Exp, Scheme C,D,E &DSC	0.00	26.70	0.00	0.00	0.00	45.43	0.00	42.47	0.00	7.28
340-Acres Scheme	133.58	0.00	159.37	0.00	42.24	14.28	39.16	31.50	48.53	31.38
Mall Mandi Scheme	0.00	0.00	0.00	0.00	85.46	0.00	162.45	0.00	22.56	0.00
City Centre Scheme	45.53	0.00	31.46	0.00	43.69	0.00	46.51	0.00	31.36	1.10
Scheme no.60	0.00	0.00	0.00	0.00	0.00	0.00	21.76	0.00	0.00	1.68
Scheme no.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.71
Nehru Shopping Complex	233.42	0.00	9.65	0.00	26.29	0.00	19.30	0.00	0.00	30.27
Other Schemes	16.42	11.25	17.96	12.12	16.00	11.81	6.19	24.12	6.57	30.64
Dharam Singh Market	0.00	2.73	0.00	3.65	0.00	1.95	0.00	2.81	0.00	5.11
Trust Office Building	0.00	2.03	0.00	1.68	0.00	2.71	0.00	5.94	0.00	5.80
Gawal Mandi Scheme	0.00	0.00	0.00	1.83	0.00	0.20	0.00	0.04	0.00	0.00
Ghanta Ghar Market	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Buildings	0.00	0.00	0.00	0.37	0.00	3.10	0.00	3.23	0.00	1.16
Advertisement Charges	0.00	0.00	0.00	0.00	19.84	0.00	28.86	0.00	6.57	0.00
Grants Work	0.00	0.00	0.00	0.00	0.00	0.00	637	0.00	48.46	0.00
Total	**609.81**	**52.86**	**310.64**	**51.12**	**593.58**	**103.39**	**1279.75**	**134.41**	**325.73**	**170.9**

Source: Income & Expenditure Budget 2003-04 to 2007-08, improvement trust

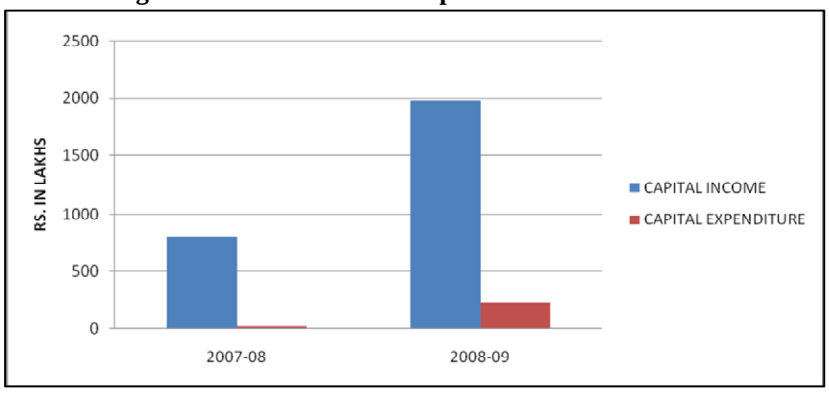
8.3 AMRITSAR DEVELOPMENT AUTHORITY (ADA)

The Amritsar Development Authority (ADA) has come into existence on 16.07.2007 under section 29(i) of The Punjab Regional Town Planning and Development Act, 1995. As the Authority has recently come into existence, its last 5-year budget is not available. So only the revised budget estimate for the year 2007-08 and budget for year 2008-09 are taken for study. The object of framing Authority is proper development of area falling in and around Amritsar city and particularly the jurisdiction of ADA.

8.3.1 REVENUE ACCOUNT AND CAPITAL ACCOUNT

The revenue account comprises of two components, revenue income and revenue expenditure. Revenue income comprises of interest on installments received from houses, residential plots, other revenue receipts, receipts from engineering wing, etc. Revenue expenditure comprises of expenditure incurred on pays and allowances, in office contingencies work and other miscellaneous expenditures. Capital account comprises of two components, capital income and capital expenditure. Capital income comprises of receipts, which is received from applicants for houses, plots, commercial and institutional plots, receipts of fees, External Development Charges (EDC), etc.

Fig no. 131: Revenue and Capital Account of ADA



A) Revenue Income and Capital Income:

Revenue income comprises of income from following sources:

1. Interest on installments, which is received from :

a.) Houses, residential plots, and commercial plots

2. Other revenue receipts, which is received from:

a.) Houses

b.) Plots

3. Receipts of engineering wing

4. Interest on FDRs

If we analyze the figures, it is observed that there is huge gap in figures of income of both the years. Capital income is the income, which is received as 25% (earnest money) from applicants for houses, plots, commercial and institutional plots.

Table 89: The Details of Capital and Revenue Receipts of ADA are as follows:

S.NO	Particulars	Revised Estimates for 2007-08 (fig in lakhs)	Budget for year 2008-09 (fig in lakhs)
1	**CAPITAL RECEIPT**		
A	i) 25% from applicants for Houses	….x….	5.25
	ii) 25% from applicants for plots	15.18	42.16
	iii) 25% from applicants for commercial & institutional	….x….	….x…
	Total	15.18	47.41
B	RECOVERIES (PRINCIPAL)		
	Houses F-1	16.11	7.25
	Residential Plots F-2	20.18	36.60
	Comm. & institutional F-3	2.67	4.57
	Total	38.96	48.42
C	RECEIPT OF EDC/L FEE/CLU	749.25	1885.00
	Total	749.25	1885.00
	GRAND TOTAL (A+B+C)	**803.39**	**1980.83**
2	**REVENUE RECEIPT**		
D	INTEREST ON INSTALLMENTS		
	Houses F-1	5.38	3.10
	Resi. Plots F-2	10.36	8.09
	Comm. & Institutional F-3	…x…	0.46
	Total	15.74	11.65
E	OTHER REVENUE RECEIPT		
	Houses	6.80	3.91
	Plots	11.60	15.20
	Total	18.40	19.11
F	RECEIPT OF ENGINEERING WING		
	Divisional Engineer (w)	0.01	1.25
	Total	0.01	1.25
G	INTEREST ON FDRs, ACA, ADA	0.35	65.00
	GRAND TOTAL(D+E+F+G)	**34.50**	**97.01**

Source: Income & Expenditure Budget 2007-08 to 2008-2009, ADA

B) Revenue and Capital Expenditure:

Revenue expenditure is incurred on following areas:

1. On pays and allowances of staff members
2. Leave, salary and pension
3. Other miscellaneous expenditures.

In year 2007-08, the budget for this head is kept more as compared to revenue income i.e. 94.72 lakhs.

Capital expenditure is expenditure which is incurred on developmental and maintenance of works and schemes. The details of Revenue and Capital Expenditures of ADA are as follows:

A) Capital Expenditure

Table 90: Details of Expenditure on Development Works

Sr. No	Name of Scheme	Revised estimate for 2007-08 (fig in lakhs)	Budget for 2008-09 (fig in lakhs)
A	DEVELOPMENT OF WORKS		
	i) Divisional engineer	22.51	185.21
B	Chief Administrator, ADA, Asr	…x…	18.00
C	Addl. Chief Administrator ADA, Asr	…x…	33.00
	Total	**22.51**	**236.21**

Source: Income & Expenditure Budget 2007-08 to 2008-2009, ADA

B) Revenue Expenditure

Table 91: Schedule of Establishment & Contingency Works

S. No.	Particulars	Revised Budget Estimate For Year 2007-08 (In Lakhs)	Budget For Year 2008-09 (In Lakhs)
	PAYS & ALLOWANCES		
1	Divisional Engineer	37.63	1.00
2	Estate Office, ADA	46.05	2.00
	Total	83.68	3.00
	MEDICAL REMIBURSEMENT		
1	Divisional Engineer	…x…	4.00
2	Estate Office, ADA	1.75	…x…
	Total	1.75	4.00
	TRAVEL ALLOWANCE		
1	Divisional Engineer	0.57	0.20
2	Estate Office, ADA	0.40	…x…
	Total	0.97	0.20
	LEAVE SALARY & PENSION		
1	Divisional Engineer	…x…	…x..
2	Estate Office, ADA	2.80	…x…
	Total	2.80	…x...
	OFFICE CONTINGENCY		
1	Divisional Engineer	2.89	3.70
2	Estate Office, ADA	2.22	5.40
	Total	5.11	9.10
	MISC. EXPENDITURE		
1	Divisional Engineer	…x…	1.45
2	Estate Office, ADA	0.41	620
	Total	0.41	7.65
	GRAND TOTAL	**94.72**	**23.95**

Source: Income & Expenditure Budget 2007-08 to 2008-2009, ADA

It is observed from above tables that budget is kept more for revenue expenditure. The reason being that provision is kept more for establishment expenditure i.e. for pays and allowances, for leave salary and medical reimbursement. The concerned authority should lessen the amount of revenue expenditure and should utilize the same for development of works and schemes for benefit of society.

8.4 KEY ISSUES

- It is observed that authority's revenue expenditure budget is more than its revenue income. There is deficit, which is not on healthier side.
- Revenue expenditure is kept more for establishment expenses i.e. for pays & allowances and not on development works.
- The budgeted figures of capital account are showing surplus indicating that there is under utilization of funds available for carrying out the developmental works.
- No urban estate has been established. No town development scheme is there. Even then funds for small development works are lacking, which needs to be strengthened.

In general, it can be said that the local bodies are not financially strong enough to carry out all the development works of the city. There is overlapping of functions between the above mentioned authorities. For smooth and longer running of these institutions, a transparent and effective mechanism to collect taxes must be introduced as these bodies have enough property within the city to generate resources.

CHAPTER 9

VISUALISING THE FUTURE

After having in depth study and analysis of Amritsar Local Planning Area, the next step is to project the future population upto the year 2031. This becomes important as projected population is the prime factor for the judgement of Development Plan, since it defines quantum of the existing extent of the development and future requirement by the projected population. It also lays the basis for working out the future landuse and infrastructure requirements for the Local Planning Area. For this purpose, the past trend of growth of population in Amritsar city, four other urban settlements as well as rural settlements falling in LPA has been considered.

9.1 POPULATION PROJECTION

The prime objective of any Master Plan is to assess the present situation and project the future population for plan period, and accordingly calculate the requirements of both physical and social infrastructure in order to cater to the needs of such population. To arrive at a conclusive projection figure, four methods of population projections have been used for the Amritsar city as well as the whole LPA. The methods used for projecting population are:

1. Arithmetic Progression Method.
2. Geometric Progression Method.
3. Incremental Increase Method.
4. Exponential Method.

The projected figures came from these four projection methods are as follows:

Table 92: Population Projection for Amritsar City

S.No.	Method	2001	2011	2021	2031
1	Arithmetic Progression Method	1016079	1172585	1329091	1485597
2	Geometric Progression Method	1016079	1275445	1601018	2009696
3	Incremental Increase Method	1016079	1253416	1571585	1970585
4	Exponential Method	1016079	1386729	1892587	2582974
Average		**1016079**	**1272044**	**1598570**	**2012213**

After calculating the projection figures from four methods for Amritsar city, it was found that there is much variation in the projections. So, in order to eliminate this variation in the population, the average of all figures is considered. Further, for evolving short term and long term strategies, population projections for intermediate stages including 2011 and 2021, besides 2031, have been calculated. Same procedure has been applied for all the towns of Amritsar LPA, i.e. Jandiala, Rayya, Majitha and Raja Sansi, and the villages of LPA:

JANDIALA

Table 93: Population Projections: Jandiala

S. No.	Method	2001	2011	2021	2031
1	Arithmetic Progression Method	23834	26814	29794	32773
2	Geometric Progression Method	23834	28308	33622	39933
3	Incremental Increase Method	23834	27612	32190	37565
4	Exponential Method	23834	28901	35045	42494
Average		**23834**	**27909**	**32662**	**38191**

RAYYA

Table 94: Population Projections: Rayya

S. No.	Method	2001	2011	2021	2031
1	Arithmetic Progression Method	12631	14027	15422	16818
2	Geometric Progression Method	12631	16926	22680	30391
3	Incremental Increase Method	12631	15196	18931	23836
4	Exponential Method	12631	17735	24901	34963
Average		**12631**	**15971**	**20484**	**26502**

MAJITHA

Table 95: Population Projections: Majitha

S. No.	Method	2001	2011	2021	2031
1	Arithmetic Progression Method	12992	14497	16002	17506
2	Geometric Progression Method	12992	15151	17668	20604
3	Incremental Increase Method	12992	14839	17029	19560
4	Exponential Method	12992	15324	18075	21319
Average		**12992**	**14953**	**17193**	**19747**

RAJASANSI

Table 96: Population Projections: Rajasansi

S. No.	Method	2001	2011	2021	2031
1	Arithmetic Progression Method	12176	14207	16238	18269
2	Geometric Progression Method	12176	15934	20853	27289
3	Incremental Increase Method	12176	14430	16906	19605
4	Exponential Method	12176	16469	22276	30129
Average		**12176**	**15260**	**19068**	**23823**

Villages of LPA

Table 97: Population Projections: Villages of LPA

S. No.	Method	2001	2011	2021	2031
1	Arithmetic Progression Method	582754	625319	667883	710448
2	Geometric Progression Method	582754	691146	819699	972164
3	Incremental Increase Method	582754	653695	753012	880706
4	Exponential Method	582754	703796	849978	1026524
Average		**582754**	**668489**	**772643**	**897460**

Further, it is assumed that the villages will grow at their own rate upto some extent in their respective surroundings. Here also, the average of the projected population of the villages falling in Amritsar LPA has been taken. Further, the total projected population of Amritsar LPA is shown in the table below:

Table 98: Projected Population for Amritsar LPA

S. No.	NAME	2001*	2011	2021	2031
1	**Amritsar(MC)**	**1016079**	**1272044**	**1598570**	**2012213**
2	**Raja Sansi (NP)**	12176	15260	19068	23823
3	**Majitha (M Cl)**	12992	14953	17193	19747
4	**Jandiala (M Cl)**	23834	27909	32662	38191
5	**Rayya (NP)**	12631	15971	20484	26502
6	**Villages (LPA)**	582754	668489	772643	897460
7	**Projected Population for LPA**	**1660466**	**2014626**	**2460620**	**3017936**

*Census of India, 1981, 1991 and 2001.

Thus the future planning for preparation of Amritsar Master Plan is taken assuming Municipal Corporation Amritsar will raise to population of about 20 lakhs and total LPA (including MCA, other four urban settlements and villages) to about 30 lakh. The above projected population for the four other urban settlements and villages, and LPA as whole, is calculated for decades 2011, 2021 and 2031 to have parity with census years. But for calculating the infrastructure requirements, the base years have been taken as 2017, 2024 and 2031 to implement the proposals on short, medium and long term basis. Thus, the infrastructure requirements have been calculated considering 2017, 2024 and 2031 as the base years (Refer table no.99):

Table 99: Projected Population for Amritsar LPA for Infrastructure Requirements

NAME	2010	2017	2024	2031
Amritsar (MC)	1215655	1467960	1722663	2012213
Raja Sansi (NP)	14591	17545	20495	23823
Majitha (M Cl)	14539	16297	17959	19747
Jandiala (M Cl)	27042	30761	34321	38191
Rayya (NP)	15218	18678	22289	26502
Villages (LPA)	649933	730981	810088	897460
Projected Population for LPA	**1936978**	**2282222**	**2627815**	**3017937**

Note: The population for the year 2010 has been projected from the census data

The infrastructure demand is taken out for each aspect on the basis of the population projected above and the standards given in UDPFI and others. Finally, phase wise requirement has been calculated taking the demand and the existing situation into consideration.

9.2 WORKFORCE PROJECTIONS

The workforce projections for nine industrial workers classification has been made for Amritsar M.C. based on the category wise employment data available for it from the census 2001. To estimate category wise employment for the year 2031, it has been assumed that the employment pattern of Amritsar city will be same as observed in 2001. The category wise employment data for 2001 and employment forecast for Amritsar M.C upto the year 2031 is given in the table below:

Table 100: Main Workers and Projected Workforce Category Wise of Amritsar M.C

Categories as per 2001 Census		Amritsar (M. C.) 2001	%age of Main Workers	Projected Workforce		
				2011	2021	2031
Population		1016079	-	1272044	1598570	2012213
Main Workers		308197	100.00	385811	484846	610318
A & B	Cultivators	2551	0.83	3193	4013	5052
	Agriculture, Hunting, Forestry	5303	1.72	6639	8343	10502
	Fishing, Hunting and Allied Activities	3023	0.98	3784	4756	5986
C	Mining & Quarrying	212	0.07	266	334	420
D	Household Industry	12756	4.14	15968	20067	25260
	Non Household Industry	67632	21.94	84664	106397	133931
E	Electricity, Gas & Water Supply	3592	1.17	4496	5650	7112
F	Construction	20989	6.81	26275	33019	41564
G	Whole Sale & Retail Trade	79033	25.64	98935	124331	156507
H	Hotels & Restaurants	4073	1.32	5099	6408	8066
I	Transport, Storage & Communication	24595	7.98	30789	38693	48706
J & K	Finance, Real Estate and Business Services	19814	6.43	24804	31170	39237
L to Q	Public Admininstration & Other Services	64624	20.97	80898	101664	127974

9.3. INFRASTRUCTURE PROJECTIONS

9.3.1 PHYSICAL INFRASTRUCTURE

The key issue regarding the sustainable development of Local Planning Area, Amritsar is availability of quality and quantity of physical infrastructure to serve the felt needs of people. The projected or expected growth of population may indicate the inadequacies, deficiencies and severe pressure on existing infrastructure. So, it is mandatory to work out the infrastructural requirements for the future projected population.

The infrastructure backlog and demand has been calculated for both Amritsar M.C and four other urban settlements falling in Amritsar LPA on the basis of projected population and the standards given in UDPFI guidelines. Since, Amritsar has attained the status of metropolitan city and has high growth potential, the higher ranges of these norms are being adopted for calculation of the projected infrastructure requirements. The physical infrastructure requirements of urban settlements are given:

9.3.1.1 Water Supply

The estimated water demand for a city is broadly classified as domestic and non-domestic. The domestic water demand includes per capita consumption and system losses, while non domestic water demand includes industrial and commercial consumption, institutional consumption and fire fighting demand.

Domestic Requirement

The domestic water requirement up to the year 2031for Amritsar metropolis have been calculated by taking the desirable norm of 200 LPCD for large and metro cities as given in UDPFI guidelines. The projections for water requirements in different phases have been shown in the table below:

Table 101: Projections and Requirements of Different Aspects of Water Supply System

Service Head		Existing/ Desired Level			Service Levels, Demand and Gaps							
							By Year 2017		By Year 2024		By Year 2031	
		Indicator	Current level	Desired Level	Unit	Existing (2010)	Demand	Requirement	Demand	Requirement	Demand	Requirement
1	Daily Supply	Per-capita supply (LPCD)	130	200	MLD	137.6	293.6	156	344.5	50.9	402.4	57.9
2	Treatment	Treatment capacity against supply (%)	90.0	100.0	MLD	139.5	293.6	154.1	344.5	50.9	402.4	57.9
3	Distribution Network	Distribution Network length against road length (%)	196	85.00	KM	990.0	1197.9	207.9	1405.7	415.7	1642.0	236.3
4	Elevated Storage Capacity	Elevated Storage Capacity w.r.t. Supply (%)	12.35	33.00	ML	17.0	96.9	79.9	113.7	16.8	132.8	19.1
5	Metering System/ Installation of water meters		-	-	Nos	129055	293592	164537	344533	50941	402443	57910

Non-Domestic Requirement

Industrial Demand: Bulk water supplied to industrial establishment will be considered as per specific requirement of each industry. However, the figure of 200 lpcd includes water requirements for commercial, institutional and minor industries.

Fire Demand: As per CPHEEO recommendations, a provision of 100 kilo liter per day based on formula of 100p, where P = population in thousands, shall be kept in mind.

Unaccounted For Water (UFW): As per Central Public Health and Environmental Engineering Organization (CPHEEO) manual, a maximum provision of 15% towards unaccounted water losses shall be made.

Hence, total water demand requirement for the city is of the order of 463MLD. Further, there is no Water Treatment Plant existing in the city and all the water is treated either by chlorination or bleaching powder. So, there is an urgent requirement of treatment plant in the city for supply of potable water in future. While comparing the length of water supply lines with that of the road length, the network boasts of a quite healthy state, i.e. 196%, in comparison to the standard of 85%. By 2031, 1642.0 KM of water supply system will be required. The demand in case of water storage capacity in Overhead Supply Reservoir (OHSR) is of 132.8 MLD for 2031against current level is 17 MLD. Lastly, in case of water meters, 1,29,055 meters are installed till 2009, while 4,02,443 meters in total will be required for the M. C. population of 20,12,213, thus showing the additional requirement of 2,73,388 for the period of 2010 to 2031.

Thus, the water supply situation in case of Amritsar city shows a high demand in case of all parameters, i.e. demand of water supply as well as water treatment, distribution network, OHSR (or elevated storage capacity), installation of water meters etc. for the people.

9.3.1.2 Sewerage

With respect to the increase in population of the city, the requirement in sewerage sector has been calculated in different sectors of sewerage system (Refer table no.102).

Table 102: Projections and Requirements of different aspects of Sewerage System

Service Head		Existing/ Desired Level			Service Levels, Demand and Gaps							
							By Year 2017		By Year 2024		By Year 2031	
		Indicator	Current level	Desired level	Unit	Existing (2010)	Demand	Requirement	Demand	Requirement	Demand	Requirement
1	System Coverage /Collection System	Collection Length against Road Length (%)	93.13	100	KM	611.13	1409.2	840.24	1653.7	244.51	1931.7	277.97
2	Treatment	Treatment capacity against supply (%)	0.00	100	MLD	0.00	234.87	34.87	275.63	40.76	321.95	46.33

Regarding coverage aspect, the existing length of sewerage system is 569 kms, which is 93.13% with respect to the road length in the city in comparison to the desired level of 100%.

By 2031, 1931.72 kms length of sewerage system will be required, thus showing a need of 1317.72 kms of additional line to be laid down by then. In case of treatment of sewerage, there is no Sewerage Treatment Plant existing in the city, which is something irrational. There is an urgent requirement of installation of STP(s) to treat the huge amount of sewerage generated daily in the city. By 2031, the whole 321.95 MLD of sewage would have to be treated or recycled for other uses such as cleaning of roads etc. in the city.

9.3.1.3 Storm Water Drainage Network

Table 103: Projections and Requirements of different aspects of Drainage System

Service Head		Existing/ Desired Level			Service Levels, Demand and Gaps							
							By Year 2017		By Year 2024		By Year 2031	
		Indicator	Current Level	Desired Level	Unit	Existing (2010)	Demand	Requirement	Demand	Requirement	Demand	Requirement
1	Network reach	Road length covered with drains (%)	1.64	100.00	KM	10.00	1409.24	1399.24	1653.76	244.51	1931.72	277.97
2	Network – type	Pucca closed (%)	1.64	100.00	KM	10.00	1409.24	1409.24	1653.76	244.51	1931.72	277.97
		Total network length			KM	0.00	1409.24	1409.24	1653.76	244.51	1931.72	277.97
3	New Formation	New Pucca closed drains			KM	-	-	1409.24	-	244.51	-	277.97

As evident from the studies in the chapter 6, that the Amritsar metropolis is highly deficient in provision of storm water drainage network. The general slope in the city is from east to west. The railway line has emerged as the divider of the city, and hence, separate storm water lines in the north and south of the city needs to be laid for proper drainage.

The walled city area has open drainage covering 1.63% of the city roads. The total length of storm water drainage required by 2031 comes out to be 1931.7 kms, thus there is need of installing 1921.7 km additional storm water lines. It is proposed to construct underground pucca drains.

9.3.1.4 Solid Waste Management

The production of solid waste in an urban area is a function of the socio economic profile of the population and activities in the area. As per UDPFI guidelines, the waste generation

varies from about over a quarter of a kilogram per capita in small towns to about half a kilogram per capita in large and metro cities. For Amritsar, which is a large/metro city, the waste generation will be half a kilogram per capita per day i.e. 1006.1 metric tonnes per day for the whole city.

Table 104: Projections and Requirements of different aspects of Solid Waste Management

Service Head		Existing/ Desired level			Service Levels, Demand and Gaps							
					Unit	Existing (2010)	By Year 2017		By Year 2024		By Year 2031	
		Indicator	Current level	Desired level			Demand	Reqt	Demand	Reqt	Demand	Reqt
1	Waste Generation	Per-capita waste generation (gpcd)	494	500.0	MT	600.0	733.98	133.98	861.33	127.35	1006.11	144.78
2	Waste Collection	Collection performance (%)	100.0	100.0	MT	600.0	733.98	133.98	861.33	127.35	1006.11	144.78
3	Primary Collection	No.s of Hand carts / Wheel Borrows			No	120	1727	1607	2027	300	2367	340
4	Secondary Collection	Container bins			No	500	245	0	287	0	335	0
		Dual loaded dumper placers/Tractor Trolleys/Trucks			No	250	153	0	179	0	210	0
5	Waste transportation	No of Transport Vehicle			No	250	153	0	179	0	210	0
6	Disposal	Composting yard			Acre	40.88	50.01	9.13	58.68	8.68	68.55	9.86
7	Slums/ Sanitation/ Public conveniences	Slum popl. per seat of Public convenience	-	90	Seat	279	360	53	421	61	394	78

Further**,** regarding primary waste collection, 120 handcarts/wheel barrows have been provided. There is no concept of private dust bins. By 2031, total 2367 hand carts will be required by the municipal corporation. In the case of secondary stage of waste collection, 500 container bins are present with the corporation. By 2031, total 335 bins will be needed, thus showing no additional need. For the vehicles used for waste collection too, there is no need of additional dumper placer/tractor trolley/truck as the existing 250 ones are sufficient till 2031. For the transportation of waste, a private company has been hired by the M. C. The area of the composting yard presently is 41 acres. By 2031, 68.55 acres of land would be required, which is calculated by multiplying the existing availability of land for composting yard per MT of the waste with the solid waste expected to be generated by 2031. Lastly, for slum

dwellers, it is figured out that one public convenience would be needed on each 90 slum dwellers. 279 such conveniences are available presently, and by 2031, 78 more will be required (Refer table no.104).

Thus, there is a significant improvement in the solid waste management with the implementation of phase I (collection, segregation, storage and transportation) of the system. With privatization, the process of waste collection has improved. It is hoped that the demands taken out for various aspects of solid waste management will be fulfilled with the implementation of phase II (disposal and treatment).

9.3.1.5 Traffic &Transportation and Street Lights

The traffic and transportation is an important aspect because it provides connectivity between different landuses/parts of an area. So, analysis of existing situation and planning for future is the most vital part. The total municipal road length comes out to be 611.13 kms, with per capita availability of 0.51 m against the standard of 0.96 m. The demand of road length according to the standards is projected as 1932 kms by 2031. The average road width is 3.6 m with respect to all types of roads available within the city, which is less than the desired level of 7m. These roads are divided into 4 types, with bituminous roads forming the major share, i.e 527.03 km out of 611.13km. The other three are concrete (13.40 km), earthen (60 km) and WBM (10.70 km) roads. The projections are made taking the viewpoint that only two types of roads should be built with major share to bituminous roads (85% of total roads), and the rest 15% to concrete roads. Accordingly, 1641.97 km of roads is to be built under bituminous roads and 289.76 km under concrete. While 60 kms of earthen road is proposed to be converted to bituminous and 10.70 kms of WBM to concrete road, the rest of the demand will be fulfilled by new constructions.

With regard to the street lights, the average spacing between two lamp poles comes out to be 37 m, which is calculated by dividing the total length of roads by the total no. of street lights. By the year 2031, 64391 street lights will be required in number in comparison to 16514 presently, taking the standard spacing of 30 m between the two poles. Also, the share under different types of lights will be changed with priority given to high power lamps, followed by tubelights and high mast lamps. By the year 2031, more high power lamps (33466), tubelights (14363) and 48 number of high mast lamps will be required.

Thus, there is a need of increase in roads by 1175 kms in the form of bituminous roads. In case of street lights too, more high power lamps are proposed, with a substantial share to tubelights too (Refer table no.105).

Table 105: Projections and Requirements of Different Aspects of Traffic and Transportation

Service Head	Existing/ Desired Level			Service Levels, Demand and Gaps							
						By Year 2017		By Year 2024		By Year 2031	
	Indicator	Current Level	Desired Level	Unit	Existing (2010)	Demand	Gap	Demand	Gap	Demand	Gap
Degree of Connectivity	Per-capita road length (mt)	0.51	0.96	KM	611	1409	798	1654	245	1932	278
Road width	Average road width (mt)	7.00	7.00	-	3.60	-	-	-	-	-	-
Road surface	Concrete (%)	1.24	15.0	KM	13.40	211.39	197.99	248.06	36.68	289.76	41.70
	BT (%)	75.0	85.0	KM	527.03	1197.86	670.83	1405.69	207.84	1641.97	236.27
	WBM (%)	13.0	0.00	KM	10.70	-	-	-	-	-	-
	Earthen (%)	2.00	0.00	KM	60	-	-	-	-	-	-
Total municipal road length	-	-	-	**KM**	**611.13**	-	-	-	-	-	-
Upgradation	WBM to CC	-	-	KM	0.00	-	10.70	-	-	-	-
	WBM to BT	-	-	KM	0.00	-		-	-	-	-
	Earthen to BT	-	-	KM	0.00	-	60	-	-	-	-
New formation	CC	-	-	KM	0.00	-	187.29	-	36.68	-	41.70
	BT	-	-	KM	0.00	-	670.83	-	207.84	-	236.27
Improvement of identified major roads	Widening & Strengthening, utility shifting, beautification	-	-	KM	-	240.00	-	-	-	-	-
Street lighting	Spacing between lamp poles (mt)	37	30.00	Nos	16514	46975	30461	55125	8150	64391	9266
	Tube lights (%)	75.0	30.00	Nos	4954	14092	9138	16538	2445	19317	2780
	High power lamps (%)	25.0	70.00	Nos	11543	32835	21292	38533	5697	45009	6477
	High mast lamps (%)	0.00	0.10	Nos	17	47	30	55	8	64	9
Replacements	Tube lights with high power lamps	-	-	Nos	wiring has to be replaced upto 250 kms of road length	-	-	-	-	-	-

New installations	Tube lights	-	-	Nos	3000 new streetlights and 500 new electric poles to be errected	-	9138	-	2445	-	2780
	High Power Lamps	-	-	Nos	-	-	21292	-	5697	-	6477
	High mast lamps	-	-	Nos	8	-	30	-	8	-	9

9.3.1.6 Power

As per the standards given in UDPFI guidelines, the power consumption works out to be 2 KW per household at city level. Based on above, the power consumption for Amritsar city has been calculated for different phases in the table 106 below:

Table 106: Power Requirement of Amritsar City 2010-2031

Year	2001	2010	2017	2024	2031
Population	1016079	1215655	1467960	1722663	2012213
Household	184742	221028	266902	313211	365857
Power consumption in MW	370	442	534	626.42	731.71
No. of 11 KV Sub stations	106(68)	81	98	115	134

Regarding the requirements under electricity, one electric sub station of 11KV is required for the population of 15000 persons as per the UDPFI guidelines. There are total of 106 sub stations of capacity 11 KV, existing in Amritsar city against the demand of 81 in the year 2010. Hence, 9 sub stations of capacity 11 KV are required to be established by the year 2024 and another 19 by 2031.

9.3.2 SOCIAL INFRASTRUCTURE

9.3.2.1 Education

The Education sector caters to the young age group of the population and the projections made are based on the norms and standards given in UDPFI guidelines, just like the norms of different aspects of physical infrastructure. For social infrastructure, requirements of each of the urban settlement and villages together have been calculated, though requirements only for Amritsar M. C. have been discussed here. For the social infrastructure requirements (Refer annexure no.XIII).

In case of Nursery Schools, the demand for 2031 comes out as 819 against the existing 191, reflecting an additional requirement of 628 nursery schools. In the case of Primary Schools, the additional requirement is 152 and for Senior Secondary Schools, it is 88. Likewise, there will be demand of 20 each of Integrated Schools with and without hostel facility and 46 schools for handicapped children by the end of the planning period.

Coming to the higher level of education, UDPFI sets a standard of one college per 1,25,000 population. The city already has 10 colleges, so by 2031 there will be need of only 6 more colleges. There will be no need of Technical Education Centres, as the existing 15 polytechnics and ITIs are more than enough even for 2031 population of the city. Similarly, there will be no need of Technical Centres too, as the present 2 centres are sufficient. Same is the case with university and Engineering Colleges. For Medical Colleges, the present no. of 5 is well enough to meet the requirement till 2031.

9.3.2.2 Health Care

In terms of health infrastructure, 2 General Hospitals of 300-500 beds capacity are prevailing in the city, compulsing the need of another 6 such hospitals by 2031. There will be need of 20 each Intermediate Hospitals of 100-300 beds and 80 beds capacity by the end of planning period. In case of polyclinics, including Community Health Centres and Primary Health Centres, there would be no additional requirement as there are already 141 against 20 according to the UDPFI standards. This number includes the private hospitals and nursing homes. Looking at the no. of health institutions dedicated to Maternity and Child Welfare, and Family Welfare, the requirement comes out as 32. The last in the hierarchy, the dispensaries would be needed in a much larger number, i.e. 131 as against of 6 according to the UDPFI standards. In case of health facilities for the livestock of the city and the surrounding areas, there will be requirement of 16 more veterinary dispensaries.

9.3.2.3 Socio Cultural Facilities

According to the UDPFI standards, 410 community rooms and 130 community halls and/or libraries would be required by the planning year 2031. Presently, there is no facility of community rooms in the city. 16 additional Recreational Clubs and 9 music cum drama centres would be required for the population projected for 2031, while that for the meditation centres and socio-cultural centres would be 20 and 1, respectively.

In case of sports facilities, 1 additional Divisional Sports Centre/Golf Course, 3 additional District Sports Centre, 19 Community Sports Centre and 205 Neighbourhood Playgrounds are needed. In addition, cremation grounds/burial grounds too are considered, though there is no requirement as such for them till 2031.

9.3.2.4 Utilities/Services

Petrol Pump

Adhering the UDPFI guidelines, the requirement of petrol pump for residential areas in Amritsar city by 2031comes out as 14, while that for the industrial areas is 33. 2 Petrol pumps are needed in Freight Complex while 1 pump is reuired for District (Shopping) Centre.

Police

Regarding the facilities of police infrastructure, 15 police stations and 43 police posts would be required in addition. As already there are two police districts (Amritsar Urban and Rural) situated in the Amritsar district with head office in Amritsar, so there is no need of more district office. There is also no need of Police Lines. In case of District Jail, the city would need an additional jail by 2031 as well as one another Civil Defence and Home Guards office.

Fire Station

Finally, 6 more fire stations would be required by the year 2031. This shall be reflected in the process of planning the Zonal Plan of Amritsar city. Moreover, fire equipments of these stations need to be modernized according to the increasing height of the buildings coming up in the city.

9.4 PARTICIPATORY APPROACH

Apart from data collection from different offices, consultative meetings with different experts or stakeholders become equally important for effective plan preparation. Likewise, for effective city planning and development, meeting with different sector experts have been conducted. A think tank under chairmanship of Honourable Deputy Commissioner has also been constituted which consists of experts from various sectors to discuss the problems and potentials of the city (Refer Annexure no.VII). During the process of preparation of master plan, several consultative meetings have been held with elected representatives of the city such as Member of Parliament - Navjot Singh Sidhu, Members of Legislative Assembly and Councillors. The Head of Sri Guru Ramdas School of Planning and that of Architecture Department of GNDU, and various Non-Government Organizations active in the city development have also been consulted for better understanding the city problem and potentials. For the details of meetings and suggestions, refer annexure no.VIII.

9.5 SWOT ANALYSIS

Historically settlements positioned on hostile international boundaries invariably suffer from perpetual neglect and lower level of investment and development. With redrawing the boundaries in 1947, the geographical mosaic of India in general and state of Punjab in particular, underwent drastic transformation. From a central location in North West India, Punjab became a border state. In the process, Amritsar lost its prime position and emerged as a border settlement. Partition of the country caused enormous damage to this historical city of promise. With its role as economic capital getting diluted, city gradually lost its premier position to Ludhiana where major industrialized growth got localized. With low investment made in the city over a period of time, its edge in the area of employment and economy generation also got blunted. Based on analytical study of the journey made in the realm of growth and development during last four centuries of its existence, a SWOT analysis has been carried out for the city of Amritsar illustrating its inherent strengths and weaknesses, opportunities offered and threats faced by the city both from within and outside, which has been used as a framework for redefining the agenda for future growth and development of the city.

9.5.1 STRENGTHS

The strength of Amritsar Metropolis can be defined in terms of:

- Premier urban centre of the state having historical significance
- Rail and road gateway to the country for flow of goods and passenger traffic
- High degree of rail, road and air accessibility with all major destinations of the country
- Religious capital of the state - having Golden Temple and Durgiana Mandir, an international pilgrim destination
- Political capital of the State
- Cultural – historical magnet of international significance
- Tourist destination for both national and international visitors
- City of enormous heritage wealth
- Regional destination and prime distribution centre for goods and services for large number of small and large urban & rural settlements.
- Hub of quality medical-cum-educational facilities of regional significance
- Textile hub of Northern India

- House of age old traditions of crafts and cottage industry
- High degree of national and international air connectivity through international airport, located at Raja Sansi.
- House of well known Indian food cuisines.
- One of the 35 metropolitan centres of the country
- Diversified economy-providing city with a high degree of buoyancy
- Industrial growth largely based on local skill and entrepreneurship having minimum impact of economic cycles.
- High degree of workforce employed in manufacturing and trade & commerce.

9.5.2 WEAKNESSES

The city of Amritsar has also number of weaknesses, which can be enumerated in terms of:

- Border settlement with a track record of perpetual threat from hostile neighbor.
- Low level of investment both by parastatal agencies and private sector.
- City growth largely marked by haphazard, unplanned and unauthorized growth leading to uneconomical use of land with remarkable loss of fertile land.
- Various development agencies operating with overlapping areas and functions, in an uncoordinated manner.
- Absence of comprehensive statutory development plan leading to confused land use, marked by extreme congestion in the core and sporadic development all around.
- Overcrowding of buildings on land and people in buildings with large scale unauthorized and unplanned sub-divisions in walled city, in absence of clear policy for the development of Walled City.
- Poor road geometry and inadequate capacity of existing road network.
- Extreme vehicular congestion and absence of parking within and outside the core area of the city.
- Location of major rail and road network in close proximity and crossing each other within the city causing traffic bottlenecks in the process.
- Mushrooming of unplanned and unauthorized colonies.
- Acute shortage of housing both qualitatively and quantitatively.
- Mushrooming of large number of slums.
- Absence of adequate infrastructure, facilities and amenities both social & physical within the city.

- Absence of tourism related quality infrastructure.
- Existence of non-conforming land uses on a large scale due to mix of industrial and residential areas besides undesirable location of hospitals and educational institutions.
- Absence of adequate number of open spaces within core area.
- High degree of road congestion caused by intermediate mode of transport and bus stops.
- Lack of appreciation on conserving and preserving the valuable heritage.
- Absence of Storm Water Drainage, Sewerage Treatment Plant and poor Solid Waste Management.
- High Degree of environmental pollution caused by industry and Kerosene used as a fuel by the Autos.
- High degree of air, water, noise, visual and land pollution.

9.5.3 OPPORTUNITIES

With the softening and improved relationship with Pakistan, the city of hope and joy offers enormous opportunities in terms of:

- Major international trade and commodity export centre, both by land and air, for Pakistan, Afghanistan, Iran and other European countries.
- Attracting large investment and generating considerable employment.
- Emerging major tourist destination with large increased flow of tourists, both from within and outside India.
- Regaining premier position and becoming the financial capital of the State of Punjab, through rapid population growth.
- Becoming air cargo hub for northern India.
- Emerging growth of value added industries and hub of agro based food processing industries catering to demand of neighboring countries.
- Rapid physical growth and expansion on the outskirts of city in radial directions particularly along the G.T. Road towards Lahore (Pakistan) and the Amritsar International Airport.
- Major demand growth for quality infrastructure in terms of education, health, tourism, trade & commerce, entertainment, housing, etc.
- Major collection and distribution centres for goods and commodities and services of the Northern region.

- Inclusion of the city in the list of 63 major settlements under Jawaharlal Nehru National Urban Renewal Mission for leveraging reforms and resources for the growth and development of the city.
- Leveraging on the city heritage and likelihood of its designation as World Heritage City.

9.5.4 THREATS

Despite inherent strengths, existing weaknesses, available opportunities, city faces numerous threats, which can be identified in terms of:

- Change in the existing geo-political goodwill scenario leading to emergence of a hostile threat perception from the neighboring countries.
- Low level of investment by State and parastatal agencies in basic infrastructure.
- Absence of enabling environment for leveraging the involvement of private sector.
- Delay in evolving a comprehensive Master Plan and Regional Plan for promoting orderly growth and development of city and region.
- Delay in putting in place an effective and efficient mechanism of urban governance and eliminating multiplicity of agencies to check unauthorized, unplanned and haphazard development within and outside the city.
- Delay in placing appropriate framework for proper, preservation and conservation of valuable built heritage.
- Non-rationalization of inter and intra-city traffic and improving/upgrading transportation network.
- Delay in creating appropriate infrastructures related to tourism, trade & commerce.
- Delay in decongesting the city core (walled city) and rationalizing policy for its growth and development.
- Delay in bridging the existing gaps in basic infrastructures and services in and around the city.
- Delay in addressing issues on priority related to slums, environment and urban poverty.

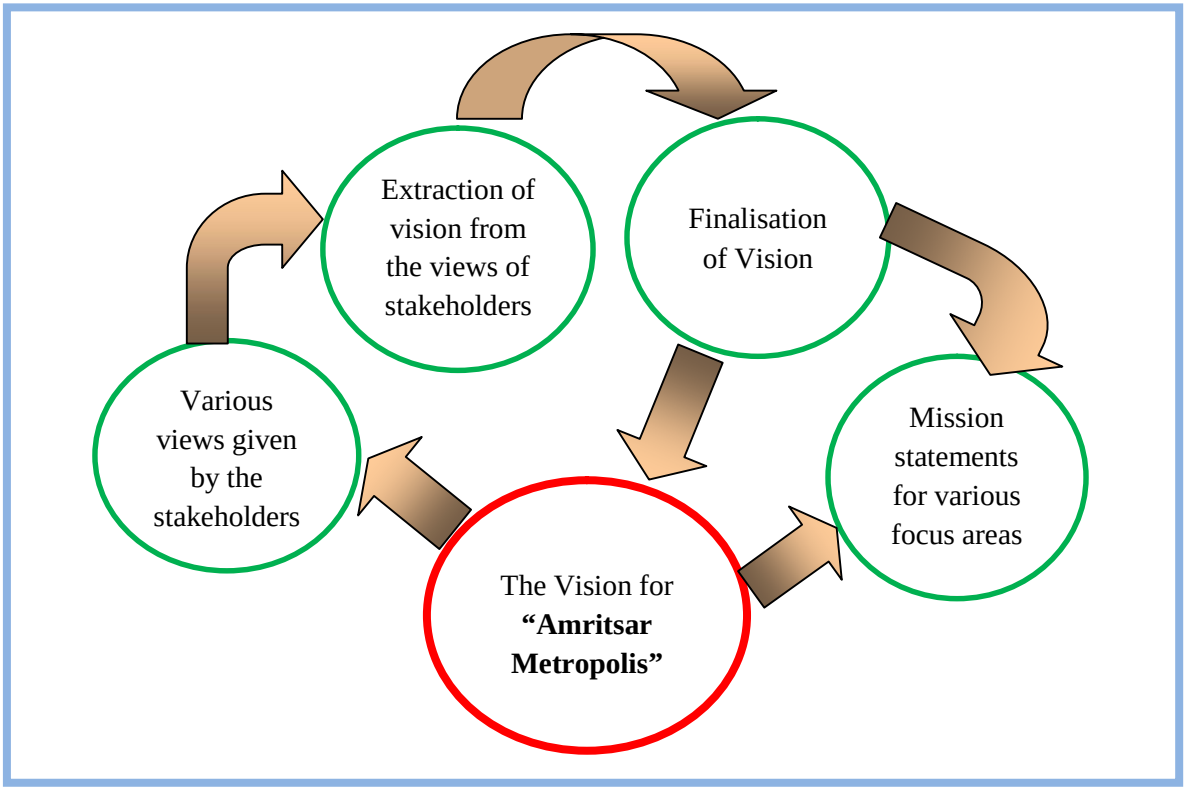
9.6 VISION AND MISSION

Considering the role and importance of the cities in economic regeneration and launching nation on the path of rapid development, it becomes critical that the urban centres be made livable, sustainable providers of employment, generators of wealth, ensurers of high degree

of quality of life and role model of efficient deliverer of basic services. In order to provide an appropriate framework for the rational growth and to launch the cities on fast track development, it becomes important to define the future pattern of the city growth and development.

Defining a realistic agenda would require in-depth/detailed study and analysis made of the inherent/basic strengths, existing weaknesses, available opportunities and emerging threats. It also requires crystallizing the perception of citizens, communities and others stakeholders about the future growth and development besides the road map visualized by experts having intimate/in-depth knowledge of the city.

Fig no. 132: Methodolgy for Defining Vision for Amritsar Metropolis 2010-2031



Based on the outcome of discussions held with various stakeholders, intellectuals, non-government organizations, community based organizations, professionals, elected members and officials of the urban local bodies, professionals from the Town and Country Planning Department and detailed study & analysis made of the existing and historical growth and development mechanism, it has been observed that Amritsar as a Metro city and as the administrative headquarter of the district, has enormous potential for rapid economic and physical growth, and industrial development. Considering basic creativity of Punjabi entrepreneurship coupled with availability of high order of technical and professional manpower in and around the city, it has high degree of potential to emerge as financial and

religious capital as well as export hub of the State of Punjab, provided required level of support systems, quality infrastructure, user friendly policy options, state of art developmental and institutional mechanisms are put in place. In order to make Amritsar grow and emerge as one of the most important humane, dynamic, productive, sustainable, eco-friendly, pollution free and vibrant urban centre of the State of Punjab, the future of the city is envisioned as:

- Amritsar metropolis to be developed as
  - A multifunctional centre of repute.
  - Financial Capital of the state.
  - Industrially vibrant, eco-friendly city.
  - Sustainable, inclusive and harmonious city.
  - Providing assured quality of life to all its residents, including poorest of the poor.
- The desired quality of life in the city to be achieved by
  - Putting in place a higher order of urban governance.
  - Promoting high degree of operational efficiency.
  - Ensuring environmental quality.
- Sustainability and inclusiveness in the city to be achieved through
  - Assured gainful employment to all the stakeholders.
  - Providing access to basic services and amenities of life at affordable cost.
  - Ensuring high degree of efficiency in the service delivery.
  - Making city free from slums.
  - Actively involving all the stakeholders in the process of city planning, development and management.
- In this process Amritsar city shall be planned, developed and leveraged as
  - A National Heritage.
  - A Tourist Hub of National and International Repute.
  - An International Pilgrim Destination.
  - A Cultural Hub.
  - A Financial and Industrial Capital.
  - A Medical-cum-Educational Destination of National Repute.
  - A Role Model of Planned Urban Development in the State.

9.6.1 MISSION STATEMENT FOR FOCUSSED AREAS

In order to achieve the objectives and goals enshrined in the vision statement, mission statement for various focused areas has been detailed out below:

a) GROWTH MANAGEMENT

- Promoting planned development through effective city planning.
- Rationalizing land use pattern for effective traffic management and provision of basic services and amenities.
- Rationalizing the Peri-Urban Development.
- Minimizing haphazard, unplanned and sub standard growth.
- Making effective plan implementation and enforcement as integral part of city planning and development process.
- Conserving and revitalizing the Walled City.
- Making growth management process more participatory.
- Preparing/Reviewing Master Plans on regular basis.
- Improving system of building plan approvals through use of IT and GIS.
- Making urban development self sustaining.
- Leveraging growth management process for resource generation.
- Removing all legal and administrative roadblocks in the efficient growth management.

b) URBAN ENVIRONMENT

- Making urban environment integral and essential part of city development process.
- Making environment integral part of planning and decision making process.
- Treating effectively entire sewage generated within the city.
- Improving solid waste management through state of art technologies.
- Developing and improving existing gardens, parks and open spaces, besides creating new open spaces to make Amritsar a city of gardens.
- Making city free from air, water, land and noise pollution.
- Promoting optimum use of available natural resources.

c) URBAN SERVICES

i) Water Supply

- Ensuring safe, equitable, reliable, adequate and quality water supply.
- Ensuring 100% coverage of the city and regulate water supply.

- Improving operational efficiency of water supply system by minimizing wastage and leakage.
- Removing illegal water connections and public stand posts (PSP).
- Minimizing ground water consumption by promoting water conservation.
- Promoting rain water harvesting and recycling of water.
- Using canal water as additional source to meet the city demand.
- Making entire water supply based on metering system.
- Recycling the Sarovar water of Golden Temple, Durgiana Temple and other religious institutions for meeting the agricultural needs.

ii) Sewerage and Drainage

- Ensuring total coverage of the city with sewerage and drainage system including slums.
- Promoting eco-friendly decentralized treatment system.
- Minimizing sewerage generation through water saving appliances.
- Promoting recycling of sewage.
- Promoting protection of natural water bodies.
- Promoting optimum use of storm water as an alternate source of water supply for irrigation.
- Promoting effective mechanism for disposal of treated sullage.
- Prohibiting disposal of untreated sullage into natural water bodies.

iii) Solid Waste Management

- Improving the solid waste management in the city using best practices.
- Using PPP model for solid waste management.
- Promoting effective “Recycling” of Solid Waste.
- Making solid waste management people centric.
- Integrating solid waste disposal and rag pickers for efficient solid waste management and resource/employment generation for the poor.
- Creating awareness to minimize solid waste generation.
- Creating effective system for disposal of toxic waste generated by health sector and industry.
- Making electronic waste disposal integral part of city management system.
- Minimizing use of non-degradable plastics.

iv) Storm Water Disposal

- Reviving the storm water disposal system of the city.
- Improving the capacity of water bodies existing within and outside the city.
- Making optimum use of storm water for reducing the demand for fresh water.
- Improving the natural water drainage channels by desilting and stopping the sewage water from entering the water channels.
- Constructing storm water disposal channels and integrating each household with the system.
- Integrating the storm water channels with the city development process using land suitability analysis.

v) Traffic and Transportation

- Improving safety, mobility and efficiency of traffic within and outside the city.
- Segregating and rationalizing the inter and intra-city traffic.
- Improving road geometry and road capacity of existing network.
- Minimizing the use of private transport and to promote public transport.
- Using planning as a mechanism for rationalizing and minimizing traffic.
- Minimizing pollution caused by traffic and transportation.
- Creating new road network and to improve the existing network to promote operational efficiency of traffic.
- Reviewing the existing activity pattern to rationalize the traffic.
- Providing adequate parking spaces to remove traffic bottlenecks.
- Creating a cost–effective and efficient mechanism of mass transportation.
- Minimizing traffic within the Walled City.
- Promoting pedestrianisation within the Walled city.

vi) Urban Poor

- Making urban poor integral part of the city planning, growth and development process.
- Improving accessibility to basic services for the urban poor.
- Providing urban poor with better living environment.
- Creating enough employment opportunities for improving financial status of poor.
- Providing adequate opportunities for creating affordable shelter duly supported by basic services.
- Empowering poor to be integral part of city development process.

- All poverty alleviation programmes to be made more focused and poor centric.
- Minimizing growth of slums/shanty towns and improving existing slums.

vii) Social Infrastructure

- Providing adequate sites based on norms, for creating/developing various social infrastructures.
- Involving private and corporate sectors for providing, developing and maintenance of social infrastructure.
- Making optimum use of mechanism of planned development for developing adequate and quality infrastructure.
- Promoting community participation in maintenance and upkeep of social infrastructure.

viii) Urban Governance

- Making Municipal Corporation a role model of good governance.
- Creating appropriate, effective and efficient mechanism for grievance redressal.
- Improving and strengthening the urban local body in terms of structure and quality manpower and resources.
- Creating appropriate mechanism for promoting higher interface between ULB and communities on regular basis at ward and city levels.
- Making urban governance citizen centric.
- Adopting best practices/systems for improving transparency, grievance redressal and accountability.
- Promoting transparency and objectivity in all public transactions and decision making.
- Involving effectively NGOs and CBOs in the poverty alleviation programmes.

ix) Finance

- Improving financial base for the city through broad, diversified and inflation protected revenue base.
- Rationalizing the pricing of urban services on the principal of “USER MUST PAY”.
- Optimizing use of available resources through better prioritization of projects and improved management.
- Improving financial management through adoption of standard accounting policies.

- Achieving continuous reduction in service delivery and overhead costs through better financial management.
- Minimizing expenditure on manpower and non-plan activities.
- Promoting optimisation of available municipal land for generating resources for city development.
- Making use of good practices in urban development for resource generation.

x) Heritage

- Identifying and documenting the entire manmade and natural heritage.
- Making heritage preservation and conservation integral part of city planning development process.
- Creating awareness among the people about the role and importance of heritage preservation and conservation.
- Making heritage preservation a people centric movement.
- Involving cultural bodies NGOs, CBOs, Educational Institutions and experts in the process of heritage conservation.
- Putting in place dedicated set of building regulations for heritage area development.

CHAPTER 10

THE MASTER PLAN

10.1 COMPONENTS OF THE MASTER PLAN

Master Plan defines the broad proposals of city growth and development besides allocation of land for various urban uses including residential, industrial, commercial, recreational, public and semi-public etc. It also defines existing and proposed road network, street pattern and traffic circulation system for the area included in the Master Plan; areas to be preserved and conserved; development of areas of natural beauty and landscape together with preservation of features, structures or places of historical, architectural interest and environmental value. Master Plan also includes different zones into which city can be subdivided besides defining Zonal Plan and zoning regulations for regulating development within each zone. Accordingly, the Master Plan is an important instrument for guiding and regulating comprehensive development of a city over a period of time and contributing to its rational and planned development, both conceptually and operationally. In this context, Master Plan of Amritsar Local Planning Area has been prepared for a period of 2010-2031. It comprises of five major components that include:

- Existing Land use Plan.
- Proposed Land use Plan
- Proposed Traffic and Transportation Plan
- Report containing detailed study and analysis of existing status and future development strategies for the city and Local Planning Area
- Development Control Regulations

10.2 MASTER PLAN OBJECTIVES

For achieving the long term, vision and mission defined in the Master Plan of Amritsar, spatial land use planning, infrastructure planning, financing and implementation, effective management and operation of infrastructure services and regulating and enforcing plan proposals would be critical. The objective of the Master Plan is to create enabling Spatial and Land Use Planning framework to achieve the desired vision for Amritsar L.P.A. Following are the set of objectives framed for Amritsar L.P.A in specific:

- To create a well defined hierarchy of settlements in order to achieve rational and planned growth.
- To promote rural-urban interface in order to promote sustainable growth.

- To promote compact development of the area by minimizing diversion of agricultural to non-agricultural uses.
- To make land allocation for different urban uses in an environmentally sustainable manner.
- To promote multi nodal development of urban settlements through planned dispersal of economic activities.
- To make available adequate developed land for public purposes.
- To minimize haphazard, unplanned and sub-standard growth and to promote planned development and quality environment.
- To effectively manage inter and intra city traffic and transportation through the mechanism of rationalizing the land use.
- To plan a well-defined system of road hierarchy and providing the missing links and creating new links for free flow movement of traffic.
- To minimize travel within the city by creating self -contained and self sufficient communities through provision of good work place relationship.
- To create adequate parking spaces as an integral part of commercial, industrial and institutional planning and development.
- To rationalize the distribution of physical and social infrastructure in order to ensure appropriate quality of life.
- To make Amritsar as the most vibrant economic centre by providing state of art infrastructure and allied activities for promoting balanced regional development.
- To promote, enhance, strengthen and enlarge the existing glory of the Walled City and to make it hub of culture, trade and commerce, tourism and religious activities.
- To promote tourism through development of tourism related infrastructure and create a tourist circuit covering important destination within Amritsar L.P.A to enhance the tourist potential of the city.
- To identify man-made and natural heritage and to make heritage conservation as integral part of the city planning and development process.

10.3 BASIC CONSIDERATIONS FOR PROPOSALS

While preparing the Proposed Land use Plan, a detailed study and critical analysis has been made of the notified Amritsar Local Planning Area in terms of the demographic profile, economic status, social stratification, physical growth and available physical & social infrastructure. Analysis has also been made of the existing land use besides the study of the existing problems and future growth potential of the area. Accordingly, basic considerations for formulating the Master Plan for the Amritsar L.P.A revolve around:

- Integrating the development of urban and rural settlements in order to minimize migration and to promote the economic and physical development of the urban and rural settlements.
- To promote sustainable development of all urban and rural settlements based on a well defined strategy.
- To improve quality of life and living environment within human settlements.
- To make urban settlements free of slums by a well-defined and focused strategy of creating shelter, providing basic amenities and creating employment.
- To make informal sector integral part of the city planning and development process.
- Leveraging the growth potential of Amritsar as the regional and metropolitan centre besides the administrative status of city as District Head quarter.
- Rationalizing the existing land use pattern through a well-defined system of land uses, zoning regulations and development controls.
- Minimizing haphazard and unplanned growth through a well-defined land use pattern.
- Promoting future growth of the city based on the principle of allocation of land uses and principle of clustering.
- Adopting a strategy of compact development based on phasing in order to optimize the available land resource and minimizing the cost of infrastructure.
- Adopting the well-defined and stratified density pattern for different residential areas with highest density allocated in the core and minimum density in the periphery of the town.
- Decongesting the core area of the city (Walled City) by selective dispersal of activities such as wholesale markets.
- Leveraging the potential of available regional roads, rail and air linkages/ networks within and outside the state and country including N.H-1, N.H-15, Amritsar-Delhi railway line and Airport.

- Rationalizing the traffic and transportation network including relocation of traffic nodes within the planning area in order to minimize the conflict between inter and intra city traffic.
- Redefining the hierarchy of roads in terms of Right of Way, structure of the road and the amenities to be provided.
- Minimizing concentration and promoting equitable distribution of public amenities and services in the planning area through well-defined norms.
- Minimizing impact of close proximity to international borders.
- Leveraging the industrial potential by providing appropriate area and supportive infrastructure in the existing industrial focal points and by defining new industrial areas.
- To leverage the strength of Amritsar in providing quality healthcare services and promoting healthcare tourism.
- To make Amritsar as the educational hub, both in the area of higher and technical/medical education,
- To promote heritage and religious tourism for leveraging the economy of Amritsar.
- To remove the mismatch in terms of development, traffic and transporation and quality of life existing within the city.
- Defining the demographic profile including population distribution and redistribution within the planning area for the target year of the Master Plan (2031).
- To define norms and standards for physical and social infrastructure based on the population in terms of area and development norms.

10.4 PROPOSALS

Looking critically at the existing morphology of urban settlements and in depth studies made and detailed analysis carried out in terms of physical, socio-economic and demographical profile of the planning area, it appears logical and rational that spatial planning framework for the future growth and development of the Amritsar Local Planning Area should be defined in order to ensure the integrated growth of entire planning area and to launch Amritsar and other settlements on the path of fast trajectory of growth and development. Accordingly, Amritsar LPA covering an area of 1,39,419 hectares has been visualized in the four distinct layers that are described in detail below.

Layer I: Area Enclosed by Walled City, Amritsar

Layer II: Area Enclosed By Municipal Corporation, Amritsar

(a) Area North of Railway Line

(b) Area South of Railway Line

Layer III: Area outside M.C Limit and up to the Future Urbanisable Limit

Layer IV: Agricultural/Rural Area

10.4.1 LAYER I: AREA ENCLOSED BY WALLED CITY, AMRITSAR

The walled city has a total area of 350 hectares, which constitutes merely 2.5 percent of the area of the Amritsar city. It houses approximately 16% of the population of the city. However, the Walled City, Amritsar has a unique quality of growth and development. It has the distinction of housing the major cultural and religious landmarks. In addition, it is also the hub of trade and commerce and symbol of Amritsar City. Accordingly, Walled City has been considered as the first layer of the entire planning area, being its heart and soul. Considering the historicity of the area due to the presence of Golden Temple, Jallianwala Bagh, Durgiana Mandir, Katras, Bungas, Havelis of historical times, narrow streets and specialized markets, the zone is proposed for preservation, conservation and up-gradation of infrastructure in order to make it a cultural hub of Amritsar. Considering the inherent strength and value of walled city as the symbol of physical, social, economic and historical growth, it is proposed that walled city should be designated as **"Conservation and Tourism Area"** to be developed to preserve the existing rich heritage. Accordingly, following strategies are proposed for the walled city of Amritsar:

- To preserve, enhance and promote the basic character of the Walled City
- To promote quality of life by improving, upgrading and providing state of art infrastructure and services.
- To undertake selective de-congestion of the walled city by shifting of wholesale and bulk material markets including Fish/Iron Market, Cheel Mandi, Iron Market (Bagh Akalian), Goldsmith Market, Ghee Mandi, Namak Mandi, wholesale medicine market, building materials, etc. to identified planned areas outside the Walled City near Bhagtanwala Gate/along the major road and rail networks.
- To promote de-congestion by eliminating sub-division of land and change of land use from residential to commercial and others.
- To promote revitalization of walled city area by way of conservative surgery.

- To frame detailed "Urban Design Guidelines" for promoting and enhancing the quality of urban spaces.
- Shifting of the Goldsmiths market/ activities operating near Golden Temple in order to minimize the damage caused by them to the world heritage monument "Golden Temple"
- To promote conservation and preservation of heritage buildings
- To promote Heritage Walk by developing processional route of Maharaja Ranjit Singh from Ram Bagh Garden to Walled City and its surroundings areas.
- Provision/ Up-gradation of higher level of urban and tourist infrastructure
- To promote, preserve, enhance and augment the bazaar culture in the walled city in order to make it a role model of urban heritage.
- To minimize vehicular pollution by promoting electric based and other non-polluting mass transportation system.
- Pedestrianization of the walled city in order to decongest and eliminate the traffic problems due to lack of adequate road width/parking.
- To promote pedestrianization by building special walkways on the stretch from Chowk Phowara to Golden Temple.
- Implementing time regulation for undertaking loading and unloading activity for existing wholesale markets within walled city area.
- To identify, create and develop available open spaces through proper landscaping within walled city.

Considering the critical role, historical importance and typical character of the walled city, it is proposed that it shall be developed as a distinct entity. Accordingly, a specific, exclusive and detailed plan for the development of walled city needs to be prepared. The plan should be based on the prime consideration, having focus on Urban Design and Heritage Conservation & Preservation. Such a plan would be critical in order to preserve, promote and enhance the religious, cultural and commercial ambiance of the walled city besides improving quality of life and productivity of Amritsar Metropolis. The preparation of urban design/heritage development plan for the walled city needs to be taken up on priority on the pattern followed for the preparation of Development Plan of Char Minar area of Hyderabad. Already large numbers of development projects have been/ being taken up for the development of walled city by various parastatal agencies without any integration. It will be critical to integrate all these projects within a well-defined framework. Accordingly,

preparation of such a Development Plan for walled city assumes importance considering the huge amount of investments and number of development projects being taken up in the walled city in isolation.

10.4.1.1 Heritage Zone

In addition to regulating and rationalizing the development of walled city of Amritsar by declaring it as Conservation and Tourism Area, it has been considered appropriate to focus on the development around Golden Temple and Jallianwala Bagh, which forms the very heart and soul of Amritsar and around which entire future growth and development of the metropolis would gravitate. However, it has been observed that the areas around these icons are undergoing rapid change in terms of the development and architectural vocabulary. The old buildings are being demolished and new ones are constructed on such sites. The new construction does not gel with the existing pattern of development and are fast emerging as eye-sores. Pattern of designing is not based on the vernacular architecture with buildings contructed are largely in concrete and glass. Brick facades are being replaced by glass facades.

Further, the use of land is undergoing rapid transformation with residential areas being converted into commercial complexes and hotels for catering to tourism and trade and commerce. All these changes are taking place outside the framework of existing pattern of development with the result historicity of the area is being marginalized and diluted. In addition, large volume of built up spaces and change of use of land has resulted in creating numerous developmental and traffic/transportation problems besides destroying the valuable heritage which is the very basis of existence and development of Amritsar. Accordingly, it is critical that the area around Golden Temple, Jallianwala Bagh, Town Hall, Gurudwara Shaheedan, Gurudwara Ram Sar Sahib and Gurudwara Santokh Sar Sahib should be carefully and thoughtfully preserved and conserved so that valuable heritage and historic wealth of the city is not lost in the haze of unplanned and irrational development of the walled city.

In order to achieve the objective, it is proposed to declare area around Golden Temple, Jallianwala Bagh, Town Hall, Gurudwara Shaheedan, Gurudwara Ram Sar Sahib and Gurudwara Santokh Sar Sahib as the Heritage Zone. The Heritage Zone has been identified in the map of walled city and comprises of areas enclosed by Guru Bazaar, Chaurasti Attari, Chowk Passian, Katra Jaimal Singh, Katra Baghian, Bazar Cheel Mandi, Bazar Mahan Singh, Katra Mahan singh, Bazaar Ghee Mandi, Abadi Bagh Ramanand, Katra Himmat

Singh, Chhauni Nihanga, Circular Road, Chatiwind Gate, Bazar Chatiwind, Katra Ramgarhian, Dhab Basti Ram, Namak Mandi, Katra Amar Singh, Katra Mohar Singh and Bazar Tunda Talab. The area includes the most valuable heritage of the city including Golden Temple, Jallianwala bagh, Gurudwara Shaheedan, Gurudwara Santokh Sar Sahib, Gurudwara Ramsar Sahib besides Town Hall and other buildings. The area to be brought under the Heritage Zone works out to be approximately 244 acres.

In addition to the Heritage Zone, it is also considered critical to safeguard, protect and develop the most critical approach to these historic monuments and the Heritage Zone. Accordingly, Hall Bazaar from Hall Gate to the Town Hall and to Darbar Sahib is also included in the Heritage Zone so that approach road to these monuments is also developed/regulated as integral part of the heritage conservation.

In order to protect and enhance the existing character of Heritage Zone, it is proposed to prepare detailed guidelines for the heritage zone including conservation and tourism area, which would inter alia involve.

i) Prohibiting the change of land use and subdivision of land within the heritage zone.

ii) Framing exclusive development control regulation for the heritage zone.

iii) Using different controls in terms of:

a) Floor Area Ratio

b) Height controls

c) Land Use control

d) Set backs/projections

e) Façade control

f) Material control

iv) Using urban design as the mechanism to control and regulate development.

v) Constitution of High Powered Committee comprising of experts in Art, Architecture, Town Planning, Heritage, History and Engineering to evolve strategies for development of Heritage Zone including sanctioning of the building plan falling in the said zone.

vi) Using Vernacular Architecture and the existing architectural features as integral part of the building design.

vii) Rationalizing advertisement in the heritage zone through advertisement controls.

viii) Pedestrianisation of approach road to Golden Temple and Jallianwala Bagh from Hall Gate to Town Hall to Jallianwala Bagh/ Golden Temple.

ix) Selective widening of the scope of Galiara project for creating more open spaces/ public vistas around Golden Temple/ Jallianwala Bagh based on the detailed study and analysis of the area adopting multi-disciplinary approach involving experts in the area of heritage, transportation, infrastructure etc.

x) Shifting the Municipal Corporation office from the Town Hall and remodeling the building to convert it into a Museum of Amritsar Heritage.

xi) Undertaking large-scale plantation of the available open spaces/ parks existing within walled city including notification of open spaces in the walled city such as Bagh Akalian etc.

xii) Appropriately designed signage's to be put in place at critical areas for identification of areas of historical, architectural and tourist importance.

However, all the services laid down in the heritage zone shall be made underground including, electrical, telephone etc. in order to minimize visual pollution. Display of advertisement on the buildings and along the roads shall be regulated and made integral part of buildings and available spaces. Special lighting arrangements shall be made to enhance the visual effect of historic buildings and available spaces. Congestion shall be eliminated by regulating the movement of vehicles, removal/re-location of informal activity, vehicular parking and widening of the fore courts of historic buildings.

All unauthorized constructions shall be removed; height of the buildings constructed in heritage zone shall be regulated in order to ensure that no buildings is constructed more than the existing height so that the ambience of Heritage building is not diluted. The use of material on the façade shall be brick and wood with concrete and glass not permitted to be used. Based on the above parameters, detailed strategies for the development of the Heritage Zone shall be prepared.

In addition to the heritage zone around Golden Temple identified above, two more heritage zones have been included falling in the area outside the walled city considering their historic and cultural imporatance and notification issued by the Competent Authority declaring them to be area/buildings of historical importance under the "Ancient Monuments Archaeological Sites and Remains Act-1958" (Amended and Validated 2010). These zones have been identified on the Proposed Landuse Plan-Amritsar Local Planning Area.

10.4.2 LAYER II: AREA ENCLOSED BY MUNICIPAL CORPORATION, AMRITSAR

The area enclosed by the municipal limit but outside the walled city has been defined as the second layer of Master Plan. This layer comprises of an area of 13,887.22 hectares and houses remaining 84% of the population of the city. This layer has distinct growth and development which has largely taken place in the post 19th century. It is the layer which houses major transportation linkages of rail and road besides the air. Its development is largely centered on the major traffic arteries and nodes. Majority of the post independence development is also concentrated in this layer. However, there are distinct variations in the quality and development in this layer that are marked by contradictions and mismatch. Accordingly, this layer has been further sub divided into two distinct layers because of possessing specific character in terms of structure, morphology, problems and potential requiring well-defined strategies for leveraging future growth and development.

10.4.2.1 Area North of Railway Line:

This sub-layer falls on the Northern side of Amritsar and includes the portion of Local Planning Area between Jalandhar- Amritsar railway line and Municipal Limit on the northern side of the city. This layer occupies 8,075 hectares of Municipal Corporation Area of the city. The area houses famous Ram Bagh Garden which is an important cultural site and has been declared as protected area as per the provisions of "Ancient Monuments Archeological Sites and remains Act-1958" as amended in 2010, considering its historicity and architectural and landscape character. It also includes the processional route identified earlier for the heritage walk. The area is also a part of English Legacy and houses Guru Teg Bahadur Hospital formally known as V.J. hospital besides the cantonment area. It largely serves the elite class of the city. It is characterized with low density and lower rise development. Most of the development in this sub-layer is the outcome of Town Planning and Development Schemes undertaken by the Municipal Corporation, Amritsar and Improvement Trust, Amritsar. Thus, majority of the development is planned and has quality socio-economic infrastructure, large open spaces planned as integral part of the residential development. In addition, all commercial areas including Ranjit Avenue have been provided with large areas for parking. Number of educational and institutional buildings is also available in the sub-layer. However, with the policy of granting permissions for change of land use, the character of the sub-layer including Mall Road, Lawrence Road etc is undergoing fast changes due to large-scale conversion of land use from residential to commercial and from low rise to high-rise

developments creating numerous problems of urban design, traffic and transportation, congestion etc. There are still large pockets lying vacant/ unplanned which needs to be taken up for planning on priority. Large-scale development is also taking place in the area, which needs to be regulated carefully and thoughtfully. The Southern belt of the Northern Bye-pass is already planned but majority of the Northern belt is unplanned. Accordingly, it is proposed that immediate steps should be taken to frame development scheme for this area in order to minimize the loss of planned character of the area. In addition, the portion of Ajnala Road leading to the Amritsar International Airport is also undergoing rapid sub-division and unplanned development. The area is proposed to be developed to meet the international standards of development besides providing essential infrastructure and services in terms of Hotels, Multiplexes, Shopping Malls, Convention Centers, Golf Courses, Residential Complexes, etc. The area around Khalsa College and Guru Nanak Dev University is proposed to be developed as the Knowledge Centre by attracting quality institutions. It is also proposed to improve, augment and enhance the ambience and to upgrade the infrastructure existing in the railway station in order to make it a role model and state of art railway station. Grand Trunk Road (N.H.-1), which links India with Pakistan, is also proposed to be developed as the logistic hub providing for warehousing and other amenities subservient to trade and commerce besides providing for amenities supporting the tourism. In order to preserve the basic character of the area, it is proposed to put in place a well-defined system of controls for growth and development of the area and its built environment. Therefore, in order to preserve the basic character, it is proposed:

- To retain the basic character of the area as low density and low rise.
- To minimize the conversion of land use.
- To minimize the sub-division of land.
- To enhance and augment the quality of basic infrastructure.
- To regulate the future growth and development of the area without changing the character of the area.
- To take up the development in pockets lying vacant/unused.
- To regulate the development along the Northern Bye-pass.
- To evolve a detailed scheme for shifting of the dairies located along the Tung Dhab Drain.
- To clean the Tung Dhab Drain by eliminating all sources of pollution and developing it as the Green Belt/Re-creational Zone for the city.

- To rationalize the development along the Ajnala Road leading to Airport.
- To promote amenities/infrastructure subservient to International/Local travel.
- To create a logistic hub along G.T. Road (towards Attari)
- To declare Ram Bagh Garden as the Heritage Zone
- To conserve and to preserve the historic buildings of Guru Teg Bahadhur Hospital and to re-use it for culture and tourism whenever it is proposed to shift the hospital from the present site.

10.4.2.2 Area South of Railway Line Excluding Walled City

This sub-layer has an area of 6,327 Hectares, which includes area south of Amritsar-Jalandhar rail line up to the M.C limit on the southern side excluding the area of Walled City but including the Gobindgarh Fort and Durgiana Mandir. This area can primarily be seen as extension of the Walled City. The development in the area is largely characterized by a distinct pattern, which is haphazard, sub-standard and unplanned. Accordingly, the area has low quality development and low quality of life. Majority of city poor are the inhabitants of this area. The level of available infrastructure is also of the lower order. Area lacks basic infrastructure and services and contains majority of slums existing in the city. The area lacks in open spaces and is marked by high degree of congestion. The area does not have a well defined pattern of traffic and transportation network. Accordingly, traffic congestions have emerged as the order of the day. There are very few planned schemes taken up by the Municipal Corporation and the Improvement Trust. Most important schemes in this area are city centre on the G.T. Road, industrial scheme of East Mohan Nagar, Bhagtanwala Grain Market, Industrial Focal Point on Mehta and Sri Hargobindpur Road. It also has large open areas lying vacant/ unused. This sub-layer possesses both rural and urban character. Keeping in view the existing status of sub-layer in terms of unplanned development, haphazard growth, substandard development, lack of basic amenities etc., the area is proposed to be planned through a well defined and well focused development strategies which would integrate this area with the overall pattern of development available on the Northern sub-layer. The development strategies for this sub-layer would include:

- Providing improved basic urban infrastructure services.
- Promoting urban and rural integration.
- Creating higher degree of economic triggers for improving economy.
- Developing the area as hub for wholesale markets which are proposed to be shifted from the Walled City.

- Formulation of more planned schemes by Improvement Trust/Municipal Corporation /Amritsar Development Authority / Private Sector Development.
- To rationalize the traffic and transportation by creating additional linkages.
- To rationalize inter and intra city traffic by creating Southern bye-pass.
- Making the area as economic and social hub for surrounding villages.
- Improving quality of life by providing quality physical and social infrastructure.
- Making the area slum free by creating affordable housing for the economically weaker section of the society.
- To develop Bhagtanwala as the major transportation hub.
- To declare Gobindgarh Fort as Heritage Zone, the development of which is to be regulated by well-defined Guidelines/regulations including the proposals indicated on the Master Plan subject to preparation of detailed scheme for development of the area including 300 meter regulated zone.

10.4.3 LAYER III: AREA OUTSIDE M.C LIMIT AND UP TO THE FUTURE URBANISABLE LIMIT

This layer includes the area outside the M.C limit and up to the proposed Outer Ring Road, which defines the outer limit of the urbanisable area of the Local Planning Area, Amritsar. The layer houses the area of 51,426 hectares. This area is largely agriculture in character dotted with rural settlements. It also has sporadic development, which is both unplanned and haphazard. It also has ribbon development along the major arteries emanating from Amritsar and providing linkages with the surrounding settlements. It is largely, a low density area which is going to house majority of urban population coming in the Amritsar Metropolis. The area also has number of quality housing development by the private developers and promoters. It also has large number of marble shops located along the G.T. Road (N.H-1) between Amritsar and Jandiala. It also has higher level technical institutions including Engineering College. Since the area is largely rural in character with low density, it offers enormous opportunities for planned development. Accordingly, development in this area is visualized by adopting following strategies:

- Promoting planned development through a well defined Road Network.
- Development to be focused in the urban settlements of Rajasansi and Jandiala by providing better options for living, working and recreation.
- To make urban settlement self-contained and self-sustaining supported by basic infrastructure.

- To promote interface between Amritsar and other urban settlements including Tarn Taran, Rajasansi, Jandiala and Majitha for minimizing migration to Amritsar.
- Development to be highly compact for minimizing the conversion of agricultural land to non-agricultural uses.
- Development pattern to promote high degree of interface between rural and urban settlements
- Minimizing ribbon development along the important road network.
- Development option to promote self contained development with minimum migration to Amritsar.
- Existing rural settlements to be planned and developed with provision of basic infrastructure.
- All rural settlements to be retained and provided with areas for future expansions and developed through a well defined strategies.
- To minimize land speculation by providing large amount of developed land required for housing/working/re-creation for the future population to be housed in the LPA.

10.4.4 LAYER IV: AGRICULTURAL/RURAL AREA

This layer comprises of remaining area of Local Planning Area, Amritsar which includes the area outside the Outer Ring Road but within the LPA boundary. The layer has the largest area which is of the order of 87,993 hectares. The area is mainly agricultural in nature containing village abadis. Since, this zone is basically rural in character; therefore it is important to define the hierarchy of settlements based on the population, level of existing infrastructure and connectivity. Further, the development is proposed to be made highly compact, focusing on development of rural settlement area and provisioning of basic infrastructure facilities and services. To retain the rural character of this layer, it is proposed to prevent or minimize conversion of agricultural land into non agricultural use such as residential, commercial, industrial, etc. Further, the development pattern in this layer is proposed to promote high degree of interface between rural and urban settlements. Considering the basic rural character of the area with high degree of land fertility, well laid down drainage pattern and high availability of ground water, it is proposed to leverage the growth and development of this area based on agriculture and small scale agro-based industries within the area defined around the villages. The area would also be used for providing basic day to day necessities of the urban population proposed to be housed in the Local Planning Area. Accordingly, cash crops would be encouraged in the area so as to raise

income level of the rural population and their economic status. The development strategies for this layer shall revolve around:

- To maintain, augment and enhance the existing rural/agricultural character of the area.
- To promote high degree of rural-urban interface/integration for minimizing migration.
- To promote quality socio-economic development of the rural settlement for putting them on fast trajectory of growth.
- To provide appropriate level of physical and social infrastructure for improving productivity and quality of life.
- To promote agro-based industries for generating employment and value addition to the agro-products.
- To promote planned development of rural settlements.
- To minimize conversion of agriculture land to non–agricultural uses
- To create a well defined hierarchy of rural settlement for providing different level of amenities and services.
- To create appropriate level marketing network and agro related knowledge centers for educating and ensuring optimum returns to the farmers.
- To create regional level recreational/entertainment activities.

10.5 PROPOSED LANDUSE PLAN

On the basis of the study of existing land use plan, analysis and population projections of Amritsar Local Planning Area, followed by several discussions with D.T.P Amritsar and at different levels within the Department of Town and Country Planning, Punjab and think tank meetings held from time to time, the proposed land use plan for the Amritsar Metropolis has been prepared for the period of 2010-2031. In the Proposed Land Use Plan for Amritsar L.PA, different land use zones such as residential, commercial, industrial, institutional, recreational, public uses, agricultural, etc. have been earmarked based upon the computation of land use requirements as stated in the U.D.P.F.I guidelines, the existing growth pattern and potentials and desired vision for Amritsar Metropolis.(Refer Plan 2, Drawing No. D.T.P. (A) 18/2010 Dated 29.09.2010)

After examining the various possibilities, the afore-said land use categories have been adopted for the proposed land use plan. The other concerned aspects of these different land

uses have been detailed out in the following sub-heads. The proposals & land use mentioned below may be read with Zoning Regulations, specified later in the chapter.

The proposed land use requirements for Amritsar L.P.A has been worked out based on the proposed density for Amritsar M.C area, four urban settlements and for rural area for the targeted year 2031. On looking at the existing city structure, it has been observed that the city is expanding along major radials with rapid developments along Ajnala Road leading to Rajasansi International Airport and Amritsar-Jalandhar road. Therefore, it has been assumed that the area up to these two urban settlements will be urbanized in near future and will become part and parcel of Amritsar urban complex by the year 2031. Accordingly, the projected population of these two urban settlements has also been included while calculating the future urbanisable area for the Amritsar city.

On taking the Gross Developed Area Density of 125 P.P.H. (the minimum density given in U.D.P.F.I for metro cities) for Amritsar M.C., the future urbanisable area calculated is of the order of 16,594 hectares. Although, the future urbanisable area required by 2031 is calculated assuming gross developed area density but it is also important to take into account the immense growth potential of Amritsar city because of its importance as religious and cultural center, industrial and commercial hub, upcoming development spread over different parts of the city and along the major road corridors, the city is expected to grow well beyond the calculated areas. In other words, the area earmarked on the Proposed Land use Plan is more than the area calculated as per requirements which is of the order of 65626 hectares (47% of the total Amritsar L.P.A). (Refer Plan 2). Though, the growth is expected to come mainly along the major roads, the area lying between these roads too has been taken up to prevent unplanned and unregulated development. Finally, the Future Urbanisable Area for Amritsar city is expected to grow up to the Outer Ring Road engulfing the two urban settlements of Rajasansi and Jandiala in L.P.A. Taking that into consideration, the table given below regarding the density wise area requirement does not include the urbanisable area requirement of Jandiala and Rajasansi, as they are covered under the urbainsable area of Amritsar city.

Table 107: Projected Population and Density in LPA Amritsar

Settlement	Projected Population 2031	Proposed Gross Developed Area Density (PPH)	Proposed Urbanisable Area Required by 2031 (Hect	Existing Urbanized Area 2010 (Hect)	Additional Area Requirement by 2031 (Hect)
Amritsar M.C. including Rajasansi and Jandiala	20,74,227	125	16,594	9,337.29	7,256.71
Rayya	26,502	75	353	206.19	146.81

Majitha	19,747	75	263	116.79	146.21
Total	**2,12,0476**		**17,210**	**9,660.27**	**7,549.73**

Source: Computed values

The total urbanisable area for Amritsar M.C works out to be 16,594 hectares by the year 2031, spreading in all directions and covering the urban settlements of Rajasansi and Jandiala. The remaining two settlements of Rayya and Majitha will require 353 and 263 ha of future urbanisable area respectively. Further, it has been observed that no additional area is required for expansion of Majitha and Rayya as existing area of urban settlement is enough to accommodate the needs of projected population.

Further, it is also assumed that the villages falling in Amritsar L.P.A will grow at their natural growth rate. Hence, the area requirements for these have not been worked out. From the table above, it is observed that nearly 12.3% of the area of Amritsar L.P.A will be urbanized by the year 2031 against the present area of 7%.

In addition to above, details of different land use areas proposed for the Urbanisable Area of Amritsar city for 2031 have been worked out in order to quantify the total area required and the additional area required to be developed for meeting the needs of future growth and development of the projected population based on the prescribed U.D.P.F.I norms. The details of the proposed land use areas are given below:

Table108: Proposed Land use Distribution for Amritsar L.P.A, 2010-2031

Land use	Proposed % of Developed Area	Proposed Area (Ha)	Existing Area (Ha)	Additional Area Required(Ha)
Residential	43	7135.42	4311.56	2823.86
Commercial	5	829.7	393.22	436.48
Industrial	11	1825.34	445.73	1379.61
Public and Semi Public	11	1825.34*	1669.98	155.36*
Government				
Utilities and Services				
Recreational	15	2489.1	124.89	2364.21
Traffic and Transportation	15	2489.1	1388.67	1100.43
Developed Area	**100**	**16594**	**8334.05**	**8259.95**
Agriculture	-	-	5903.17	-
Municipal Area	**-**	**-**	**14237.22**	**-**

*However, it does not include the area which will be provided in the residential zone based on the norms and standards specified for public and semi public uses in the Master Plan

However, the land area that comes under the Optimum Utilization of Vacant Govt. Lands (O.U.V.G.L) Scheme of the state govt., the use of such land/sites shall be determined by the Govt. later on at any appropriate time, irrespective of their existing / proposed land use. Similarly, in case of the land owned by the Amritsar Development Authority (A.D.A), its use shall be as determmined by the A.D.A/State Government, not withstanding the provisions of these regulations/proposals shown in the Proposed Landuse Plan. The sites on which various

projects have been approved or whose change of land use has already been permitted by competent authority/govt., such sites shall be deemed to be adjusted as sanctioned/permitted in the plan.

10.5.1 AMRITSAR URBANISABLE AREA, 2010-2031

The LPA, Amritsar is spread over an area of 1,39,419 hectares, out of which Amritsar Municipal Corporation area is of the order of 14,237 hectares. It constitutes 10.21% of the total Local Planning Area. The urbanisable area for the target year 2031 is proposed to be enlarged to 16,594 hectares to accommodate the projected population of 20,74,227 persons. The proposed ubanisable area of the city would comprise of the entire area which falls within the urban limits of Amritsar Municipal Corporation besides the area falling under the jurisdiction of urban settlements of Jandiala and Rajasansi in the east and north directions respectively.

The future urbanisable area required for 2031, has been worked out and earmarked taking into consideration the existing pattern of growth and direction of development. It has been observed that major development has been linear in character and is confined primarily along major transport corridors. Growth and development has also been observed in the peri- urban areas. Accordingly, the urbanisable area has been proposed to be extended beyond the limit of Municipal Corporation, Amritsar in order to accommodate the future population and development. While preparing the Proposed Land Use Plan for the Amritsar Local Planning Area, care has been taken to redefine the land uses in terms of residential, commercial, institutional etc for meeting the land use requirement for different urban uses.

The land uses provided in the Master Plan has been detailed out below:

10.5.1.1 Residential

Residential land use is the major component of a city and accounts for majority of the total urbanisable area. It shapes and defines the overall structure of the city including its built mass. The residential zone is spread over the entire urbanisable area proposed in the Master Plan and includes both the existing residential areas available in the town as well as new areas proposed for accommodating the future population. Accordingly, the residential area extends beyond the existing developed area and the urban limits. In order to accommodate the projected population of 20,74,227 person’s up to the year 2031, residential area of the order of 6,637.6 hectares is required based on the gross developed area density of 125 P.P.H. Accordingly, an area of 2,823.86 hectares is required to be developed in addition to 4,311.56

hectares of existing area under residential use. The total area under residential use comes out to be 43% of the future urbanisable area.

However, the area under this category has been kept on higher side considering the existing pattern of growth and high growth potential of the city as industrial, cultural, educational, tourist hub and regional character of Amritsar. Irrespective of the requirements, the residential area is proposed to be extended up to Outer Ring Road on all sides, up to Rajasansi in the North West and village Bal Kalan in the North to LPA boundary in the south, Jandiala in the east and up to village Lahorimal (HB.No. 405) in the west direction. Several private colonies are already coming up along the existing major road network including Ansal city, Dream City, Shubham Enclave on G.T Road (NH-1) towards Jalandhar, S.G Enclave on Majitha Road, Heritage City, Heritage Vihar, D.R Enclave on Ajnala Road, Holy City, Impact Gardens, Global City etc. along the Northern bye-pass etc. (Refer Plan 2 Drawing No. D.T.P. (A) 18/2010 Dated 29.09.2010)

While defining land use proposals, care has been taken to accommodate and integrate both already existing residential areas appearing in Existing Land Use Plan and the area proposed to be added for a future population. However, contours of residential area have been rationalized keeping in view the existing population distribution in the city and the density pattern proposed to be achieved in the Master Plan. It has been proposed to adopt a three-tier structure for the residential area based on the residential density as detailed below

Table 109: Net Density in Residential Zones

Sr. No.	Zone	Net Density
1	High Density Residential Zone RD 1 (within walled city)	301Persons Per Acre
2	Medium Density Residential Zone RD 2 (Outside walled city and within urbanisable limits)	200 Persons Per Acre
3	Low Density Residential Zone RD 3 (Area falling outside urbanisable limit)	100 Persons Per Acre

The areas zoned for residential use are based on not merely on the density defined above but also on the potential for future growth besides preserving the valuable agricultural land. Considering the density pattern proposed above, it is proposed to ensure compact development of the city and accordingly, considerable proportion of the residential area particularly on the periphery may remain undeveloped by 2031.

1) **RD1**- The core city area of the city (walled city) has high population density and is accordingly highly congested with poor quality of living. Walled city has merely 2.6% of the total area of Amritsar but it houses 16% of city population. In order to improve the quality of life and to provide higher order of open spaces, it is proposed to be decongested

the walled city by reducing the net residential density to the level of 300 PPA from the present density of more than 380PPA. However, the area under walled city would continue to be categorized as high-density zone with density pegged at around more than 300 Persons per Acre.

2) **RD2-** Area already developed along all major roads and the area surrounding the high density zone has been put in the category of medium density, where the density is proposed to be of the order of 200 persons per acre. In order to make the use compatible, the medium density zone has been provided in proximity to the existing residential area. The net density has been kept high in order to preserve the valuable agricultural land and to make the residential area more compact and energy efficient. This zone would also provide additional infrastructure and services which are deficient in the core area of the city. To encourage flattered residential development and to preserve the valuable agricultural land, residential density @ 60 dwelling units per acre shall be permissible for stand-alone group housing projects.
3) **RD3-** in order to have a well-defined hierarchy of residential areas, a density pattern that gradually decreases from the core to the periphery has been adopted in the Master Plan. Accordingly, the area outside the Outer Ring Road and the L.P.A boundary has been earmarked for rural zone. In this zone, the residential development has been permitted only to accommodate the natural growth and expansion of the rural settlements in the shape of a belt varying from 50 to 100 meters around the abadi area depending upon the size and population of rural settlements. All these zones have been placed in the category of low density residential development, with density limited to 100 persons per acre in order to preserve the basic rural character of low density low rise. It is also proposed that all the villages falling outside the proposed urbanisable limit and within L.P.A boundary shall also be developed in a planned manner.

The extent of residential area has been provided in order to achieve the objective of providing "Affordable Shelter for all" defined in the National Housing and Habitat Policy, 2007 evolved by the govt. of India. For achieving the target of housing for all, the housing needs for all income groups are to be assessed. Further, the existing structure of the city and its housing profile also needs consideration. Since the city will be growing both horizontally and vertically, therefore, residential development will be both in the category of plotted and flatted development. Focus of residential development shall be providing shelter for the economically weaker section of the society and low-income groups where the shortage has been estimated as high as 98%.

In order to ensure the availability of developed land in adequate quantity and at affordable price, it is proposed to leverage the active participation of private and co-operative sectors. Accordingly, appropriate framework and the housing strategy will have to be such which ensures active participation of public, private and cooperative sectors. While providing affordable shelter to all, optimum utilization of land would form integral part of the development strategy.

For development of new residential areas shall be based on well-defined norms in order to provide housing for all sectors of society.

However, in order to minimize the mushrooming of unauthorized colonies in the L.P.A, care will have to be taken to provide sufficient land at affordable cost to all categories of residents. The existing unauthorized colonies would require review based on a well-defined policy, which causes minimum hardship to the residents of the area without compromising with the quality of life and basic essential of human living. The policy should aim at making the existing development integral part of Master Plan proposals following the prescribed norms.

Housing for Economically Weaker Section

Housing strategies for the urban poor needs a holistic and multi-pronged approach. For effectively addressing the issue, increased supply of developed land and its availability in equitable and sustainable manner would be vital. The existing inequity in access of land to poor has to be removed. Policies must free the restrictions on land supply and make the land market efficient and sensitive to their demand. While proposing new residential area, housing for the economical weaker section must be included as an essential ingredient of the Master Plan considering that more than 98% of the housing shortage falls in the category of L.I.G and E.W.S housing. It will be critical to provide adequate land for them at the most affordable price.

In addition to providing majority of plots in this category, it will also be essential that certain percentage of land/plots/flats are provided for L.I.G/E.W.S housing in all the housing projects sanctioned by the State Government. In addition, existing slums would also require detailed study and analysis before taking decision with regard to their up-gradation, relocation or redevelopment. Considering the enormity and magnitude of problem, eradicating slums and providing affordable shelter to poor will largely depend upon our capacity to leverage land in right quantity, at right place and at right price. For providing affordable shelter, it will be appropriate to consider the option of forming co-operatives of the slum dwellers for leveraging their resources. Approach would have to change from subsidy- based to cost-

recovery housing for creating large number of houses for L.I.G/E.W.S categories. In addition, options of creating night shelter and site and services would also be explored to provide larger housing stock.

10.5.1.2 Commercial

Historically, Amritsar has always dominated the urban canvas as one of the most vibrant centre of trade and commerce in the state of Punjab and continues to occupy the same status even in the post-independence period. As Amritsar is an important commercial centre at both local and regional level and will continue to function as a larger regional centre serving the population even outside L.P.A, therefore, the city requires development of new commercial centers or areas. Accordingly, sufficient area is proposed to be earmarked under this use in the Local Planning Area. In order to meet the emerging requirement of commercial areas 5% of the total urbanisable area has been proposed under this use. In all 829.7 hectares has been proposed for commercial development. Existing commercial area has been estimated at 393.22 acres. It is proposed to develop an additional area of 436.48 hectares in a planned manner. The existing area is proposed to be retained, developed, augmented and enhanced in terms of infrastructure and services in order to enable it to cater to be needs of commercial areas. Additional area proposed in the Master Plan will be essentially utilized for creating state of art infrastructure for certain wholesale and bulk material markets such as fish market, iron market, building materials market etc existing inside the walled city area which are to be shifted outside the walled city. In addition, area will also be used for creating state of art infrastructure and services in the commercial land use including multiplexes, shopping malls etc. As the existing city is proposed to grow to 20.7 lakh persons approximately, therefore three more district shopping centers are proposed to serve the commercial needs of the projected population by 2031. In addition, commercial centers will also be developed as integral part of new residential areas Planning and Development. Further, as per the provisions of PAPR Act 1995 about 5% of residential colony is required to be provided for commercial use, therefore as and when the new residential areas are developed in the future the commercial areas will be ear marked based on the norms specified above.

The latest trend of commercial development in form of Shopping Malls and Multiplexes is also being observed in Amritsar. Two multiplexes namely Celebration Mall on Batala Road and Alpha G on G.T Road are operational and nearly 4 are under construction such as Maiden Mall along Batala Road, Omaxe along Lawrence Road and Ajnala Road etc. and numbers of shopping complexes are coming up along Mall Road. Considering the need of quality commercial development, hotels, shopping malls and multiplexes, convention centers,

exhibition halls and golf clubs have been proposed along Ajnala Road because of nearness to Rajasansi International Airport.

In order to leverage on the strength of preparing delicacies it is proposed to set up Food Courts in different parts of the city. This would help in not only promoting economy of the city but also attract number of tourists to the city. Appropriate sites shall be identified within and outside Walled City with adequate parking for setting up of Food Courts. Such Food Courts should be set up near Hall Gate, G.T.B Hospital, Ajnala Road, Mall Road near old Session Court, near existing Bus Stand/Railway Station and G.N.D.U.

In addition, considering the requirement of large volume of export to Pakistan and other neighboring countries, a trade and commerce zone including warehousing, godowns auto repair centers, logistic park, freight complexes, cold storage etc has been proposed between G.T. Road and railway line towards Attari, looking at its close proximity to the proposed industrial zone, international airport and international border with Pakistan. Since there are no norms available for this particular land use, a zone of 400 hectares has been earmarked. Refer plan 2, Proposed Land Use Plan Drawing No. D.T.P (A) 18/2010 Dated 29.09.2010. In addition, it is proposed that the area should also be utilised for setting up hotels and other support facilities for the tourists/traders coming from Pakistan, besides providing major recreational acitivities including amusement parks for catering to the needs of the residents/visitors going to the Wagah Border.

Further, the commercial area is proposed to be developed through a well-defined system of zoning regulations and development control regulations provided in the Master Plan that takes care of the needs of commercial area development. In order to overcome the perpetual problem of parking in commercial area, providing adequate parking area has been made integral part of commercial area planning. Well defined norms for parking has been provided in the Development control Regulations appended in the Master Plan. Authorities must ensure that adequate parking space is provided in the commercial areas and no vehicle is allowed to use road as the parking space. Sites from multi level parking shall also be created in various parts of the city.

At present, there are two wholesale markets in operation, i.e. Bhagtanwala Market and Vallah Market. Both these markets are being administered by Punjab State Agriculture Marketing Board. Vallah Mandi, because of its location near the ammunition depot providing for 900 m no construction zone, has been asked to shift the mandi to a place outside the no construction zone. If the foodgrains and fruit and vegetable trade is shifted from the Vallah Mandi, then the land becoming available shall be used for relocating the cattle fare ground, which is being

operated from the site along northern byepass near Industrial Focal Point on Mehta Road. Considering the nature and context of trade and its relationship with the city and its activities, it is proposed to shift the wholesale food grain trade presently being carried out at Bhagtanwala grain market, outside the city on the Southern Ring Road proposed in the Master Plan. Shifting of grain market from Bhagtanwala will help in minimizing the traffic congestion in the city caused by influx of large number of vehicles including trucks, trolleys, rehras etc. carrying food grains from villages for marketing. In addition to rationalizing the goods traffic, shifting of food grain market will also help in shifting of wholesale food grain trade presently being carried out within walled city. It will accordingly help in decongesting the Walled city, reliving it from major traffic blues. Locating wholesale food grain market outside the city will also help farmers in easy marketing of their produce due to lesser distance to be covered and better accessibility. Considering the close proximity of Bhagtanwala gate to Walled City, it is proposed to use the land thus becoming available due to shifting wholesale trade to be developed into a State of Art city centre providing for shopping malls, multiplexes, hotels for tourists, eating joints, restaurant, banking, office space, space for retail etc. This will provide a major economic boost to the city, which lacks in organized high-end large-scale economical development. In addition, it will decongest the Walled City besides providing much-needed fillip to the tourism.The foodgrain market shall also cater to the requirement of marketing of foodgrains at Chheharta. The land thus becoming available at Chheharta due to the shifting of foodgrains shall be used for decongesting the city and creating public amenities/open spaces in which the area is deficit.

Within LPA, Seeing the importance of Rayya as an agricultural town and its strategic location between the two important urban centers of Amritsar and Jalandhar along NH-1, it is proposed to be developed as an agricultural marketing centre. Therefore, an agricultural marketing center of an area 43 hectares has been proposed adjoining the existing grain market on NH1. The proposed marketing centre will include Grain Market, Fruit & Vegetable Market, Godowns/ Warehouses/Cold stores/Milk pasturing centre, Parking Areas, Truck Terminal, Bulk Material Market, Public Toilets + Drinking Water, Rest rooms, Fire Hydrants, E-Choupal areas. Further, it is also proposed to have agro-based industries in order to ensure higher returns to the producers and improving the economy and productivity of the area (Refer Plan 4, Drawing No. D.T.P. (A) 19/2010 Dated 29.09.2010)

Informal Sector

Informal sector has considerable role to play in meeting the basic needs of the residents besides generating employment. Considering large number of visitors to the city and the basic character prevailing in Amritsar, informal sector has been found to be playing active part in meeting the commercial needs of the city. However, in the absence of any regulated system, informal sector has been found to exist in major part of the city. Based on the primary survey conducted for the informal sector in the city, it has been felt that organized sites for informal sector are required to be created near the main city nodes such as Railway Station, Bus stand, Hospitals, major institutions, District Courts and other transport nodes etc. It is suggested that the organized well-planned sites for rehri markets shall be proposed in the new planned colonies as provided in the detailed zonal plans. In addition, organized and well-planned sites for vendors shall also be provided as integral part of the planning and development of heritage sites in order to minimize the haphazard and unplanned mushrooming of suh activities around these sites.

Policy for Existing Areas

With a view to make informal sector, an integral part of the planning process and keeping in view the National Policy on Urban Street vendors, the following provisions are proposed to be made for the informal sector:

The location/concentration of present stationary informal units shall be considered on case-to-case basis and steps for relocation/improvement shall be taken. It should be ensured that such activities do not spill over on the road network in the right of way. The Govt. /concerned local agency would coordinate to achieve the objective. The areas of informal sector shall have suitable public conveniences and solid waste disposal arrangements.

Formulation of guidelines for schemes would include ‘Hawking’ and ‘No Hawking’ zones. Specific areas would be earmarked for stationary and mobile street vendors by the concerned local authority.

The local authorities would take up new design of stalls, pushcarts and mobile vans of various sizes and with cleaning facilities, giving due consideration to urban design requirement of specific area, where informal shopping is being permitted. No informal unit should be permitted along/near the intersection in order to avoid traffic congestion and accidents. In addition, day market shall also be created and located within the city to meet the space requirement of commercial areas.

Planning Norms for Informal Trade

As already stated, informal sector is proposed to be made an integral part of planning process. Accordingly, the informal sector trade would be incorporated in the planned development in various use zones. The provision of informal sector trade units should be ensured at the time of sanction of layout plans as per the norms given in the table below:

Table 110: Planning Norms for Informal Sectors

Sr. No.	Use Zones/Use Premises	No. of Informal Shops/Units
i	**Retail Trade:**	
	Metropolitan city centre, district centre, community centre, convenience shopping centre	3 to 4 units per 10 formal shops
ii	Government and commercial offices	5 to 6 units per 1000 employees
iii	Wholesale trade and freight complexes	3 to 4 units per 10 formal shops
iv	Hospital	3 to 4 units per 100 beds
v	Bus terminal	1 unit for 2 bus bay
vi	Schools	
	Primary /Secondary	3 to 4 units
	Senior secondary/integrated	5 to 6 units
vii	Parks	
	District parks	8 to 10 units at each major entry
	Neighborhood parks	2 to 3 units at each major entry
viii	Residential	1 unit/1000 population
ix	Industrial	5 to 6 units per 1000 employees
x	Heritage Zone	5 to 6 units per site

Source: UDPFI Guidelines

10.5.1.3 Mixed Land use:

Looking at the existing pattern of growth and development, it has been observed that the major road network existing in the Local Planning Area has attracted lot of haphazard, unplanned and un-regulated growth in the shape of ribbon development. This pattern of road has been observed both in within the M.C area and particularly in the area outside the municipal limits. Despite the availability of legal framework prohibiting/restricting the growth and development along the major road network, such developments have become an integral part of Indian urban growth and development scenario. This pattern of development has promoted numerous problems in terms of infrastructure, quality of development and for the smooth movement of the traffic and transportation. In order to rationalize the growth and to ensure provision of adequate parking and other supportive infrastructure, it is proposed to permit mixed landuse development along the major road network as detailed below:

1. Outer Ring Road (R1): A 500 meters deep mixed landuse zone has been proposed along the entire length of the proposed Outer Ring Road, outside/ beyond the urbanisable area
2. Middle Ring Road (R2): A 500 meters deep mixed landuse zone has been proposed on either side of road along the portion starting from Ajnala Road to

G.T Road (towards Jalandhar) in the eastern part of the Local Planning Area. Further, 300 meters deep mixed land use zone have also been proposed along the portion starting from Amritsar-Ranian Road to G.T. Road (towards Attari) in the western part of the Local Planning Area.

3. City Ring Road (R2): A 300 meters deep mixed landuse zone has been proposed on either side of the road along its entire length, starting from Daburji on G.T Road towards Jalandhar in the east to the Naraingarh on G.T. Road towards Attari. This zone will be developed on the concept of Aero-city followed in S.A.S Nagar by G.M.A.D.A. First right to develop the zone shall vest with Amritsar Development Authority.
4. Other Roads (R2 & R3): All other roads falling in the category of R2 and R3 will have mixed landuse zone of 300 meters on either side of the road in the portion falling between the municipal limits and the Local Planning Area boundary in order to regulate/ minimize the haphazard and unplanned growth along these roads.

The position of mixed landuse zones defined above has been indicated on the Proposed Landuse Plan of Amritsar Master Plan bearing Drawing No. D.T.P. (A) 18/2010, Dated: 29.09.2010. The development along this road shall be governed by the Development Control Regulations/ Detailed Schemes prepared for the zone. First right to develop the mixed landuse zone for the Outer Ring Road, Middle Ring Road stretch starting from Ajnala Road to G.T. Road (towards Jalandhar) and Amritsar-Ranian Road to G.T. Road (towards Attari) and the city ring road shall rest with the Amritsar Development Authority for development of Aerocity on the pattern followed by G.M.A.D.A in Mohali. The detailed proposals for these zones have also been provided in the Para 10.6.1 of the report.

However, in order to maintain the character and continuity of the belt, mixed landuse shall continue to be permitted along these roads in the portion falling within the Municipal Corporation limits. In the area zoned for mixed landuse, only compatible landuses shall be permitted. However, the uses which are not compatible, shall not be permitted in this area. No industry other than I.T and green shall be permitted in the mixed landuse zones. The proposed mixed landuse will not only ensure dispersal of the economic activities in the various parts of the areas but would also help in rational development of area along the major roads/corridors. In addition, it will also promote better living-working relationship minimizing travel demand in the city making it more energy efficient and environmental friendly. The area will be developed through a well-defined system of zoning regulations and

development control regulations provided in the Master Plan, which would take care of the critical needs of infrastructure/services including parking etc.

10.5.1.4 Industrial

With a view to provide fillip/boost to the economy of the city and to promote industrial activity in the region, a sizeable area of the order of 11% of total urabanisable area has been proposed for the industrialization. Accordingly, 1,825.34 ha of the future urbanisable area have been proposed under this use. Most of the industrial units existing in the city at present are scattered all over the city with few of them located in the planned industrial areas such as Industrial Focal Point along Mehta Road, Chheharta, East of Mohan Nagar etc. Moreover, the location of these industrial focal points in the city is also not as per the principles defined for the location of the industrial use. In order to overcome the problem of pollution and to create a state of art industrial area having basic infrastructure and services, three industrial zones having an area of 1,379.61 hectares have been proposed in the Master Plan-Amritsar L.P.A. One of the zones is proposed along both sides of Majitha Road covering the villages of Bal Kalan, Bal Khurd, Bhaini Gillan and Nag Kalan as indicated on the Proposed Landuse Plan. Another zone is proposed towards south of the city, along both sides of Tarn Taran Road (from the intersection of U.B.D.C, Railway line and Tarn Taran Road) upto the planning area boundary as detailed in the Proposed Landuse Plan. The third zone has been identified along Sri-Hargobindpur Road, opposite new focal point where industrial park has been proposed and would have state of art infrastructure for the promotion of industries.The area also meets the basic requirement of locating industries based on the prime consideration of the prevailing wind direction (North-West to South-East). The proposed industrial zone includes; the existing industrial development along the Majitha Road, Tarn Taran Road and Sri Hargobindpur Road. It also includes industrial development by way of providing developed plots with required basic infrastructure. It is also proposed to include a truck terminal having booking agencies etc. within the zone that will serve the proposed industrial development. In addition, all the existing industrial clusters identified in the city are proposed to be retained as such in the Master Plan. Accordingly, existing industrial areas on Batala Road, East Mohan Nagar, on G.T Road towards Attari and all the existing industrial Focal Points on Sri-Hargobindpur Road and Chheharta have been retained as such in the Proposed Land Use Plan. (Refer Proposed Land use Drawing No. D.T.P. (A) 18/2010 Dated 29.09.2010). In addition, it has been observed that large number of motor repair shops and related activities are spread over the entire city creating numerous problems of pollution,

parking and congestion. In order to rationalize this activity, it is proposed to set up Auto Repair Complexes on the major traffic arteries of the city in order to meet the needs of the residents and vehicles visiting the city. These Auto Repair Complexes will provide for repair, sale of spare parts and other services related to vehicles.

In order to promote quality environment, it is proposed to create a 200 meters wide green belt of broad leaf trees to be developed within the industrial zone to separate industries from the existing village settlements/abadi-dehs. Further, all industrial units would also be required to plant trees in the setbacks provided within the plots. Green belts would also be created as integral part of planning of industrial areas and areas separating the residential and industrial zones.

10.5.1.5 Public and Semi Public

In order to overcome the qualitative and quantitative deficiency of public and semi-public uses, it is proposed to provide enough space under these uses. Accordingly, an area of 1,825.34 hectares has been proposed under this land use that works out to be 11% of the future urbanisable area. However, this area does not includes the area which will be available under this use in the planning of the residential areas. All residential areas provided in the Master Plan shall be planned to provide for all public and semi public uses based on the space norms and standards specified in the Master Plan.

This zone will accommodate physical and social infrastructure including education, libraries and health related institutions, government offices, socio-cultural and religious facilities, utilities and services such as water treatment plant, sewerage treatment plant, solid waste disposal sites etc. The sites already in operation, use and which have been proposed/approved for the infrastructure network including S.T.P, Solid Waste Disposal/Treatment Sites, Water Works, Electric Grid Stations, etc. have been proposed to be retained as such in the Proposed Land use Plan.

Amritsar has large number of prestigious institutions catering to all levels of education and healthcare. Accordingly, in order to leverage on this strength, it is proposed to create knowledge centers in the city. Further, the area at the back side of Guru Nanak Dev University-adjoining Ram Tirath Road, along Batala Road outside M.C area and along G.T Road towards Jalandhar have enormous potential for development of educational and health related institutions serving both the city, L.P.A and surrounding urban settlements. Further, it is proposed that area adjoining G.T. Road towards Jalandhar also has potential for development as Educational Hub or Knowledge City that will have IT/ITES related

industries, research institutions and support infrastructure. A Medi-City is also proposed along Majitha Road to cater to the higher medical needs of the city residents. The socio cultural facilities like exhibition grounds, convention centers, music, art and drama center etc is proposed to be developed along the Ajnala Road.

Further, considering the role and importance of Baba Bakala as Historic, Religious and Administrative Centre falling in Raya complex an area of 11 hectares has been proposed under public/semi public use in order to meet the emerging needs of social and physical infrastructure. The area is proposed to be utilized for positioning various health related and educational institutions besides housing government offices in order to meet the spatial needs of housing, administrative staff of Baba Bakala tehsil. In addition, an area measuring 11 hectares has been proposed for Mela Ground in order to provide space/infrastructure and facilities including as parking areas, resting places and other socio cultural facilities etc for thousands of visitors attending various fairs and festivals that are held throughout the year (Refer Plan 4, Drawing No. D.T.P. (A) 19/2010 Dated 29.09.2010).

Considering the existence of several numbers of regional level institutions including Shaheed Darshan Singh Pheruman College, Sacred Heart Convent School, Mata Ganga Girls Sr. Sec School, Govt. ITI Baba Bakala, GTB Govt. College Sathiala, it is proposed to make this area as the institutional hub for the region. Accordingly, institutional/ educational zone has been proposed near Sathiala College in order to use the existing potential of the area and to ensure the optimum utilization of the available government land. Further, it is proposed to include provisions of all public and semi public facilities as integral part of residential development in order to make the residential areas self sufficient in basic needs and community facilities. Accordingly, detailed planning and development norms for these facilities have been provided in the Development Control Regulations. While sanctioning the residential colonies, it will be ensured that all these facilities are provided based on the specified norms.

In case of Panchayat land of villages falling in Local Planning Area, these lands shall be used exclusively for public and semi-public uses including utilities, services, physical and social infrastructure, parks, open spaces, community facilities etc. and not for any other purpose.

10.5.1.6 Government Land

Amritsar being the historic city and a district headquarter, has large area owned by Government. It also has large number of Government Offices. However, various offices of the state government are located at different places in the city and accordingly people/ residents visiting these offices for work are required to travel from one place to another. In

addition to considerable inconvenience to the public, it also causes lack of co-ordination between these offices due to scattered location. Due to location in the congested areas, it also causes parking related problem. Considering the people's convenience and for promoting better coordination, state government has already proposed the setting up of an integrated District Administrative Complex (D.A.C) in the city housing all the offices of local and state government at a capital out lay of Rs. 35.00 crores. The new District Administrative Complex is proposed to be set up at the existing District Court's site. This proposal is retained as such in the Master Plan. Further, the area available on shifting the district level offices will be used as per the uses permitted in the zone in which they will be falling.

Moreover, Amritsar, being a border city has strategic importance from the point of view of the defence. It has 882.14 hectares of city's developed area owned by the Govt. of India. Area is largely being used for residential and administrative purposes. The area is well planned and has good quality infrastructure. However, due to location the area has problem of integration with other land uses. It has been proposed to retain the existing area under govt. land (for defence purposes) as such in the Proposed Land use Plan Drawing No. D.T.P. (A) 18/2010 Dated 29.09.2010. Further, in order to meet the future requirements for this use, additional land has been zone for this purpose adjoining to the existing land.

Two ammunition depot sites are existing in Amritsar and Rayya. In Amritsar, it is located within urban limits along the bye pass opposite village Vallah, whereas in case of Rayya it falls in villages Waraich and Budha Theh (opposite to Dera Baba Jaimal Singh). As per the notification of Govt. of India, a no construction zone of 900 meters around these sites is to be earmarked where no activity relating to mining or construction is permitted. Accordingly, a restricted zone of 900 meters has been marked in the proposed land use plan. (Refer Plan 2 and 4)

10.5.1.7 Recreation

As already explained, Amritsar badly lacks in the provision of green /recreational spaces in the city which has affected adversely the quality of life prevailing in the city. Accordingly, there is an urgent need to provide recreational area as per prescribed norms and standards. In order to meet the deficiency of such activities, a recreational area have been proposed along U.B.D.C. that is passing through north east of the Amritsar LPA and enters Tarn Taran district in the south of LPA. The proposed recreational area is located on the down-stream of U.B.D.C, i.e at the intersection of U.B.D.C and Tarn Taran Railway Line in the southwestern side where already a large area under orchards is present. In addition, a 45 meters wide green belt is also proposed along one side of the U.B.D.C upto the proposed outer ring road in both

north and south directions is proposed to be developed as green belt/recreational area. with road on the other side. While the 45 meters area on the both sides of the U.B.D.C, outside the proposed outer ring road and upto the L.P.A boundary in the north of L.P.A is proposed to be developed as green belt. Further, for meeting the regional level requirements of recreation, a Zoological Park is also proposed at Rakh Bhusian near Sarai Amanat Khan, which will help in preserving precious but dwindling categories of birds and plants/trees. The total area proposed under recreational use is 2,489.1 hectares, which works out to be 15% of the total urbanisable area of the city.

Recreational areas are also proposed to be carved out within the walled city and area adjoining the walled city particularly in the southern part where, due to unplanned and haphazard development, very little open spaces and recreational areas are available. The area available within walled city from the process of decongestion and shifting of wholesale markets is proposed to be used in majority of cases for creation of open spaces and recreational area. In addition, area adjoining the walled city, which houses Roadways bus depot, Lakkar Mandi, Dussehra Ground etc. is also proposed to be developed as major recreational zone. Improvement Trust, Amritsar has also contributed in the development of number of parks/open spaces as integral part of residential projects undertaken by it. A 30 acre park by the name 'Amrit Anand' is being developed in the Ranjit Avenue, Block E on the Fatehgarh Churian Road, which will act as *Mela* Ground, Family Picnics, Heritage Court and Children Play Area. All existing parks/ open spaces available within/ outside the Walled City including Ram Bagh, Gol Bagh, Sakatri Bagh along Circular Road outside Walled City, etc. shall be planned as landscape projects for development of green spaces. The old glory of the Ram Bagh shall be restored by shifting all clubs operating within the Ram Bagh. In addition, all the open spaces which are under encroachment shall also be identified, vacated and developed.

The existing stadium on M.M. Malviya Road has been retained in the Master Plan and is proposed to be upgraded, enhanced and further developed in terms of essential infrastructures in order to meet the national/ international level needs of the sports/recreation. Further, new site for sports complex of international standard is also proposed to be developed on the southern part of the city along the City Ring Road in an area of 50-60 acres. Golf Course and hotels for tourists are proposed to be located along the Ajnala Road leading to the Amritsar International Airport. Convention Centre and Exhibition Ground of international standard is also proposed to be developed in the close vicinity of Amritsar International Airport in D Block, Ranjeet Avenue, along Ajnala Road with an approximate area of 30-40 acres (as

depicted on Proposed Landuse Plan of Amritsar LPA) in order to meet the future demand of exhibition/ conventions/ stay of the tourist/ delegates attending such conferences/ visiting exhibition.

In Amritsar, concept of '**City Forest'** is proposed to be adopted under which available green area at selected places shall be put under intensive plantation. This would not only increase the green cover in the city, but would also improve the quality of environment besides attracting large number of birds which would be living in these forests.

The Ganda Nallah and Tung Dhab Drain which are covering the major part of the length and breadth of the city and have high degree of pollutants are proposed to be developed as the **Leisure Valleys** of Amritsar. It is proposed that all sources of pollution along these Nallahs are to be removed. The Nallahs are proposed to be developed as the channels carrying clean water in order to improve the quality of ground water in the city. In addition, the walkways are proposed to be planned along these Nallahs besides undertaking the landscaping. Further, the Nallahs could also be used for draining the rain water of the city in order to minimize the problem of water logging in the city. The development of Ganda Nallahs is to be taken up in the shape of project on the pattern of what was done in Pune. The area presently under the old water supply system known as 40 Khuh shall be developed as a major recreational area catering to the Amritsar and the regional level requirement. A detailed scheme for the development of this area shall be prepared as integral part of the Zoning Plan. No tree in this area shall be permitted to be removed. In addition, a green belt of 10 meters have been proposed along the drains/nallahs/distributaries flowing through out its length within the Amritsar L.P.A.

In addition, all the residential areas will be planned in such a manner that they have required level of open, recreation and other spaces. Provision of such spaces shall be made integral part of the planning of residential areas. Norms and standards have already been defined in the Master Plan for these spaces. Accordingly, it will be ensured that all the residential colonies conform to these norms of recreational activities. (Refer Plan 2)

10.5.1.8 Rural and Agricultural Zone

With the objective of preserving the valuable agricultural land and maintaining its basic rural character, non-urbanisable area falling within Local Planning area has been proposed as rural/agricultural zone. This zone comprises of the area between the outer ring road and local planning area excluding the urbanisable area of urban settlement of Majitha and Rayya. This zone comprises of 17,210 hectares out of the total L.P.A area of 1,39,419 hectares.

Considering the role and importance of agricultural land for the growth and economy of the area and region, only 12.34% of total area is proposed to be urbanized by 2031 with remaining 87.66% of the area to be retained as rural and agricultural in character in Proposed Land Use Plan. Area around rural settlement in the shape of belt will be permitted to be used for meeting the shelter and other related needs of the population likely to be added by 2031. The pattern of development shall be restricted to low density low rise. In order to promote productivity and value addition in the agro-products, agro based knowledge centers and marketing centers shall be set up. Emphasis shall be given on promoting agro-based industry in the zone in order to create better employment opportunity for minimizing migration to the urban centers. The zone will also be used for the production of day-to-day food related needs of the residents of urban centers in order to promote the urban rural continuum and also minimizing the needs of transportation of basic goods from other areas. Regional level recreation spaces can also be located in this area having large area requirement with very small built up areas. The zone will also be used for shifting large number of animals including Gaushalas near Durgiana Temple, Ghee Mandi and large number of unaurthorised dairies, which are being maintained within the urban limits/housing areas. These Gaushalas/dairies are source of great nuisance causing numerous problems for the residents. Accordingly, it is proposed that no milch animal should be permitted to be housed in the residential area and all milch cattle should be shifted to the dairy complexes to be created in the planning area outside the municipal limits on the sites identified in consultation with the beneficiaries and Animal Husbandry Department of the state government/Municipal Corporation, Amritsar. This will not only help in cleaning the city from the environmental hazards created by the animals, but will also help in better management of animals and their productivity benefitting the cattle owners both economically and operationally. Efforts should be made to create cooperative societies of the cattle owners on the pattern followed in the state of Gujarat in order to usher White Revolution in the state.

10.5.1.9 Conservation Areas:

a. Heritage Conservation

The city of Amritsar has rich heritage that needs to be preserved, conserved and promoted. Accordingly, a well-defined strategy will have to be put in place in order to integrate them in the future growth and development of Amritsar L.P.A. Detailed proposals based on ground realities and the special character of these structures needs to be prepared with sensitivity in order to make them as an area of tourist attraction. Well-defined planning and development

norms around these heritage buildings will required to be evolved in order to minimize haphazard, unplanned and substandard growth in the area. Few of the buildings or places identified in the LPA Amritsar which are critical in the context of heritage conservation includes:

1. Jallianwala Bagh
2. Golden Temple
3. Ram Tirath
4. Pul Kanjari
5. Samadh Attari
6. Sarai Amanat Khan
7. Railway station
8. Head Post Office
9. Saint Paul Church
10. City Wall and Gates
11. Gobindgarh Fort
12. Durgiana Mandir
13. Ram Bagh Garden
14. Town Hall

Amritsar Protected Monuments

As per notification issued by the Govt. of India vide letter No. S.O. 1341 (E) dated 24th November 2003 (Refer annexure IV), the Summer Place of Maharaja Ranjit Singh situated inside Ram Bagh in Amritsar has been declared as an ancient monument under section 4 of the Ancient Monuments and Archaeological Sites and Remains Act, 1958. As per this act, the area of 3 kanals 2 marlas has been transferred in the name of Archaeological Survey of India. Further to this, as per notification no. 1764 date 16-06-1992 issued by the Govt. of India, the Central Government has declared area up to 100 meters as prohibited area from the protected limits of the monument in all directions and in addition 200 meters as the regulated area beyond the prohibited area in order to regulate and rationalize the growth and development around these monuments. No construction, public projects within the prohibited area of the protected monuments is permitted. In addition, it includes prohibition and regulations of both mining and construction under the provisions of rule 32 of the Ancient Monuments and Archaeological sites and Remains Rules, 1959. (Refer annexure V) Accordingly, a 100 meters no construction zone has been earmarked around the protected monument with the purpose of preserving the environment around the monument. In

addition, the area up to 200 meters beyond the prohibited zone is proposed to be regulated area where no high-rise building would be allowed so that the pre-eminence of the building may be maintained. All construction-taking place in the regulated zone shall be subject to the detailed regulations to be defined for these. Besides this, Ram Bagh Deodi has also been declared as protected monument under this Act and 100/200 meters no construction/regulated zones have been earmarked.

However, proposed 100 meters no construction zone of the Summer Palace of Maharaja Ranjit Singh include three recreational clubs namely: Service Club, Amritsar club and Lumsden Club that need to be shifted from the garden complex on priority. Moreover, several slums have cropped up in the vicinity of the monument, which largely belong to the work force engaged in the restoration work of the monument but are indirectly causing harm by defacing the monument. Hence, care needs to be taken to preserve the integrity and environment around the monument. However, there are still large number of heritage buildings existing in the city, which needs to be protected and preserved including the Gobindgarh Fort, Wall and gates constructed around the city etc. Accordingly, a detailed survey of the city heritage needs to be carried out by an inter-disciplinary group comprises experts in order to identify its heritage. Further, effective steps needs to be taken on priority in order to conserve, preserve and promote the ambiance of the heritage buildings and the areas adjoining such buildings. Considering the special character of the walled city, special development regulations needs to be framed on priority for the walled city and construction taking place in the area in order to preserve its character and reduce further destruction.

10.5.1.10 Forest Area

As the Amritsar LPA lacks in the provision of open and green spaces, therefore a zoological park has been proposed at Rakh Bhusian near Sarai Amanat Khan, which has already been declared as a protected forest. This would help in preserving the rare species of animals, birds and plantations/trees, besides improving quality of environment in the area.

10.5.1.11 Tourism

The existence of Golden Temple, Jallianwala Bagh, Durgiana Mandir, Ram Bagh, etc. has made Amritsar as the tourist centre of international repute and hub of religious and cultural heritage. Accordingly, it attracts large number of tourists on day-to-day basis. In addition, it has the distinct advantage of having a number of historical sites present within the LPA and its surroundings, which offer enormous opportunities of development. These sites can be

effectively used and developed for leveraging the tourism potential and for providing and required impetus to the tourism. Further, it has been observed that despite large no. of tourists visiting the city, their actual stay is highly restricted. Most of the tourists stay only for a day. In order to make tourism as the major economic driver for the area, it is proposed to extend the stay of the tourists to two-three days. In addition, city has very limited accommodation for catering to low budget tourists. Accordingly, it is also important that appropriate level of budget hotels are created in the city. Scheme for accommodating tourists in the residential houses (bed and breakfast) can also be considered as an option for providing affordable accommodation to the tourists. Incentive based scheme will have to be framed for creating appropriate level of budget accommodation. It is also proposed to provide numerous options for the tourists by developing tourist circuits at three distinct levels as detailed below.

The entire approach to promote tourism shall revolve around provision of 4 As including

- Promoting high degree of accessibility,
- Providing comfortable and affordable quality accommodation, including low budget accomodation
- Creating more opportunities for attracting tourists, and
- Providing state of art tourism related infrastructure and amenities.

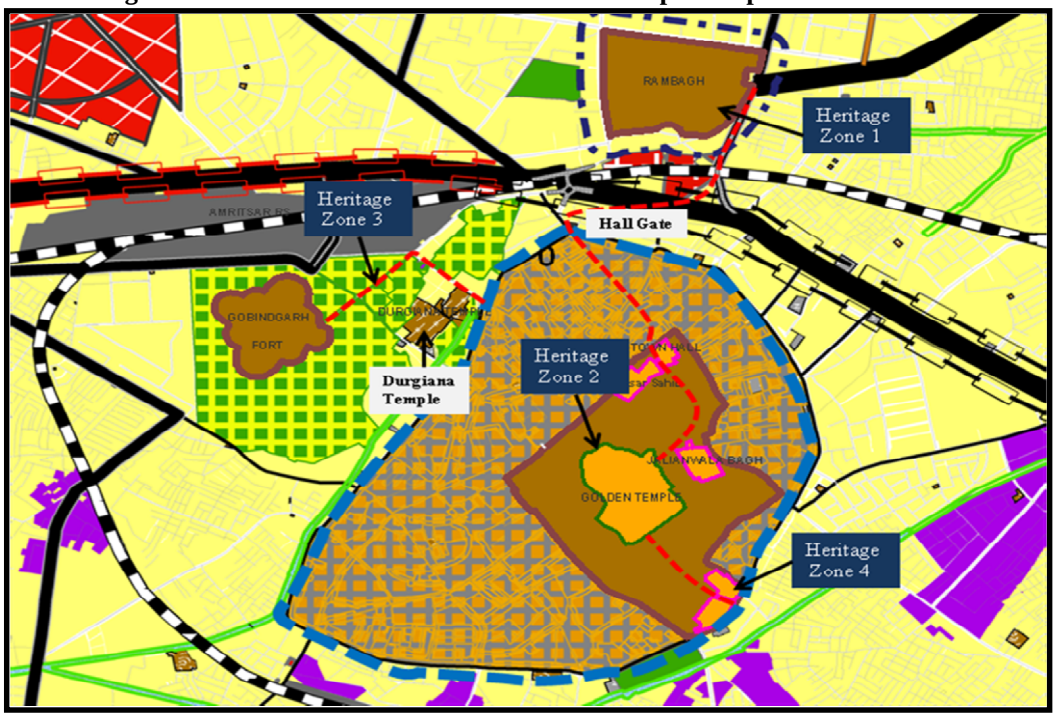
1) Within Amritsar Municipal Corporation Area

The city has number of tourist attractions of historical, cultural and religious importance. All these places can be showcased through a system of heritage walks. Considering the spatial location and importance, following few routes are proposed to be developed for Heritage Walk as tool for promoting awareness about heritage and tourism development.

i. Processional Route of Maharaja Ranjit Singh from Ram Bagh Garden to walled city via Ram Bagh Gate
ii. Heritage walk around Sri Harimandir Sahib including Gurudwara Baba Atal Sahib to Gurudwara Lohgarh.
iii. Lohgarh Gate to Gobindgarh and Durgiana Mandir.
iv. Gurudwara Ramsar to Amrit Sarovar (via Bibeksar, Santokhsar, Kaulsar)

All the above routes can be combined and developed based on the pattern followed in "**Freedom Trail**" adopted in the case of city of Boston, U.S.A. for showcasing the rich heritage and history of the city. The heritage walk in the case of Amritsar can be named as **"Religio-Cultural Trail**".

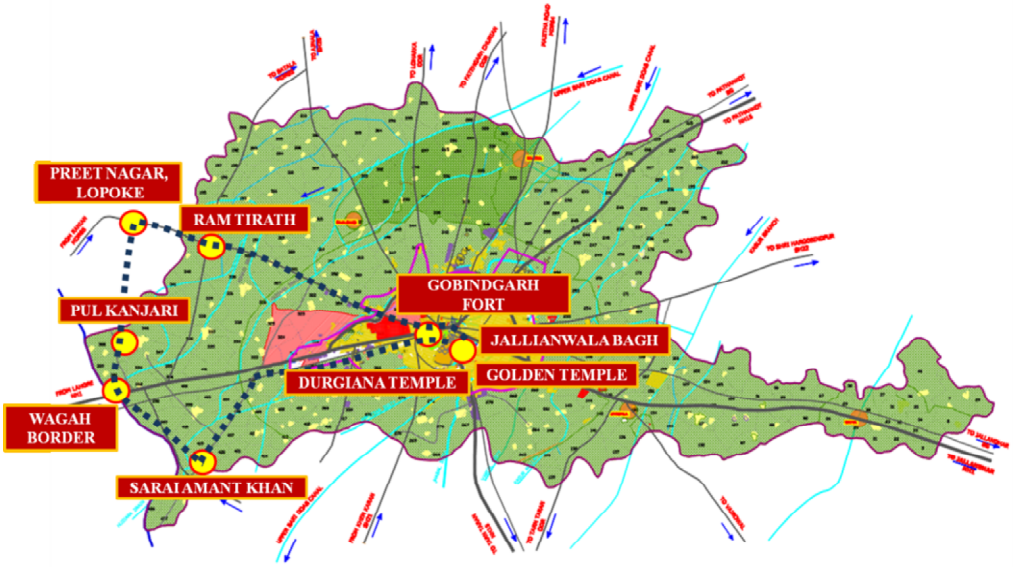
Fig no.133 Tourist Circuit 1 for Amritsar Municipal Corporation Area



2) Within Amritsar Local Planning Area

Amritsar-Ram Tirath-Preet Nagar-Pul Kanjari- Wagha Border-Sarai Amanat Khan-Amritsar tourist circuit has been identified for promoting tourism within the Amritsar Local Planning Area. The route within the city of Amritsar comprises of destinations such as Golden Temple, Jallianwala Bagh, Durgiana Temple and Gobindgarh Fort. Within LPA, it covers destinations such as Ram Tirath (which takes us back to the times of Ramayana), tomb at Sarai Amanat Khan (a highway inn of the Mughul times) and Wagha Border, which is known for the beating of the retreat ceremony on the International border with Pakistan.

Fig no.134 Tourist Circuit within Amritsar LPA



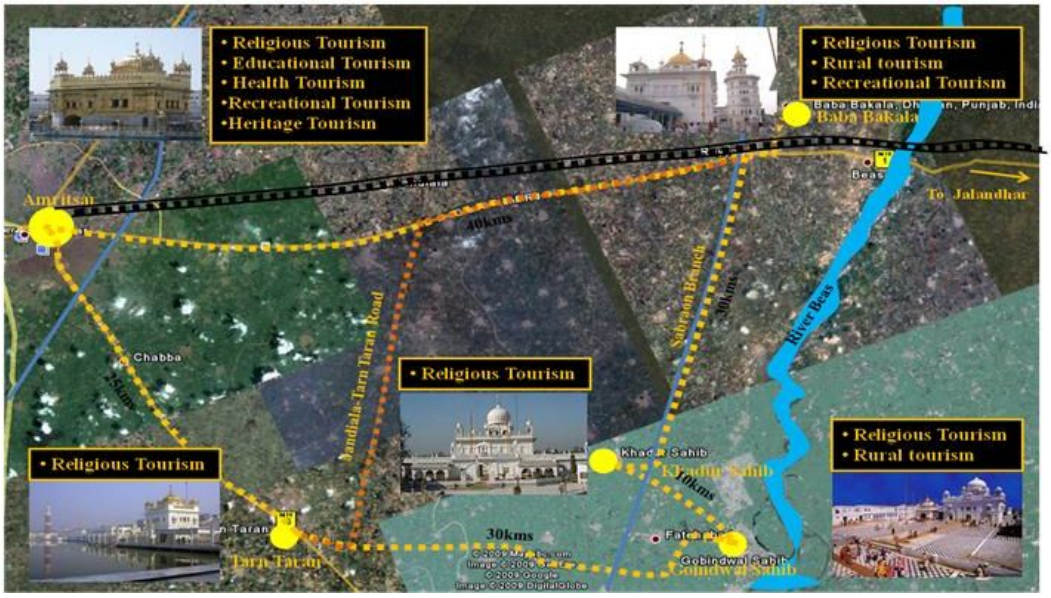
Regional Level Tourist Circuit

At regional level, three distinct tourist circuits have been identified which can be developed and promoted for tourism:

1) Amritsar-Baba Bakala-Khadur Sahib-Goindwal-Tarn Taran-Amritsar

This tourist circuit falls within the districts of Amritsar and Tarn Taran, and includes important religious and historical destinations of Baba Bakala, Khadur Sahib, Goindwal, Tarn Taran, Amritsar. The circuit will have numerous options in terms of rural tourism, recreational tourism, religious tourism and heritage tourism.

Fig no.135: Proposed Tourist Circuit Baba Bakala (Rayya) Region



2) Amritsar-Dera Baba Nank- Kalanaur-Qadian-Gurdaspur-Pathankot

This circuit comprises of Amritsar (the seat of Sikh religion "Golden Temple"), Dera Baba Nanak (a place where Guru Nanak Dev Ji spent last days of his life), Kalanaur (where the emperor Akbar was coronated), Qadian (home of the Ahmedyia Sect) and Pathankot (Gateway to the States of Jammu and Kashmir and Himachal Pradesh). This circuit includes both religious, historical and cultural centres of tourist interests.

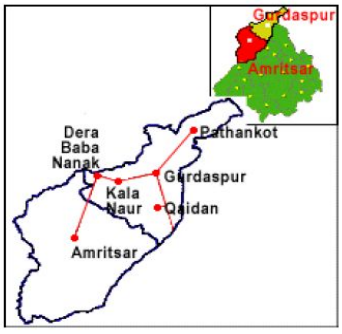


Fig no.136 Tourist Circuit 2 at Regional Level

3) Amritsar-Tarn Taran-Hari Ke Pattan-Goindwal Sahib-Sultanpur Lodhi-Kapurthala (Kanjli Lake)- Jalandhar

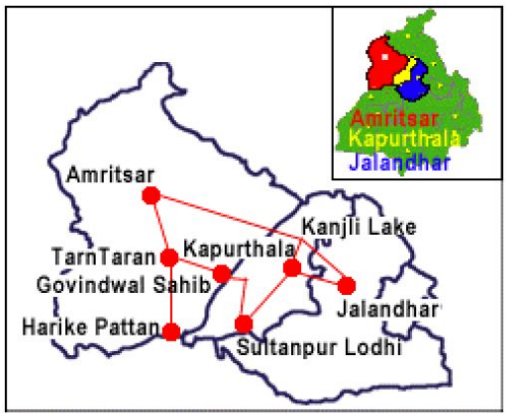


Fig no.137 Tourist Circuit 3 at Regional Level

This circuit is a combination of religion, and environment related places of importance. It includes a majestic gurudwara with a golden dome and a large holy pool having healing powers built at Tarn Taran in the memory of 5th Sikh Guru, Sri Guru Arjan Dev Ji. It also includes Hari-Ke-Pattan, which is the confluence of Satluj and Beas, two major rivers of the state of Punjab before entering Pakistan. It is a notified and protected wetland of national importance is a wild life sanctuary of international fame. The circuit also includes Goindwal Sahib, seat of Sikhism during the lifetime of the 3rd Sikh Guru, Sri Guru Amar Dass Ji. It has a deep well with 84 steps. Sultanpur Lodhi, where the founder of Sikhism, Sri Guru Nanak Dev ji spent 12 years in the service of Nawab Daulat Khan Lodhi is also included in the circuit. It was from here in 1500 A.D. that Guru begun his first holy travel towards the east and the south. The last destination in the circuit includes Kapurthala, which is known for French pattern of city planning, beautiful palaces and buildings. Kanjli Lake, another Wetland located near Kapurthala, is known for its scenic beauty. It receives several species of migratory birds and is a fulfilling picnic spot.

For promoting tourism, number of projects have been proposed with few of them have already been undertaken. 23 such projects, including setting up of Heritage Village in G.N.D.U, converting Town Hall as museum, upgrading Gobindgarh Fort, beautification of the surrounding of Durgiana Temple, organizing light and sound programme in Jallianwala Bagh, etc. have already been identified in para 3.5 of the report and are included as integral part of making Amritsar as the tourist destination.

In addition to above, it is also proposed that important entries to city including

1. Entry from international border from Attari side on G.T. Road,
2. Entry from International Airport on Ajnala Road, and
3. Entry from Delhi/Jalandhar side on G.T. Road

should be taken up for beautification through appropriate quality of landscaping, creation of gates and through well designed lighting and water features/signages in order to accord a warm welcome to the visitors to the city

10.6 PROPOSED TRAFFIC AND TRANSPORTATION PLAN

Traffic and Transportation is the most critical component of any city because it defines and determines both existing and future patterns, typology of growth and development of the city. Since, the traffic and transportation in any city is the function of landuse, accordingly traffic and transportation network would be required to be integrated with the proposed landuse in order to provide high degree of connectivity and travel options between various landuses. It would also be critical to increase the operational efficiency of different urban centers. Accordingly, traffic and transportation plan of Amritsar LPA up to the year 2031 has been proposed based on the Proposed Landuse Plan for Amritsar LPA.

The proposals related to Traffic and Transportation Plan as detailed, aims at rationalizing the existing road network, creating a well defined hierarchy of roads, redesigning the critical areas including road junctions, creating over-bridges, rationalizing the inter and intra city traffic, creating adequate parking spaces, ensuring distribution and collection of traffic from various parts of the city both in terms of existing and proposed development, developing well defined interface between different land uses, improving efficiencies in traffic movement within the city, minimizing delays etc in order to improve the operational efficiency and productivity of the city and creating appropriate environment by minimizing vehicular pollution. The proposed traffic and transportation plan defined in the proposed Landuse plan will form the basis for promoting the rational and planned growth of the Amritsar L.P.A.

The proposed network will also help in redefining the proposed urbanisable area in to different development zones, which can be planned on the basis of self contained and self sufficient neighborhood principles with convenience as a major objective. This would also help in promoting communities and interlinking them to the basic framework of the city. In addition, it will also help in redesigning the basic infrastructure and services essential for basic sustenance of the people and the city.

10.6.1 PROPOSED ROAD NETWORK AND HIERARCHY

The proposed Traffic and Transportation Plan of Amritsar L.P.A is based on a well-defined road network of appropriate hierarchy in order to cater to the traffic needs of the urban centers and population living and working there. It includes redefining, strengthening and augmenting the existing road network and additional linkages to be created in order to rationalize the traffic and transportation within the city and areas proposed to be brought under urbanization. Keeping in view the future shape and size of Amritsar urbanisable area, there is need for creating an efficient and effective system of transportation.

The existing road network in Amritsar has a distinct character dominated by a radial pattern. It has been observed that all cities having radial road pattern needs to be supplemented with a radial pattern of road network in order to rationalize the traffic movement and its equitable distribution within different parts of the city. Ring and radial pattern has also been found to have distinct advantage of positioning an effective system of rapid mass transportation by using the rings and the radials to be used for running such services. Accordingly, Ring and Radial pattern of road network has been proposed for Amritsar L.P.A taking into account the existing road pattern and proposed landuse pattern. Amritsar has a network of 11 radial roads emanating from the centre of the city and serving different parts of the city and the adjoining settlements. It has at present only one complete ring around the Walled City. The other ring exists only in the northern part of the city known as the Northern Bye pass, whereas its southern half has not been constructed. In order to rationalize the traffic and minimize congestion and to cater to the increased volume of traffic in future, two additional ring roads have been proposed besides completing the existing bye pass in the southern direction. The Inner Ring Road is proposed to serve the city area proposed for urbanisation within existing bye pass and proposed Outer Ring Road. The Outer Ring Road would provide high degree of connectivity between urban nodes proposed in the Amritsar LPA, besides rationalizing the regional traffic. (Refer plan 3, Drawing No. D.T.P. (A) 20/2010 Dated 29.09.2010)

The existing network of radial roads passing through L.P.A has been retained and it is proposed for improvement/widening/strengthening. While demarcating the internal road network within L.P.A, efforts have been made to make optimum use of available road infrastructure and land available along the irrigation channels in order to minimize the cost of development and to ensure easy availability of land for the proposed road network. The large areas falling within the ring and radial roads have been proposed to be served by second order of hierarchy of roads serving inter and intra city traffic as shown in the Proposed Traffic and Transportation Plan (Refer Plan No.3). In order to meet the future demand of traffic and transportation for the Amritsar Metropolis and the LPA, following hierarchy of roads has been proposed:

Table 111: PROPOSED ROAD HIERARCHY, LPA AMRITSAR**

Category of Road	Description	Right of Way (Meters)	Remarks
R1	Outer Ring Road	80 mts	• High speed and high capacity road • Catering to intercity/ regional Traffic • Dual Carriage Way having a total of 10 lanes and provided with service lanes & cycle tracks • Minimum Openings • Controlled access • No Building Zone of 5 mt to be provided on either side of the road reservation
R2	Inner Ring Road/ City Ring Road/ National Highways N.H-1 - GT Road(Lahore to Delhi) N.H.-15-Pathankot-Amritsar-Tarn Taran **State Highways** Amritsar-Khemkaran Road (S.H-21) Amritsar-Sri Hargobindpur Road (S.H-22) Amritsar-Ajnala Road (S.H.-25)	60mts* (However, portion of the existing roads except Amritsar-Ajnala road falling within the municipal limits shall continue to be taken as per the existing ROW. The proposed ROW shall be applicable in the portion of the road outside the municipal limits)	• High speed and high capacity road • Dual Carriage Way • Inter and intra City Traffic • Highly controlled accesses by providing service road • Minimum Openings • Well defined Road Junctions • Service Lanes & Cycle Tracks • No Building Zone of 5 mt to be provided on either side of the road reservation
R3	District Roads including Amritsar-Ranian/Lopoke Amritsar-Loharka Amritsar-Fatehgarh Churian Amritsar-Majitha Amritsar-Chogawan-Ajnala	45mts* (However, portion of the existing roads falling within the municipal limits shall continue to be taken as per the existing ROW. The proposed ROW shall be applicable in the portion of the road outside the municipal limits)	• High speed and high capacity road • Road will carry both inter and intra city traffic • Dual Carriage Way • Well defined Road Junctions • Cycle Tracks/ Footpaths • No Building Zone of 5 mt to be provided on either side of the road reservation.
R4	Circular road around walled city, outer circular road and other major roads of the city and shopping streets/sector roads	30mts	• Road will carry both inter and intra city traffic • Cycle Lanes and Footpaths • Provision of adequate parking where road frontage used for urbanization
R5	Roads other than R4 carrying city traffic within the residential areas	18 mts	• Distributor roads carrying intra city traffic provided with footpaths
R6	Roads providing access to individual houses	12 mts	• Providing accessibility at the local level
R7	Cycle Tracks	2-5 mts	• Specially for catering to cyclists
R8	Pavement/ Footpath for Pedestrian Movement	1.5-2.5 mts	• Exclusive for pedestrain movement

*Subject to the provisions of road width specified above and the D.C.R, no road in the L.P.A will have a width less than 12 mts.

** No-building zone along the scheduled roads, as defined above shall be subjected to the notification issued by the state govt. under the PRTPA-1995.

***Width of the railway land/ line and ROW of the road network (both existing and proposed) shown on the Existing Landuse Plan and Proposed Landuse Plan in Amritsar LPA are indicative only.

Footpath

The width of footpaths is listed as below:

Minimum width	1.5 m
Adjoining shopping frontage	At least 3.5 m
Longer shopping Frontage	Minimum 4.5 m

Width should be increased by 1m in case of city/district shopping areas.

Cycle Track

The minimum width of cycle tracks should be 1.5 m. Each additional lane, where required, should be one meter.

10.6.1.1 Outer Ring Road (R1)

Considering the future city structure and the regional traffic scenario in future, an outer ring road has been proposed to meet the future inter-city travel needs of the L.P.A. This road defines the contours of the proposed urbanisable area. It shall be 80 meters wide and will be high speed and high capacity road having the character of expressway (Refer cross section given in annexure XIV). The road will be a dual carriageway having a total of 10 lanes and 4 lanes for the service roads besides provision for the cycle tracks. The proposed Outer Ring Road is nearly 7 kms from the existing northern bye pass and is passing just above the urban limits of Rajasansi providing high degree of accessibility to the international airport for the traffic coming from Jalandhar/Tarn Taran, etc. This will prevent the regional traffic entering the city, thereby relieving the city roads from congestion. The proposed Ring Road will also provide high degree of connectivity between all the major settlements existing within L.P.A and will promote their economy, growth and development. It would also rationalize the pattern of population and activity distribution within the L.P.A promoting decentralization and urban-rural continuum.

At present, the traffic for International airport, Wagah Border, etc. coming from Jalandhar/Tarn Taran has to pass through the city, thereby mixing of regional and local traffic causing road blocks/congestions at various junctions in the city. At present, while going to Amritsar Airport, one has to travel through the congested city roads to reach the Airport on Ajnala Road. With the development of Outer Ring Road, the time taken to reach the airport will not only be considerably reduced but it will also minimize the existing traffic bottlenecks /traffic roadblocks within the city. Further, the proposed ring road will also cater to the traffic going to Wagah Border from Airport, Jalandhar and Tarn Taran. The distance of

Wagah Border from the airport on the proposed outer ring road is 31.21 kms and that from Tarn Taran Road intersection will be 35kms approximately.

The proposed Outer Ring Road also provide connectivity between 10 major roads passing through the city including Amritsar-Sri Hargobindpur Road (S.H.-22), Batala Road (N.H-15), Majitha Road (M.D.R-64), Fatehgarh Churian Road, Loharka Road, Ajnala Road (S.H-25), Amritsar-Chogawan/Ranian Road (M.D.R-65), G.T Road (N.H-1), Amritsar-Khemkaran Road (S.H-21) and Amritsar-Tarn Taran Road (N.H-15). The proposed Outer Ring Road has a length of 101kms approximately, out of which about 79kms fall within Amritsar L.P.A and about 22 kms fall outside LPA boundaries (Tarn Taran district). The portion of the Outer Ring Road falling in the Tarn Taran Planning Area shall be incorporated in the Master Plan of Tarn Taran L.P.A (Refer Proposed Traffic & Transportation Plan, Drawing No. D.T.P. (A) 20/2010 Dated 29.09.2010). Further, a 500 mts deep mixed landuse zone has been proposed along the entire length of the proposed Outer Ring Road, outside/ beyond the urbanisable area in order to regulate the haphazard growth and to control the use of land along the proposed road. In addition, in order to promote higher order of development and to minimize smaller division of land along the Outer Ring Road, no development shall be permitted on a plot having width less than 200 feet. The proposed zone has been shown in the Proposed Landuse Plan of Amritsar L.P.A contained in the Drawing No. D.T.P. (A) 18/2010, Dated: 29.09.2010. The development along this road shall be governed by the Development Control Regulations/ Detailed Schemes prepared for the zone. First right to develop this zone shall rest with the Amritsar Development Authority.

10.6.1.2 Middle Ring Road (R2)

The Inner Ring Road has been proposed for providing high degree of connectivity and serving the residential and other uses provided between the Bye-pass and the proposed Outer Ring Road. The Inner Ring Road will rationalize the distribution of traffic considering the distance between the existing Bye pass and the proposed Outer Ring Road. The Inner Ring Road will also define the limits of the city to be developed in the phased manner and for making provisions for the mass transportation system. The road is supposed to be high capacity and high volume road, with controlled accesses. It is proposed to have a total R.O.W of 60 m. The total length of the inner road including the S.H.-21 section is 79 kms. This road has been aligned keeping in view the existing road network.

Considering the role and importance of the road, a 500 mts deep mixed landuse zone on either side of the road along the portion starting from Ajnala Road to G.T Road on the

eastern part of the city and 300 meters on N.H.-1 (from Attari) to Amritsar-Ranian Road in the western part of the Local Planning Area. This zone will be developed on the concept of Aero-city followed in SAS Nagar by G.M.A.D.A. However, the first right to develop the zone will vest with the Amritsar Development Authority. The proposed zone has been shown in the proposed landuse plan of Amritsar planning area contained in the Drawing No. D.T.P. (A) 18/2010, Dated: 29.09.2010. The development along this road shall be governed by the Development Control Regulations/ Detailed Schemes prepared for the zone.

10.6.1.3 Existing Northern Byepass

The northern bye pass existing in the city stretches from village Daburji in the east to Naraingarh in the west with a total length of 22 kms. The existing northern bye pass has attracted lot of developments that are mixed in nature and without observing the no-construction zone along the byepass except the planned area. Hence, a no construction zone of 5 meters has been proposed along the existing northern byepass. The no building zone along scheduled roads and other major roads as mentioned in the table 111 above, shall be subjected to the notification issued by the state govt. under the the provisions of the Punjab Regional and Town Planning and Development Act-1995 (amended in 2006).

10.6.1.4 City Ring Road (R2)

The existing northern bye-pass in the city stretches from East to West direction having a total length of 22 kms and is serving only the northern half of the city. It has been observed that in the absence of the southern half of the bye pass, city faces high degree of congestion, traffic bottlenecks and traffic related problems causing major inconvenience/road block to the traffic going towards the south of the city. In the absence of southern part of the road, both the regional and local traffic moving towards this part of the city has to pass through the city roads, thereby causing traffic congestion on these roads. Hence, in order to rationalize the inter and intra city traffic, a City Ring Road with a R.O.W of 60 meters has been proposed starting from Daburji on G.T Road towards Jallandhar in the east to the Naraingarh on G.T. Road towards Attari , that is extending up to the northern bye pass in the west direction. The total length of proposed City Ring Road is calculated to be 20kms. It comprises of 14kms of road section between G.T Road towards Attari to T.T Road (N.H.-15) and nearly 6 kms between sections from Tarn Taran Road to G.T Road towards Jalandhar. Considering the role and importance of the road, a 300 meters deep mixed landuse zone on either side of the road along its entire length is as as shown in Drawing No. D.T.P. (A) 18/2010, Dated: 29.09.2010.

This zone will be developed on the concept of Aero-city followed in SAS Nagar by G.M.A.D.A. However, the first right to develop the zone will vest with the Amritsar Development Authority. The development along this road shall be governed by the Development Control Regulations/ Detailed Schemes prepared for the zone.

In addition, a 45 meters wide road has been proposed along the U.B.D.C throughout its length upto the proposed Outer Ring Road in both directions on one side and 45 meters wide green belt on the other side. The proposed road would provide high degree of connectivity between the G.T. Road (N.H.-1) and Taran Taran Road (NH 15). The portion of the proposed road along U.B.D.C beyond the proposed Outer Ring Road will be provided with a green belt upto the L.P.A boundary as per the provisions contained in the D.C.R. Since large volume of traffic presently meant for N.H.-15 is now passing through the southern part of the city causing major traffic problems, provision of this Ring Road will help in rationalizing/diverting the traffic on this road providing considerable relief for the area. Since the land is already available along the U.B.DC, it is proposed to widen, augment and strengthen the existing road along the U.B.D.C .for catering to the future traffic volume in the area. The Municipal Corporation of Amritsar has already prepared a Detailed Project Report on the feasibility of constructing the Ring Road along the U.B.D.C based on the detailed surveys and studies carried out. The Municipal Corporation Amritsar has already submitted the project report for funding of the proposed portion of the Ring Road along U.B.D.C. Further, this Ring Road has been proposed to be extended up to the Outer Ring Road in both the north east and southern direction. This road will connect all the three rings namely the existing byepass ring and the proposed southern ring, proposed Inner Ring Road and Outer Ring Road.

10.6.1.5 Other Roads (R2)

The existing roads like G.T Road (N.H.- 1), Batala Road (N.H.-15), Tarn Taran Road (N.H.-15), Ajnala Road (S.H.- 25), Sri Hargobindpur Road (S.H.-22) and Khemkaran Road (S.H.-21) have been proposed as second hierarchy roads (R2) catering to the inter city traffic. It is proposed to widen these roads up to 60 meters R.O.W. in the area outside the municipal limits. However, these roads except Amritsar-Ajnala road will continue to have R.O.W within the municipal limit as per the existing conditions. Considering the role and importance of Amritsar-Ajnala Road, which provides accessibility to the Amritsar International Airport, it is proposed to widen this road to 6 to 8 lanes, in order to cater to the heavy traffic flowing

on this road. Further, the proposed R.O.W for Amritsar-Tarn Taran road shall be finalized taking into consideration the N.H.A.I proposals for the project relating to N.H.-15.

All these roads falling in the category of R2 and R3 will have mixed landuse zone of 300 meters on either side of the road in the portion falling between the municipal limit and the Local Planning Area boundary in order to regulate/ minimize the haphazard and unplanned growth along these roads. However, in order to maintain the character and continuity of the belt, mixed landuse shall continue to be permitted along these roads in the portion falling within the Municipal Corporation limits. The position of mixed landuse zone has been indicated on the Drawing No. D.T.P. (A) 18/2010, Dated: 29.09.2010. The development along this road shall be governed by the Development Control Regulations/ Detailed Schemes prepared for the zone. The first right to develop this zone shall rest with the Amritsar Development Authority on the the proposed Middle Ring Road stretch from Ajnala Road to G.T Road, Amritsar-Ranian Road to G.T Road towards Attari and proposed City Ring Road in the southern direction.

The lower hierarchy roads of R3 and R4 category have been proposed to provide accessibility upto interior areas. These roads are mostly proposed either following the existing link roads or along the water bodies/canals/drains proposing their widening and strengthening. These roads would interlink the proposed Inner Ring Road and Outer Ring Road besides the existing radial roads. Further, Rayya-Sathiala-Batala Road (O.D.R) falling in Rayya region is also proposed to widen up to maximum of 45 meters R.O.W connecting to R.O.B.

Within L.P.A, 4 road links have been proposed of hierarchy R-4 of which 2 roads links have been upgraded (Rayya-Baba Bakala-Jalalpur Sathiala-Sathiala and Sathiala-Balsarai-Dera Baba Jaimal Singh-Budha Theh connecting N.H.-1) and 2 new links have been proposed connecting Rayya and Sathiala diverting from Baba Bakala which will act as diversion from the existing Rayya-Baba Bakala-Sathiala Link. Another link proposed is from Rayya to S.H.-22 along Sabroan Branch. The proposed road network explained above has been shown in the Drawing No. D.T.P. (A) 20/2010, Dated: 29.09.2010. Further, the R3 and R4 category of roads demarcated would help in delineation of different zones in the proposed landuse plan drawing.

Further, the roads of hierarchy R5 and R6 carrying traffic within the sector and providing access to individual houses respectively will be demarcated at the zonal plan level. Besides this, R6 category of roads will also form part of the colonies to be approved under PAPR Act 1995 and will be provided therein as part of these individual colonies. It is also proposed to

construct roads on abandoned distributories/water bodies and to remove the encroachment existing on/along them as per details given in the zonal plan.

Further, in Rayya region falling within LPA, Amritsar, five links have been proposed to be up-graded to the category of R-5 i.e. 18 meters R.O.W. (Refer Plan 4, Drawing No. D.T.P. (A) 19/2010 Dated 29.09.2010)

It is proposed that tree plantation along the main roads such as R1, R2, R3 and R4 shall be carried out in consultation with the landscape Architects, Horticulture Department and Forest Department. On this line, there is already a proposal for creating a green belt along the G.T. Road from Taranwala Pul to Gateway of Amritsar to beautify the entry road to Amritsar. Further, as per the Punjab Govt. notification no. 1122 FT-58/1195, dated 3rd may 1958 (Refer Annexure XI), the road side strips along the scheduled roads should be transferred to the Forest department for plantation of trees and management. The selection of trees should be in such a manner that flowering trees/ trees with large foliage may be planted along the roads. In addition, no building zone/green belts required to be provided along the major road networks also need to be taken up for extensive plantation on priority in order to minimize the vehicular pollution, improving environment and minimizing noise. The list of trees proposed for plantation is given in annexure IX.

10.6.2 PROPOSALS FOR URBAN ROADS (WIDENING/STRENGTHENING OF EXISTING ROADS WITHIN LPA)

The study of existing city road network reveals that there are several roads which are overcrowded carrying more volume of traffic than their carrying capacity. There is no possibility or scope of widening of existing Right of Way (R.O.W.) of these roads due to thickly built up areas existing within the city. If the volume of traffic on a road section exceeds the design capacity, the operating conditions will deteriorate. However, some measures of road engineering can be adopted for improving the capacity of these roads as per the guidelines defined by the Indian Road Congress for capacity enhancement of Urban Roads. Some of the measures proposed for enhancement of road capacity are detailed below:

- Prohibiting on–street parking of vehicles and simultaneously developing off–street parking facility;
- Segregating the bi-directional traffic flow by providing central verge/median;
- Provision of segregated Right–of–Way for slow moving vehicles including animal drawn carts, rickshaws/ tongas etc.;

- Imposing selective restrictions on the movement of animal drawn /other slow moving vehicles and heavy commercial vehicles on the busy arterial/ sub-arterial roads, especially during the peak hours;
- Reduction of road side friction through control of abutting land–use and roadside commercial activity;
- Provision of adequate facilities for pedestrians and cycles;
- Rationalising conflicting movements at major intersections, particularly during peak hours;
- Minimising the cross traffic and side–street traffic by regulating the gaps in the medians; and
- Promoting traffic discipline such as proper lane use and over taking by involving stakeholders, through appropriate road markings, education and publicity.

The following urban roads in Local Planning Area, Amritsar have been identified and proposed for adopting the aforesaid traffic engineering measures.

- Queens Road
- Cooper Road (from Crystal Chowk to Bhandari Bridge)
- Lawrence Road
- Outer Circular Road
- Majitha Road
- Hall Bazaar
- Amritsar Tarn Taran Road
- Batala Road
- Fatehgarh Churian Road
- Ajnala Road
- M. M. Malviya Road
- Mall Road
- Circular Road (from Kitchlu Chowk to Rattan Singh Chowk to Medical College)
- Roads inside Walled City Area

In addition, all the road widening projects being undertaken within the Amritsar urban limits shall form integral part of the road infrastructure development and shall be integrated with the proposal defined above. It is also proposed to widen the existing Bhandari Bridge. With the operation of the elevated road (which is under construction), it is going to become a very critical junction catering to large volume of regional and local traffic. It is proposed to extend

the elevated road from Bhandari Bridge to the existing northern Bye pass on G.T Road towards Attari so as to avoid congestion due to mixing up of local and regional traffic especially traffic going to Wagah Border, Ram Tirath, Sarai Amanat Khan and Pul Kanjri which have large volume of tourist traffic. Extending the elevated road to the existing northern byepass will not only rationalize the traffic but will also help in minimizing the construction of expensive over bridges at Railway Station, Putlighar and Chheharta. Further, considering the future volume of traffic on the N.H.-1 it is proposed that possibility of using the space below the elevated road for traffic and transportation/ parking may also be considered/ explored.

10.6.3 JUNCTION IMPROVEMENTS

In addition to inadequacy of road network in the Amritsar city, it has also been observed that the majority of road junctions have not been properly planned, designed and constructed. This has led to the creation of traffic bottlenecks at major junctions of the city besides causing delays and inconvenience to the road users. Delay in movement leads to creation of considerable pollution due to emission of smoke by the vehicles adversely impacting the quality of life in the city. The congestion at few junctions has also led to large number of accidents. In order to rationalize the flow of traffic and minimize conflicts at the junctions carrying large volume of traffic, it is proposed to improve the road geometry at number of junctions that have recorded high rate of accidents. The junctions proposed for immediate improvement include Rattan Singh Chowk, Putlighar Chowk, Opposite Railway Station, Bhandari Bridge, Majitha Road Byepass Junction, Fatehgarh Churian Road Bye pass Junction, Kitchlu Chowk, Crystal Chowk, SSSS chowk, Novelty chowk, Queen road chowk, Lohgarh Chowk, Sultanwind Gate Chowk, Chatiwind Gate Chowk, G.T Road Bye pass junction at Daburji, Bhagtanwala Chowk, Ajanla Road byepass junction, Ghala Mala Chowk, 100 feet road junction, Ram Talai Chowk, Sangama Cinema Chowk, Jahazgarh, Hussainpura Chowk, Ghas Mandi Chowk, Hall Gate near Peer Baba Dargah, Ghee Mandi Chowk, Sheranwala Gate, Mahan Singh Gate, Chita Gumbad, Ram Bagh Chowk, Verka Chowk Junctions identified for improvement within LPA, Amritsar includes T-junction at Manawala (Amritsar Engineering College) Canal bridge-Rayya, Baba Bakala entry point (T-Junction), Y –junction at Sathiala (Sathiala Bus Stop).

10.6.4 PROPOSAL FOR PUBLIC TRANSPORT

Rapidly increasing number of personalized vehicles has flooded the city roads in the absence of efficient public transport system. As the city is growing in size and population, an efficient public transport system is required to be put in place immediately in order to reduce dependence on personalized vehicles and congestion on the existing city roads. Accordingly, it is proposed to provide an efficient Bus Rapid Transport System (B.R.T.S) in the city. Amritsar Municipal Corporation has already prepared a detailed project report and has submitted the proposal for funding under JNNURM. The routes proposed to be covered include:

1. Amritsar-Verka-Batala
2. Amritsar-Jandiala
3. Amritsar-Tarn Taran
4. Amritsar-Ajnala
5. Amritsar-Fatehgarh Churian
6. Amritsar-Majitha
7. Amritsar-Khemkaran
8. Amritsar-Bir Baba Budha Sahib via Chheharta
9. Amritsar-Attari Border
10. Amritsar-Lopoke
11. Amritsar-Mehta
12. Outer Circular Road from Hall Gate-Khazana Gate-Chatiwind Gate-Rambagh Gate
13. Battery operated buses in the walled city and around Golden Temple
14. Amritsar-Daburji-Vallah-Verka-Majitha-Naraingarh Chowk on Byepass

Provision of public transport in the city would ensure reduced dependence on the personalized modes of transport, thereby, relieving the city roads and improving the city environment.

10.6.5 PROPOSED R.O.B'S AND R.U.B'S

Considering the existing city structure, it has been observed that railways have emerged as the major divider in the city development as it is passing through the centre of the city. It has led to the creation of traffic bottlenecks at major rail-road junctions leading to traffic congestion/jams. Accordingly, construction of R.O.B's/R.U.B's would be essential to minimize the conflict between the road and rail traffic. There are three R.O.B's existing in

the city i.e. at Rego Bridge, Bhandari Bridge and at Hukam Singh Road on Amritsar-Jalandhar railway line which are bridging the north and south halves of the city. Apart from these, two R.O.B's have been recently constructed on the Bye pass i.e. one on Amritsar-Pathankot Rail line and the other on Amritsar Jalandhar Rail line. In addition, two more R.O.Bs are under construction on Sann Sahib Road and Jwala Flour Mill which are near completion. It is also proposed to reconstruct the Rego Bridge existing on Amritsar Jalandhar Railway Line which at present has been rendered unsafe due to ageing of the bridge. The Rego Bridge is the most important link between the north and south parts of the city and accordingly needs to be taken on priority with large capacity in order to meet the merge volume of traffic it handles. (Refer Plan 3)

Apart from these, 25 more R.O.B's have been proposed to be constructed by the year 2031 over the proposed road network of LPA-Amritsar to ensure smooth flow of both regional and local traffic. The R.O.Bs and R.U.Bs identified are listed below:

A) On Jalandhar-Attari Rail Line :

i) Joura Crossing-1
ii) Shivala Crossing-1
iii) Ram Bagh Gate Crossing-1
iv) 22 No. Crossing-1
v) Kot Khalsa Crossing-2
vi) Gumanpura Crossing-2
vii) Rego Bridge (Existing bridge to be widened)-1
viii) Bhandari Bridge (Existing bridge to be redesigned)-1
ix) Hukam Singh Road (Existing)
x) San Sahib Road (under construction)-1
xi) Shiv Nagar Railway Crossing (Near Bazaar Putlighar)-2
xii) Backside of Focal Point on Amritsar Jalandhar Railway Line (near existing fruit & vegetable market)-1
xiii) Intersection of Proposed Sector Road and Amritsar Jalandhar Railway Line-2
xiv) Intersection of Proposed Outer Ring Road and Attari Railway Line-3
xv) Intersection of Proposed Inner Ring Road and Attari Railway Line-2
xvi) Intersection of Proposed Southern Bye pass and Attari Railway Line-1
xvii) Intersection of Proposed Outer Ring Road and Jalandhar Railway Line-3
xviii) Intersection of Proposed Inner Ring Road and Jalandhar Railway Line-1

B) On Tarn Taran Rail Line:

i) Jawala Flour Mill (under Construction)-1

ii) Indira Colony Railway Crossing on Khemkaran Road-2

iii) Bhagtanwala Mandi Crossing-1

iv) Crossing at Proposed Outer Ring Road and Tarn Taran Railway Line-3

v) Crossing at Proposed Inner Ring Road and Tarn Taran Railway Line-2

vi) Intersection of Proposed Southern Bye pass and Tarn Taran Railway Line-1

vii) Crossing at Proposed Road along UBDC and Tarn Taran Railway Line (Kot Mit Singh)-1

C) On Pathankot Rail Line :

i) Crossing at Proposed Outer Ring Road and Pathankot Railway Line-3

ii) Crossing at proposed Inner Ring Road and Pathankot Railway Line-2

iii) Intersection of Proposed Outer Ring Road and Amritsar-Dera Baba Nanak Railway Line-3

From the list of R.O.B's proposed to be constructed, the R.O.B's at Shivala Colony, Joura Crossing, Backside of Focal Point near fruit and vegetable market, Ram Bagh Gate, Bhagtanwala Mandi Crossing and 22 no. crossing needs to be taken up for construction on priority.

In addition to the R.O.B's suggested above, it is proposed that all radial roads (R1, R2 & R3) bisecting the Outer, Middle and Inner Ring road including junction at Tarawala Pul shall be provided with R.O.B's/ R.U.B's based on the detailed studies and volume of traffic carried on these junctions. The City Mobility Plan which is being prepared for the Amritsar metropolis shall be integrated with the traffic and transportation network suggested above. In addition, all the road improvement projects already undertaken/ to be undertaken under JNNURM shall form part of the Master Plan proposals. The projects being undertaken by Amritsar Municipal Corporation under JNNURM/ road improvement program have already been detailed in Para 5.6 of the report.

10.6.6 TERMINALS

10.6.6.1 Proposed Bus Terminal

Considering the present location, it is proposed to shift existing I.S.B.T. (Inter State Bus Terminal) within city to outside the city i.e. on the G.T. Road towards Jalandhar on the stretch of the road from intersection of proposed City Ring Road, existing northern bye pass

and G.T. Road towards Jalandhar upto the proposed urbanisable limit. Relocating I.S.B.T. from its present location will rationalize inter and intra city traffic. It will also help in ensuring that all inter city traffic carried by buses moves outside the city on the proposed ring roads and does not congest the city anymore. Shifting of existing I.S.B.T. will be supplemented by an efficient system of mass transport and intermediate transport mechanism, which will ensure the smooth transfer of passengers to their destination in different parts of city. New I.S.B.T. shall be constructed on an area of 25-30 acres or as per the requirement decided by the expert committee on the G.T. Road stretch from intersection of proposed City Ring Road, existing northern bye pass and G.T. Road towards Jalandhar up to the proposed urbanisable limit. The site for the new bus stand shall be based on the decision of the site selection committee constituted by the state govt. in consultation with the Department of Transport.

The existing site of bus stand is proposed to be used for the local city bus service (B.R.T.S.) which is proposed taken up in near future.

The bus terminus for other towns falling within LPA shall be identified in consultation with the transport department and keeping in view the traffic and transportation proposed for the town besides considering the flow of traffic. In case of Rayya complex, a bus stand in an area of 4 hectares has been proposed on the intersection of N.H-1 and Umra Nangal-Baba Bakala-Sathiala Road. The proposed bus stand would serve the needs of residents of Rayya and its surrounding villages. (Refer plan 3 and 4)

10.6.6.2 Proposed Truck Terminal/ Transport Nagar

The existing truck terminal is also located at Jahazgarh on G.T. Road causing the mixing of heavy traffic with other regional and city traffic. Accordingly, it has been proposed to shift the truck terminal to the proposed industrial zone located on the south of the city. The proposed truck terminal/ transport nagar in an area of nearly100 acres has been proposed in the industrial zone. This would also help in achieving integration of the terminal with the existing trade and commerce and proposed industrial zone. It is proposed to use existing site of truck stand for commercial purpose.

10.6.6.3 Up-gradation of Railway Station

There are 14 railway stations falling within L.P.A, Amritsar out of which 4 railway stations are located within the Amritsar M.C limits. These include Amritsar Railway Station, Bhagtanwala, Verka and Chheharta railway station. Considering the importance of Amritsar

as tourist, trade and commerce, healthcare and educational destination involving large influx of tourist from both within the country and abroad, it is proposed to upgrade Amritsar Railway Station as a model railway station. In then Railway Budget 2009, Amritsar railway station has already been identified as one of the centre for development as a model railway station in the country through innovative financing mechanism under Public-Private Partnership mode. The proposed railway station will have modern shopping centers, food stalls, restaurants, bookshops, telephone and fax booths, medicine and variety stores, budget hotels as well as state of art infrastructure including underground parking. It is also proposed to retain and preserve the existing structure of railway station that is a classical example of colonial architecture, having high heritage value. Further, it is proposed to develop Bhagtanwala railway station as the major traffic node-handling loading and unloading of goods, food grains traffic etc. At present, this task is being carried out at Amritsar railway station itself. This will help in not only decongesting the existing Amritsar railway station but will also cater to the needs of goods traffic which is likely to be generated near Bhagtanwala by shifting wholesale markets from walled city of Amritsar.

In addition, it is proposed to develop and upgrade Khasa Railway Station for handling the goods traffic related to import and export between India and Pakistan and the traffic generated from the trade and warehousing zone proposed along the Amritsar-Attari road. It is also proposed to create a dry port in this zone in order to give a boost/ promote import and export from India. Khasa railway station can then be used for catering to the traffic generated by the dry port and the international airport located at Rajasansi.

Creating Direct Rail Link Between Amritsar-Mumbai via Ferozepur

In order to give impetus to industry and export of goods from Amritsar and Tarn Taran, it is proposed to provide direct railway link between Amritsar and Mumbai via Ferozepur. This link is proposed to be created by providing the missing link from Muhalam to Garhiala stations having a length of 20 kms. Providing this link will help in connecting Amritsar with Mumbai through Ferozepur and Rajasthan. The link has the additional advantage because it will reduce the distance between the Amritsar and Mumbai by minimum 240 kms. It will not only lower down the transportation cost but wil also considerably reduce the pressure on the trunk route of Amritsar-Mumbai via Delhi. Further, this will also provide direct rail connectivity between Amritsar and Ferozepur by leveraging the economic growth and development, promoting tourism, trade and commerce and industry in the southern parts of the state. It will also expedite the import and export of goods and raw materials for the

industries besides the export of rice from Kandla Port. However, in order to cater to the import and export of goods from the proposed rail link between Amritsar and Mumbai via Tarn Taran, it is proposed to create handling facilities of higher order in the Tarn Taran L.P.A. This will not only help in de-congesting and limiting the goods traffic between Amritsar and Mumbai but will also help in rapid growth and development of Tarn Taran.

Developing Tunnel based Railway Network within the Urban Limits

In addition to strategies defined above for the development of the rail based transportation, it is felt that railway lines passing through the Amritsar have emerged as major bottlenecks in the smooth functioning and flow of traffic between different parts of the city. It has also lead to division/dis-integration of the city into different parts creating numerous operational and functional roadblocks. Despite the fact that number of R.O.B's and R.U.B's have been proposed as one of the option for ensuring smooth flow of road based traffic between different parts of the city, it is strongly felt that the option of taking railway lines underground in the space being presently used by them, should also be given a serious thought. The economic feasibility of the proposal of positioning railway lines underground can be worked out in the context of the large investment going into the making of R.O.B's/R.U.B's and the large area made available to the railway by shifting of railway line below ground and using the same for large scale commercial, institutional and other urban uses which can generate large amount of resources for funding the project. Shifting of railway line underground will not only ensure integration of different parts of Amritsar metropolis, making it compact city in process but will also go a long way in improving its operational efficiency and overall productivity. It will also help in saving huge amount of valuable fuel and time that are consumed by large population of the city while travelling/crossing these railway lines. It will also make Amritsar cleaner and greener. Considering the available advancement in the tunneling technology and the long-term benefits to the city/railways, the possibility of shifting the railway lines underground should be given a serious thought and taken up on priority considering the role, importance and stature of Amritsar as the historic city and religious/commercial capital of the state.

Off-Port Facilities:

In order to give fillip to import and export from Amritsar metropolis, it is proposed to create an Off-Port Facilities. In this regard, the detailed study has been carried out by RITES for locating the off port facilities. Based on the study made and analysis carried out by RITES, an off port facility zone has been provided and shown on the Proposed landuse Plan-Amritsar

L.P.A on Attari road. The zone will include uses involving off port facilities and uses sub servient/compatible to it.

10.6.6.4 Air Terminal

The Rajasansi Airport located at Amritsar has the status of an International Airport, which handles large volume of tourists' traffic from both national and international destinations. Looking, at the existing potential of Amritsar as the fourth most preferred destination in India and its future tourist potential as an international tourist destination, it is estimated that the present number of tourists will increase manifold in near future. At present 1.5 lakh, tourists visit the city on daily basis. Though majority of the tourist coming to the city use rail and road as the preferred mode of transportation, the air traffic has also shown considerable increase. With large number of international flights proposed from Amritsar connecting different destinations in the world housing large number of Punjabi's, the number of tourists' visiting the city using air as the medium of transportation will also increase rapidly. Also considering the positioning of Amritsar as the gateway to other countries, volume of cargo traffic is also likely to go up sharply with volume of goods trade increasing rapidly. Amritsar is likely to emerge as one of the most valuable destinations for both the tourist traffic and trade and commerce. Accordingly, in order to cater to the emerging volume of future traffic, a zone measuring an area of 1613.5 hectares has been reserved for expansion and up-gradation of infrastructure in the existing Rajasansi International Airport which includes area of 8 villages besides are of Rajasansi urban settlement (Refer plan 3). The villages included are Rudala, Dhaul Khurd, Dhaul Kalan, Hier, Saidopura, Harsha Chhina and Gaunsabad. The Airport Authority of India has recently acquired 44 acres of land for expansion for Rajasansi International Airport.

The residential and other compatible uses of residential zone as indicated in Development Control Regulations (chapter 11) shall be permitted in the Airport Expansion Zone with the permission and clearance from the Department of Civil Aviation. The permission or N.O.C already granted by the Department of Civil Aviation shall continue to be governed by the terms and conditions on which such permissions were granted.

10.6.7 PROPOSED PARKING LOT

With ever increasing urban population and increasing trends of vehicle ownership due to improving economic status, the vehicular population in the Amritsar has been found to increase at a rapid pace. Due to rapid growth of the city, most of the core areas still have road network of narrow width, which is unable to accommodate large vehicular movement.

Accordingly, rapid growth of vehicle ownership has led to creation of major traffic bottlenecks due to absence of adequate and well-defined parking spaces. In the absence of such spaces most of the vehicles are parked on the roads leading to traffic congestion and problems in smooth movement of vehicles. Accordingly, in order to rationalize the movement of traffic in the city and to achieve the desired level of efficiency, in addition to creating new linkages/widening of existing roads, it will be critical to provide adequate parking spaces in the city.

For providing adequate parking, different strategies are proposed for area within walled city and other areas. Considering the typical character and heritage value of the walled city, it has already been proposed to decongest the core area by selective shifting of trade and commerce including Fish Market, Loha Mandi, Cheel Mandi, building material markets etc. and population. Numbers of parking spaces have been created within the walled city. Multistoried Parking is also being constructed within the walled city near Dharam Singh Market. In order to achieve the objective of decentralization, it is proposed to pedestrianize majority of area of the walled city. Accordingly, it is proposed that no more multistoried/ surface parking should be created within the walled city. In order to meet the parking requirements of the city, it is proposed to create adequate parking spaces outside the walled city along the outer circular road. These parking spaces shall be located opposite/in close vicinity to all the 14 gates of the city, which provides accessibility to the walled city. These parking spaces shall be constructed in the shape of multistoried building and would be sold to the residents living/working in the walled city. Part of the funding of construction shall be sourced through public-private partnership involving certain areas of multistoried parking for commercial use.

In case of areas outside the walled city, the spaces for creating parking shall be identified in all commercial areas. Parking requirements of major commercial centers like District Shopping Complex at Ranjit Avenue, City Centre shall be met within the area by redefining uses of available areas with the Corporation/Improvement Trust to create multistoried parking. The area available outside the Hall Gate by shifting of old fruit & vegetable market shall also be made use for constructing multistoried parking. The area will also include food court which will also be established in other parts of the city. In order to make optimum use of the existing multistoried parking constructed by Municipal Corporation near Bhandari Bridge, it is proposed to link both these parking lots by constructing the an underground passage. In order to minimize the problem of parking in the city, particularly along the roads, no change of land use from residential to commercial shall be permitted. All the new areas to be developed shall have provision of parking based on the parking norms specified in the

D.C.R for different uses. Competent authorities sanctioning the different schemes shall ensure the provision of parking in the area of the scheme. In addition, it is proposed that strict vigilance will be exercised to ensure that parking spaces are not misused or abused. All public-parking areas provided in the different schemes shall be ultimately transferred to the Municipal Corporation for proper utilization. In order to minimize a problem of parking, options of using a mechanism of metered parking/paid parking should also be considered and used in order to rationalizing the parking demands in the city. Further, Municipal Corporation should also consider the option of charging parking fees from all vehicle owners at the time of registration of vehicle in order to generate funds for improving the road capacity/infrastructure/creating new linkages and for making provision of parking.

Traffic nodes like Bus Stand, Railway Station, Airport and Truck Terminal are required to be provided with adequate spaces both for motorized and non-motorized vehicles catering to the needs of the residents of the city. In addition, sites should also be identified for the taxi stands, rickshaw, auto rickshaw parking and should be leased out. Further, in order to reduce the congestion of auto-rickshaws, it will be desirable to define routes for their operation within the city.

10.6.8 PEDESTRIANIZATION OF WALLED CITY

Looking at the heritage and historical importance of the walled city-Amritsar, it has been proposed to make Amritsar, a heritage city. Studies have already been made and reports have already been prepared to declare the Golden Temple as the Heritage Area. However, the scope of this exercise needs to be enlarged to cover the entire city in order to preserve its basic character.

The city at present suffers from large influx of vehicular movement on the narrow roads leading to congestion. Considering the large number of residents living in the area, major trade and commerce centers existing within the walled city, it has been proposed to pedestrianize the walled city by improving streetscape involving provision of walkways, street furniture, planting trees and creating plazas (near important heritage buildings such as Town Hall). The total area of the walled city-Amritsar is of the order of 350 hectares (as per PRSC Base Map) with 2.4 kms in length and 1.5 kms in width. Considering the compactness and character, the entire walled city area can be covered on foot within a time span of 20 minutes from one end to another end.

In order to pedestrianize the walled city, it is proposed to have adequate parking spaces located on the outskirts/gates of the city so as to restrict the entry of vehicles inside the core

city. It is proposed that the people going to the core city area should park their vehicles in these proposed parking lots and use the battery/CNG operated buses/cycle rickshaws/cycles including the public rapid transport (PRT) system for movement inside walled city. Accordingly, it is proposed to build multistoried parking on all the 14 gates on the outer circular roads as detailed above.

10.7 STRATEGY FOR OBTAINING LAND FOR PUBLIC PURPOSES

A city typically requires 40% to 50% of its area for variety of public purposes. Where land is owned by the state as in Punjab, Chandigarh or Delhi & Navi Mumbai, it is easier to allocate land for public purposes. However where private land market is active, how to ensure land for public purpose it is a major challenge in preparing Master Plans. Conventional master planning relied on the powers of compulsory acquisition of land designated for public purposes. However, limitations of this approach have been painfully exposed. At the same time not addressing the question of land for public purposes may limit the utility of the master plan itself.

With this background, a wide menu of strategies to obtain land for public purposes is examined in this chapter. The land required for public purpose can be divided into four-fold classification as illustrated in diagram below:

	A Specific Location	**B** Flexible Location
A. Positive impact on land prices	**AA** Arterial Road network	**AB** Parks, play grounds, schools etc.
B. Negative price or environmental impact invoking NIMBY response.	**BA** Sewage Pumping Stations and treatment plants	**BB** Solid waste disposal sites

(In many cases necessity of a particular activity at the city scale is recognized e.g. solid waste disposal site or a slaughterhouse, but they are locally undesirable and invoke “Not in My Backyard” response.)

No single option can be used uniformly throughout the city. It has to be contextual, considering the location and the local issues including core areas v/s outlying areas. Similarly different alternatives may be suitable for different types of public purposes. The possible options for securing land for public purposes such as roads, educational, health, parks, water supply, sewerage, social and religious institutes, old age homes, community centers etc with their limitations are listed below.

10.7.1 THROUGH O.U.V.G. L. SCHEME:

It is a scheme for identifying vacant government land (including municipal land) and using it as source for providing land for public purposes. However, given the need for using government land for generating financial resources, entire stock of government land need not be assigned to non-remunerative public purposes. In fact, the government land would offer many opportunities for PPP where part of the land could be used for public purpose. For example, a plot of government land could be allocated for an intercity bus terminal with a budget hotel.

Rationalizing obsolete uses of public lands could be another way of putting public land to more relevant public purpose. Old jail or an agricultural produce market in the congested part of the city is common example. But relocation of these activities requires availability of adequate and suitable public land at other locations. In order to rationalize the land demand and supply, specific designations of land for different uses in the master plan has to be made before proceeding with compulsory acquisition of land. Impracticability of this option is too well known to be recounted here. But this may be unavoidable in certain cases – particularly 'A' category public purpose. However, the use for these lands shall be as determined by the State Government, irrespective of the use shown on the Proposed Land Use Plan. In case of Panchayat land of villages falling in local planning area, these lands shall be used for creating public utilities, services, physical and social infrastructure including parks, open spaces, community facilities etc. and not for any other purpose. Further, in case of the land owned by the Amritsar Development Authority (A.D.A.), the use of such land shall be as determined by the A.D.A subject to the approval of State Government.

10.7.2 THROUGH T.D.R.:

Alternative to monetary compensation could be award of Transfer of Development Rights either to remainder of the land or to a distant location. This could be in three generic cases viz.

Roads and Road widening: Development rights calculated at the FAR permissible in adjoining area may be allowed to be used in the remainder of the plot up to a limit. Development rights that cannot be so consumed can be transferred elsewhere in receiving areas. If FAR is related to width of the road, resistance to widening may get reduced.

Public purposes on open land or exclusive plots: Lands required for parks and playgrounds or exclusive uses like secondary school, fire station etc can be obtained by providing TDRs in

lieu of compensation. However, price differentials in originating and receiving zones could be considered as an incentive in such cases.

Public purposes that require built-up space but not necessarily exclusive plot: Examples of this could be municipal vegetable market, library etc. In such cases, landowner may be permitted to use the full potential of development in terms of FAR over the plot provided he offers the built up space required for the public purpose to the local body.

10.7.3 THROUGH PAPR ACT 1995

Layout and Sub-division Regulations: These regulations, depending upon the total area of colony, can provide for some reservation for public purpose including road network, parks, open spaces, institutional buildings, water works, disposal works, community centers, etc. in addition to local requirements. This mechanism is currently being used on a large scale in the State of Punjab under the provisions of PAPR Act, 1995. However, this process needs to be promoted and augmented by providing appropriate policy framework in order to promote planned development in the state and to make available land for public purposes without involving any compulsory acquisition of land.

10.7.4 THROUGH LAND POOLING OR TOWN DEVELOPMENT SCHEMES:

As per the provisions of section 91 (Chapter XII) of Punjab Regional and Town Planning & Development Act, 1995, the concerned Authority may for the purpose of implementation of the provision of the Master Plan or for providing amenities where the same are not available or are inadequate, frame the Town Development Scheme and land for various amenities can be earmarked as per the provisions of sub section 2(g) of section 91. The strategic approach would relate to geographically depicting the sites required for public purpose and proposing regulatory framework for obtaining the land for public purpose whether shown on the plan or not. For this, master plan has to consider various options as defined below. However, these options have their own limitations and have to be uses selectively based on the ground reality, existing conditions, development potentials, involving private sector, etc.

Table 112: Strategy for Obtaining Land for Public Purpose

Alternative	Land Acquisition through 1894 Act	TDR	Development of land through PAPR Act 1995, TDS under PRTPD Act 1995 and Development Schemes under PTI Act, 1922	Land Pooling	Govt / Panchayat / Waqf Board lands
Plan Proposal	Land designated for public purposes	Land designated for public purposes	Land designated for public purposes	Land designated for public purposes	Land designated for public purposes
Regulation	No separate regulatory provision necessary	Regulation about use of TDR on receiving plots is necessary	Certain proportion (about 40%) of land is dedicated for public purposes.	This requires a separate legal process to be followed for reconstitution of plots along with evaluation of compensation and betterment as provided in Chapter XII of the 1995 Act.	No separate regulatory provision necessary
Means of securing land	Compulsory acquisition by paying monetary compensation	Monetary compensation substituted by Transfer of Development Rights (TDR)	Availability of land through layout plan provisions	-As Above-	Land can be made available through transfer of ownership from one department to another. No monetary compensation is involved.
Limitations	Lack of finances for compensation	Lack of finances for compensation	This is the method currently relied upon where minimum stipulated area for colony is 10 acres, as in case of PAPRA.	Comprehensive Land Pooling Policy is required to be framed.	Locational disadvantages in certain cases.
	Landowners' resistance	Landowners' resistance	This is to be market driven and present response is said to be not so encouraging.	Difficulty in pooling of land of large number of owners.	Minimum area requirement may not be fulfilled
Limitations	Inequitous distribution of costs and benefits. Cost borne by those who lose land	Iniquitous distribution of costs and benefits. Cost borne by those who lose land		Time consuming and complicated process	Source of revenue for Panchayat Bodies / Waqf Board gets depleted.

	and benefits enjoyed by surrounding landowners	and benefits enjoyed by surrounding landowners			
		But where real estate prices are high particularly where land price is several times the construction cost, chances of success are high.		Equitable distribution of costs and benefits to different share holders.	
		Could also be used for heritage conservation.		New concept difficult to be implemented.	
		New concept difficult to be implemented.			

Given the details included in the Master Plan, it is not possible to specify which of the above techniques will be used for obtaining land for public purpose. This would be addressed in the detailed zonal plans.

10.8 SPACE NORMS AND STANDARDS

For implementation of the Master Plan and for working out the requirements for different amenities, space norms and standards have been defined for different socio-economic infrastructure to be developed in the city including its spatial distribution in order to ensure its equitable distribution within different parts of the city. However, heritage buildings shall be governed by a system of specific guidelines to be framed for such buildings involving adaptive re-use through multiple uses such as residential, commercial, social, cultural to promote conservation and preservation of such sites. The adaptive use shall be based on the detailed study and analysis of such historical buildings.

10.8.1 PLANNING NORMS FOR EDUCATIONAL INSTITUTIONS

For ascertaining the need and requirement of various levels and categories of educational institutions in the context of the city, planning norms have been worked based on the basis of population in order to ensure that educational facilities of desired quantity and quality are available uniformly to the entire population including their spatial distribution. Further, the norms have been defined in terms of areas to be provided under each unit. The level of facilities to be provided have been categorized into general-purpose education at the school level, undergraduate and post graduate level besides technical and professional institutions and universities. Based on above, the norms for educational institutions have been detailed as under:

Table113: Norms for Educational facilities

	Category	Population	Units	Strength of Students	Area in Hectares.			Remarks
					Built up	Play Field Area	Total	
A.	**GENERAL EDUCATION-TILL 10+2**							
i	**Pre-Primary, Nursery School**	2500	1	-	-	-	0.08	Location close to park with minimum of vehicular traffic
ii	**Primary School (class 1-5)**	5000	1	500	0.20	0.20	0.40	Location close to park with minimum of vehicular traffic. Minimum play area of 18 m X 36m to be ensured.
iii	**Nursery-cum-Primary School (up to class 5)**	5000	1	750	0.25	0.25	0.50	As above
iv	**Senior Secondary School (class 6-12)**	7500	1	1000	0.60	1.00	1.60	Minimum play field area of 68 m X 126 m to be ensured.
v	**Integrated School without hostel facility (class 1-12)**	90,000-1,00,000	1	1500	0.70	2.50+ parking area of 0.30	3.50	Minimum play field area of 68 m X 126 m to be ensured.
vi	**Integrated School with hostel facility (class 1-12)**	90,000-1,00,000	1	1000	0.70+ 0.40 as hostel area	2.50+ parking area of 0.30	3.90	Minimum play field area of 68 m X 126 m to be ensured.
vii	**School for handicapped**	45,000	1	400	0.20	0.30	0.50	
B	**HIGHER EDUCATION**							
i	**College**	1,00,000	1	1000 - 1500	1.80 +0.40 for residential /hostel	1.80 + Parking Area 0.50	4.50	
ii	**University**	20,00,000	1	-	-	-	60.00	
iii	**University Campus**	10,00,000	1	-	-	-	10.00	
C	**TECHNICAL EDUCATION**							
i	**ITI + Polytechnic**	1,00,000	1	400+500	-	-	ITI (1.60) Poly (2.40)	
ii	**Engineering College**	5,00,000	1	1500-1700	-	-	6.00	
iii	**Architecture College**	10,00,000	1	200	-	-	2.00	
iv	**Management Institutes**	5,00,000	1	240	-	-	2.00	
v	**Medical College**	10,00,000	1	500	-	-	15.00	Includes space for specialize general Hospitalize

Notes:

- One crèche for a population of 25,000 in an area of 0.05 hectare shall be provided. This could be made integral part of any category of educational institutions with addition of the area of the crèche.
- Number of units in each category shall be based on the population prescribed above. In case the population for the area works out to be merely 50% norms specified above, in such cases individual sites in that category shall be provided. Additional sites shall be provided in case balance population exceeds 50% of the standards prescribed above.
- In case of higher student capacity, the built up and open area shall be increased proportionately.
- In order to economize on the land and optimize the infrastructure, educational institutions could be run on double shift basis.
- The open space shall be designed in a manner to ensure that they are also made available to the community as play area during the time when it is not being used by the institution.
- Adequate area for plantation shall also be earmarked in order to improve the quality of environs and area under green cover.
- Adequate parking arrangement for buses, vehicles of students/staff shall be made.
- Unless specified in the zoning plan and building byelaws, the ground coverage, FAR, height for various categories of buildings shall be as under.

Table 114: Permissible Levels of Education Facilities

Category	Maximum Ground Coverage	Maximum Permissible Height (Meters)	F.A.R
Nursery School	40%	8	0.75
Primary School	40%	8	0.75
Higher Sec.School	33%	15	1.00
Colleges	33%	15	1.00
Uni/Tech/Prof. Inst.	25%	20	1.00

Basement shall be allowed in each category of building under the built up area up to the maximum extent of ground coverage. It shall be used for parking, services, storage etc. It shall not be used for habitable purposes. No classes or other student's activities shall be held in the basement. Basement area shall not be counted towards FAR.

In case of large institutions, area for academics, residential, sports and cultural activities, parks and landscape shall be clearly defined. The area shall not exceed 45% under academics,

and 25% under residential, whereas it shall not be less than 15% for sports and cultural activities and 15% for parks and landscape

10.8.2 NORMS FOR THE HEALTH CARE FACILITIES

Health care facilities shall be provided and distributed in such a manner that it covers the entire area and the population in order to make the facility available to every resident of the town irrespective of his location or place of residence. It must cover all the land uses including residential, commercial, industrial, institutional etc. A well-defined hierarchy will be essential to meet both the basic and specialized needs of the health care. Appropriate policy framework would be critical to provide for greater role of private sector in healthcare by making available required proportion of site for the sector. The healthcare facilities of various grades to be provided in the town/city shall be based on the following norms:

Table 115: Norms for health facilities

S.No.	Category	Population	Unit	Area (Hectares)	Remarks
1.	Nursing Home	7,500	1	0.10	Capacity of 5-10 beds
2.	Dispensary	15,000	1	0.12-0.15	For outdoor treatment only
3	Health Centre	50,000	1	0.4	Capacity of 25-30 beds
4	Poly Clinic	1,00,000	1	0.4	with some observation beds
5	Intermediate Hospital (category B)	1,00,000	1	0.1 i)for hospital 0.6 ii)for residential 0.4	capacity of 80 beds with initial provision of 50 including 20 maternity beds
6.	Intermediate Hospital (category A)	1,00,000	1	3.70 i)for hospital 2.70 ii)for residential 1.0	capacity of 200 beds with initial provision of 100 beds
7.	General Hospital	2,50,000	1	6.00 i)for hospital 4.00 ii)for residential 2.00	capacity of 500 beds with initial provision of 300 beds
8.	Multi Specialty Hospital	1,00,000	1	9.00 i)for hospital 6.00 ii)for residential 3.00	capacity of 200 beds with initial provision of 100 beds
9.	Specialty Hospital	1,00,000	1	3.70 i)for hospital 2.70 ii)for residential 1.00	capacity of 200 beds with initial provision of 100 beds

Note:

- In case of specific requirements for medical facilities other than those indicated above, additional sites may be provided for catering to specialize needs of healthcare.
- All Medical colleges shall also include provision of medical hospital of 500 beds as integral part of the complex.
- Additional sites may be provided in case of Regional/National level healthcare institutes which are to be located as part of the city.

The height, ground coverage, FAR, setbacks for various sites shall be as defined in the building bye-laws, zoning plans and development control regulations.

10.8.3 NORMS FOR FIRE STATION

Table 116: Fire station norms

S. No	Category	Population Per Unit	Minimum Area
1	Fire station with essential residential accommodation	1 for every 2,00,000	1 Hectare.
2	Sub-Fire station with essential residential accommodation	1 for every 2,00,000	0.6 Hectare.

- One Fire Station/Sub-Fire station to be provided within distance of 1-3 kms covering a population of 2,00,000
- Fire Station needs to be co-ordination with water supply system to provide for fire hydrants/water tanks.
- Fire services to be fully equipped to deal with fire accidents in the multi storyed buildings.

10.8.4NORMS FOR SECURITY - POLICE, CIVIL DEFENCE AND HOME GUARD

Table 117: Police/Defence Norms

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Police Station	90,000	1.50 Hectare.	*** I**n case of civil defence and home guard additional area of 0.05 hectare to be provided. ** Area includes essential residential accommodation
2	Police Post	40,000-50,000	0.16 Hectare.	*Area includes essential residential accommodation ** To be provided where area is not served by Police Station
3	District Office and Battalion	10,00,000	4.80 Hectares* (for District Office =0.80for Battalion =4.00 Hectare.)	
4	Police Lines	20,00,000	4.00-6.00 Hectares	
5	District. Jail	10,00,000	10.00 Hectares	
6	Civil Defence & Home Guards	10,00,000	2.00 Hectares	

10.8.5 SOCIAL CULTURAL FACILITIES

Table 118: Socio Cultural Norms

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA
1	Community Room	5,000	1000 sq.m (0.1 Hect)
2	Community Centre and Library	15,000	2500 sq.m (0.25 Hect).
3	Re-creational Club	1,00,000	10000 sq.m.(1.0 Hect)
4	Music Dance, Drama Centre	1,00,000	1500 sq.m.(0.15 Hct)
5	Meditation & Spiritual Centre	1,00,000	5000 sq.m.(0.5 Hect)

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA
6	Socio Cultural Centre	10,00,000	150000 sq.m.(15 Hect)
7	Religious Sites (Mandir, Gurudwaras & Churches)	15,000 (3 sites provided in each sector)	1000 sq.m (0.10 Hect)

10.8.6 SPORTS ACTIVITIES

Table 119: Standards for Sports Activities

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA
1	Residential unit play area	5,000	0.5 Hect
2	Neighborhood play area	15,000	1.50 Hect
3	District sport centre	1,00,000	.8.0 Hect
4	Divisional sports centre/City sports centre	10,00,000	20.00 Hect

10.8.7 POSTAL FACILITIES

Table 120: Postal Facilities Standards

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Post office counter without delivery	15,000	85 sq.m	To be provided in shopping centre
2	Head Post Office with delivery office	2,50,000	750 sqm.	-
3	Head Post Office & Administrative Office	5,00,000	2500 sqm.	-

10.8.8 TELEPHONE & TELEGRAPHS

Table 121: Standards for Telephone and Telegraph Services

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Telephone Exchange for 40,000 lines	4,00,000	4.00 Ha.	
2	Telegraph Booking Counter	1,00,000	200 sq.mt	To be provided as part of the commercial area
3	Telegraph Booking & Delivery Office	5,00,000	1700 sq. mt	

10.8.9 NORMS FOR THE COMMERCIAL AREAS

Table 122: Commercial Area Norms

Category	Population	Unit	Area (In Sq. Mts.)	No of units	Norms for shops	Area/ 1000 Persons (In Sq. Mts.)
Convenient Shopping	5,000	1	1500	37	1 for 110 Persons	220
Local shopping	15,000	1	4600	77	1 for 200 Persons	300
Community Centre	1,00,000	1	50,000	475	1 for 200 Persons	500
District Centre/ Sub City Centre	5,00,000	1	75,000	1,620 (Booths & Informal)	1 for 300 Persons	880
City Centre	20,00,000	1	Not less than 4,00,000	--	--	--
Local Whole sale Market	10,00,000	1	1,00,000	--	--	--

Category	Population	Unit	Area (In Sq. Mts.)	No of units	Norms for shops	Area/ 1000 Persons (In Sq. Mts.)
Weekly Markets	1,00,000	1-2	4,000	300-400 Shops	--	--
Organized informal eating space	1,00,000	1	2,000			

Hierarchy to be followed for Commercial Centre

- Formal Shopping
- Convenient Shopping to be provided at cluster level
- Local shopping to be provided at sector level
- Community Centre to be provided for a group of sectors
- District Centre to be provided at the level of group of community centres
- Sub City Centre to be provided at the level of sub city
- City Centre to be provided at city level
- Local Wholesale Market to be provided at city level
- Informal shopping
- Weekly Markets to be provided for group of sectors
- Organized informal eating space to be provided at the traffic nodes

NOTE:

Above hierarchy of commercial areas to be provided depending upon the size of the city.

- In case of small towns, shopping at housing cluster, sector and community levels shall be provided.
- In case of medium towns, shopping at housing cluster, sector, community & district levels shall be provided.
- In case of large towns/cities, shopping at housing cluster, sector, community, district, sub – city & city levels shall be provided.
- All shopping areas are to be provided with adequate parking as per the prescribed norms

CHAPTER 11

DEVELOPMENT CONTROLS AND ZONING REGULATIONS

11.1 SECTION I: DEVELOPMENT CONTROLS REGULATIONS

The purpose of the Development Control Regulations (D.C.R) is to assist all the stakeholders including developers and end-users within the Local Planning Area, Amritsar to strive for a sustainable, quality and environment friendly development.

These Development Control Regulations are applicable to the entire set of existing and proposed developments that are going to come up within the Local Planning Area. The developers are required to comply with the provisions of Zoning and Landuse Plans defined in the Master Plan. However, Development Schemes/ Projects, which have already been approved by the Competent Authority shall continue to be governed by the terms and conditions stipulated for their approvals.

Chapter XI of the Punjab Regional and Town Planning and Development Act, 1995 (Amended 2006), provides for 'Control of Development and Use of Land where Master Plan is in Operation.' The Chapter lays down the procedural framework for exercising the development control. "Development" in the said act has been defined as:

> *Carrying out of building, engineering, mining, quarrying or other operation in, on, over or under land or making of any structural or material changes in any building or land including that which affects the appearance of any heritage site and includes demolition of any part or whole of the building or change in use of any building or land and also includes reclamation, redevelopment, a layout or sub-division of land.*

In order to achieve the basic objectives of planned and orderly development within the planning area, following Regulations have been stipulated:

11.1.1 RESIDENTIAL

The norms for residential plotted development and the group housing to be developed in the Local Planning Area, Amritsar shall be as defined below:

Category	**Minimum Area of Colony***
Group Housing **	
i.Outside Municipal limits	
a)For General	5 Acres (stand alone/ independent)
b) For EWS	2.5 Acres

* Minimum area for a colony including plotted and group housing shall be as notified by the State Government/Competent Authority from time to time.

** The Norms for Group Housing shall be as defined in the Para 10.1.1.2 below

Note:

- Maximum area under residential and commercial use in residential colony shall not exceed 55% subject to the condition that commercial component shall not exceed 5% of total area.
- Maximum area under institutional / public buildings shall be restricted to 10% of total area
- Minimum area under parks/open spaces, roads & parking lot shall not be less than 35% of total area.
- Minimum road width within residential areas shall not be less than 40 feet (12mts). If the existing road is less than 40 feet (12mts), then land on both sides of the road shall be reserved for future expansion or widening to comply with the minimum requirement of 40 feet (12mts). The number of storeys in the buildings abutting on these roads, shall not exceed three (G+ 2 storey).

Note: - However, provision of Floor Area Ratio, Height, Ground Coverage, Set-backs, Parking, Open Spaces, Road Width etc. for individual residential plots within the existing Municipal Corporation/Council areas shall be governed by Municipal Building Bye-laws. However, in case of area falling outside Municipal limits, the Building Bye-laws of respective Development Authority/PUDA shall apply.

11.1.1.1 Parking Requirements for Plotted Developments

Provision for parking in the plotted development shall be governed by the following norms*

Plots size	Parking Requirements
85 sq m and less (100 sq yd and less)	Parking spaces for 2 scooter
86 – 168 sq m (101 – 200 sq yd)	1.5 car parking space within plot area
169 – 425 sq m (201 – 500 sq yd)	2 car parking space within plot area
425 sq m and more(500 sq yd and more)	3 car parking space within plot area

*The provision for parking within the existing Municipal Corporation/Municipal Council limit's areas shall be as per the respective notified Building Bye-laws of Municipal Corporation/Municipal Council.

11.1.1.2 Group Housing

Provision of Group Housing within the Local Planning Area excluding existing Municipal Corporation/Municipal Council areas shall be subjected to following norms:

1	Minimum Plot size* Outside existing MC limits • For General Category • For EWS	 5 acres 2.5 acres
2	Minimum Road Width	For group housing stand alone projects, minimum width of approach road shall be 60'. However, the promoter is required to leave space from his own land for widening the road to 80' and the space so left shall be deemed to be public space meant for road widening. In case of approved colonies, no group housing shall be permitted on a road width less than 60'.

3	Minimum Frontage	20 meters
4	Permissible F.A.R	1.75
5	Permissible Height	There shall be no restriction on the height of building subject to clearance from Air force Authorities and fulfillment of other rules such as setbacks, distance between buildings etc. However, structural safety and fire safety requirements shall be as per the National Building Codes.
6	Parking Provisions	For group housing, parking norms shall not be less than 1.5 ECS per 100 sq m of covered area. The maximum provision allowable for group housing projects will be 3 ECS per dwelling unit.

* Minimum area for a colony including plotted and group housing shall be as notified by the State Government/Competent Authority from time to time.

However, in case of area falling within existing municipal corporation/municipal council limit's, the norms shall be as specified in the notified Municipal Corporation/Municipal Council Building Bye-laws.

Note:

- Construction of residential houses sold by promoters on the basis of different floors shall also be considered as group/flatted housing development and provision of parking to be made shall be as per the norms applicable to group housing.
- Size of front gate and construction of front boundary wall is optional to meet the parking requirements.
- All projects for which C.L.U has been granted prior to the approval of the Master Plan shall stand adjusted irrespective of the proposed land use subject to necessary environmental safeguards, road networks etc. defined in the Master Plan.

11.1.1.3 Farm Houses

Provision of farmhouses shall be governed by following planning area and coverage norms:

Minimum Area	2.5 acres
FAR	0.04
Ground Coverage	2% or 200sqmts whichever is less
Number of storeys	Not to exceed 2
Height	a. In case of Single Storey building not to exceed 18'-0" b. In case of Double Storey building not to exceed 28'-0"
Hard Surface	Not to exceed 10%

11.1.2 COMMERCIAL

Commercial uses in residential zones located within or outside the Municipal Limits shall be permitted on roads having minimum width of 80 feet. Area requirements for such commercial developments within the existing Municipal Corporation/Municipal Council limits shall be as per the Municipal Building Bye-laws's/ Development Controls and Zoning Regulations as the case may be. The projects and schemes already approved including streets/ roads notified as commercial by the Department of Local Government, falling within the existing Municipal Corporation/Municipal Council limits on the date of notification of

the Master Plan shall continue to be governed and regulated by the respective provisions, conditions, rules and regulations of approval of such projects, schemes and streets/roads.

In case of stand–alone commercial complexes with height greater than three storeys falling outside existing Municipal Corporation/Municipal Council limits, the provision related to area, height, F.A.R etc of such buildings shall be governed and regulated by following norms:

Additional Criteria for Stand–alone Commercial Complexes Outside Existing Municipal Corporation/ Municipal Council Limits (having more than three storey's)*

1	**Minimum Area Required**	1000 sq.mts or as may be notified by the Competent Authority from time to time
2	**Minimum Frontage**	20 meters
3	**Maximum F.A.R.**	1.75
4	**Maximum Height**	There shall be no restrictions on the height of building subject to clearance from Air Force Authority and fulfillment of other rules such as setbacks, distance between buildings etc. However, structural safety and fire safety requirements shall be as defined in the National Building code.
5	**Maximum Ground Coverage**	40%
6	**Parking**	For projects without multiplexes, the parking shall be provided @ 2 E.C.S per 100 sq m of total covered area
		For projects with multiplexes/cinemas/theatres, the parking norms shall be: a) @ 3 E.C.S per 100 sq m of covered area. The covered area shall be calculated on the basis of total covered area of the multiplex component + 30% of the said component and b) @ 2 E.C.S per 100 sq m of covered area in respect of balance commercial component including circulation area
7	**Basement**	Multi-level basement will be allowed below and within the building envelope. No parking shall be permitted within the setback lines. Parking beyond the built up area on ground floor shall be provided at ground level with provision of mechanical ventilation made in case of more than one basement. Parking shall satisfy the public health and structural requirements.
8	**Minimum Approach Road Width**	80 feet
9	**Landscape**	In the case of sites having an area of one acre or more, minimum 15% of the site shall be landscaped.
10	**For Movement of Fire Tender**	Subject to prescribed norms and standards, minimum setback on all sides shall be 6 mts.

*However, subject to the provision of minimum road width specified above, the provisions of minimum frontage,F.A.R, height, ground coverage, parking, basement etc. for the sites falling within the existing Municipal Corporation/ Municipal Council limits shall be governed by the respective Municpal Building Bye-Laws.

Note:

Total parking requirement defined above shall be provided within the plot area including basements, stilts and available open spaces etc.

For the purpose, of calculating the area under parking, norms for one E.C.S. shall be as defined below:

- 23 square meters in case of open parking at ground level
- 28 square meters for parking under stilts

- 32 square meters for parking in the basement

11.1.2.1 Commercial at Local Level

Adequate provision shall be made for convenient shopping in the shape of small scale, single storied commercial facilities or commercial on ground floor at local level, both within as well as outside the Municipal limits to meet the local requirements subject to the condition that such sites shall be located on the roads having minimum width of 18 m (60 feet) and provided with a minimum setback of 6mts from road reservation for parking. These commercial facilities are intended to serve the needs of local residents only and shall form part of the predominant residential land use defined in the Master Plan.

11.1.2.2 Vehicular Access

No property located on the National Highway shall have a direct access from such roads. Vehicular access to all such properties (within and outside the Municipal Limits) that abut National Highways shall be through a service lane having a minimum width of 6 meter (20 feet). The setbacks in case of these properties shall be as defined by the Competent Authority from time to time.

11.1.3 INSTITUTIONAL:

Minimum area and size in case of institutional buildings shall be as per the affiliating authority norms with minimum frontage of 20 meters and road width of 60 feet,(except in case of nursery and primary schools) F.A.R., Ground Coverage, Height etc. of the building shall be as defined in the approved Zoning plan. Zoning Plan of the site shall be approved from the Competent Authority.

11.1.4 INDUSTRIAL

The norms for the site coverage, parking and FAR for the industrial sites shall be as defined below:

Size of Plot	Site Coverage
For the first 2420 sq yds	50% of the site
For the next 2420 sq yds	33% of the site
In excess of 4840 sq yds	25% of the site
F.A.R	1
Parking	@ 1 ECS per 100 sq. mtr. of covered area*

***** The area of 1 ECS shall be as defined in the Para 10.1.2 above.

Note:

- **FAR Permitted:** Industrial / I.T. Park shall have minimum 10 acres of area. In an I.T. park, I.T. component shall have F.A.R. 2. In case of Industrial Park, for

industrial F.A.R permitted for an industrial component shall be 1 and other components shall have F.A.R as mentioned for different land uses in Master Plan. In industrial park, only green and orange industries shall be permitted.

- **Residential** C**omponent**: Residential component in the industrial plot/premises shall not exceed 5% of the area of the site and shall form part of the maximum permissible covered area.
- **Height:** There shall be no restrictions on height of the building subject to clearance from Air Force Authority and fulfillment of other rules such as setbacks, distance between buildings etc. However, structural safety and fire safety requirements shall be as defined in the N.B.C (National Building code).
- **Road width**: The minimum road width within the industrial unit shall not be less than 40 feet. In case, the existing road is less than 40'-0" in width, then it shall be widened to 40'-0" by taking equal strip of land from both sides of the road.
- The construction activity along the Scheduled Roads and Bye-passes passing through Local Planning Area, Amritsar shall be subject to the provisions of Section 143 of the Punjab Regional and Town Planning and Development Act, 1995 as amended from time to time.
- The standards prescribed by Punjab Pollution Control Board from time to time would have to be met by all industrial units in addition to other specific conditions in terms of plot size, ground coverage, F.A.R., height, parking norms etc.
- **Existing Industries:**
  - i) All industries existing in clusters located in residential/commercial area as shown on Proposed Landuse Plan, which are existing on the date of notification of Master Plan stands adjusted but shall be allowed to expand within existing premises only subject to the norms and conditions specified by the Punjab Pollution Control Board.
  - ii) Industries falling in the red category other than those falling in clusters, as mentioned in (i) above, shall not be permitted to operate within the residential plots and would be required to shift to the designated industrial zone within a period of 10 years from date of publication of Master Plan.
  - iii) All industrial units falling in residential area shall be permitted to change the nature of industries that are knowledge based and involve the use of IT

and ITES for which permission should be granted liberally subject to the condition that location does not cause any congestion and traffic problems.

iv) Three industrial zones have been proposed in the Master Plan-Amritsar LPA. First zone includes the area falling on both sides of Majitha Road covering the villages of Bal Kalan, Bal Khurd, Bhaini Gillan and Nag Kalan as earmarked on Proposed Landuse Plan- Amritsar L.P.A.

Second industrial zone is proposed towards south of the city, along both sides of Tarn Taran Road as indicated on the Proposed Landuse Plan.

The third industrial zone has been earmarked along Sri-Hargobindpur Road, opposite new focal point as defined in the Proposed Landuse Plan-Amritsar L.P.A.

v) In addition, all the existing Focal Points set up by the state govt./ Improvement Trust have been retained as such in the Master Plan.

- **Incentives for shifting of existing industries falling within non-conforming zones (whether located individually or falling under the clusters as earmarked on the Proposed Landuse Plan):**

In case of industries falling in the red category which are in operation as on the date of notification of Master Plan and are located in the non-conforming landuse zones, if such industries shift outside this zone to any of the designated industrial zone within the Master Plan of Amritsar L.P.A within the state of Punjab and generate at least the same number of jobs at the new location, will be provided with following benefits:

1) No C.L.U., E.D.C or Licence Fee on the existing industrial site shall be charged if used for plotted residential purposes provided the industry shifts within three years of the notification of the Master Plan. If used for any permissible land use other than plotted residential for which the prescribed C.L.U., E.D.C and Licence Fee are higher, then the difference between C.L.U., E.D.C and Licence Fee of the proposed land use and plotted residential has to be paid. In case that particular land is put to a land use for which C.L.U., E.D.C or Licence Fee is less than the plotted residential, the difference between these fees / charges for the plotted residential and proposed land use shall not be payable by the Government / Urban Development Authority.

2) If the industry shifts in the subsequent two years of the above mentioned period of three years, it will enjoy only 50% reduction on C.L.U., E.D.C and Licence Fee

on the present site if used for plotted residential purposes. If used for any permissible land use other than plotted residential, the difference between the C.L.U., E.D.C and Licence Fee of the new land use and that of 50% of plotted residential has to be paid. In case that particular land is put to land use for which C.L.U., E.D.C or Licence Fee is less than the plotted residential, the difference between these fees / charges for the plotted residential and proposed land use shall not be payable by the Government / Urban development Authority.

3) No C.L.U., E.D.C or Licence fee on the new industrial site shall be payable if the industry shifts within five years of the notification of the Master Plan.

However, considering the role and importance of local craft and cottage industries, the decision for re-location/shifting shall be based on detailed study of such industries including assessment of their value, issues faced by them and threats they impose on the city environment subject to the condition that no such polluting industry shall be permited to operate from the residential areas.

ENVIRONMENTAL CONSIDERATIONS:

- All the textile / dying and electroplating units with in industrial zone shall be required to set up treatment plants individually or collectively to achieve zero liquid discharge and meet all the requirements laid down by Punjab Pollution Control Board.
- Minimum green buffer of 15 meters depth in the shape of a belt comprising of broad leaf trees shall be provided around the boundary of village abadies. Also between residential areas and air polluting industries falling in industrial zone of Master Plan located within 100 meters, shall be provided with a green buffer of min. of 15 meters/max 50 meters depth all along the industrial/residential zone. The provision of buffer strip shall be made by the owner of Land use, which comes later.
- All residential colonies, commercial establishments like shopping malls, multiplexes etc shall maintain a minimum distance of 250 meters from the hazardous (maximum accident hazardous) industries notified by Director General, Factory Advisor Service Labor Institute. The distance should be measured from source of pollution / hazard in the industrial premises to the building lines as per zoning plan of the colony / complex. However for specified type of industries

such as rice shellers/sela plant, brick kilns, stone crushers, hot mix plants etc. standards prescribed by P.P.C.B and concerned dept. shall be followed.

11.1.6 SAFETY

Fire

Fire services have to play pivotal role and be fully prepared in protecting people from fire hazards, building collapse, road accidents and other unforeseen emergency etc. At present there are five fire stations in city.

Planning norms and standards for safety/ fire facilities

Sr. No.	Category	Population/unit (approx.)	Plot area
1	Fire Post	3-4 Km radius	2000 sq. mt.
2	Fire Station	5-7 Km radius	1.0 Ha
3	Disaster Management Centre	1 in each administrative zone	1.0 Ha along with suitable open area (2 ha.) for soft parking, temporary shelter, parade ground etc.
4	Fire Training Institute/ College	City level (one site in urban extension)	3.0 Ha

Development Controls for Safety/ Fire Facilities

As per Zoning Plan/Building Byelaws of the local body/any other concerned agency or as per State Govt. instructions issued from time to time.

Guidelines for locating fire stations & other fire fighting facilities in urban extension:

i) Fire station shall be so located that the fire tenders are able to reach any disaster site immediately within minutes.

ii) Fire station shall be located on corner plots as far possible and main roads with minimum two entries.

iii) In new layouts, concept of underground pipelines for fire hydrants on periphery, exclusively for firefighting services shall be considered.

iv) Fire stations are permitted in all land use zone/sectors except in Recreational use zone.

v) Necessary provisions for laying underground/over ground fire fighting measures, water lines, hydrants etc. may be kept wherever provision of fire station is not possible.

vi) The concerned agencies shall take approval from Fire Department for firefighting measures while laying the service for an area.

Disaster Management Centre

According to the Indian Seismic Zone Map, Amritsar is placed in Seismic Zone IV, which means high damage risk zone. Such natural and manmade disasters neither can be prevented nor predicted. However, with the technological advancement to some extent mechanism can be developed to mitigate the after effects of the disaster. Areas of vulnerability can be identified and necessary measures can be proposed by the concerned agencies. The concerned local bodies should keep updating the building byelaws to safe guard against disasters and ensure effective and impartial enforcement. Following policies and strategies for disaster management are proposed:

1. Pre-Disaster Preparedness

(i) a) Micro-zonation surveys shall be referred for land use planning and be considered while preparing the sectors/Zonal Plans and Layout Plans.

- Seismic micro-zonation for selected areas having high growth rates shall be taken up on priority.
- On the basis of vulnerability studies and hazard identification, which includes soil conditions, probable intensity of earthquake, physiographic conditions of the area, fault traces, etc., local level land use zoning and planning shall be undertaken.

(b) Building byelaws shall incorporate the aspects of Multi Hazard Safety, and Retrofitting.

- Priority shall be given to public buildings (such as hospitals, educational, institutional, power stations, infrastructure, heritage monuments, lifeline structures and those which are likely to attract large congregation) for their ability to withstand earthquake of the defined intensity.
- Suitable action should be taken for retrofitting and strengthening of structures identified as vulnerable as per earthquake manuals and National building code. A techno-legal regime has to be adopted for provision Multi Hazard Safety aspects.

(ii) Amritsar Fire Services being the nodal agency for disaster management shall identify vulnerable areas such as areas with high density and poor accessibility in the City and propose suitable measures. Proposed Disaster Management Centres should be established in every zone/sector to deal with the disasters, including bio-chemical and nuclear disasters.

(iii) Sensitize people, particularly school children, about after effects of disaster.

(iv) Make people aware through media campaigns and advertisements about emergency procedures and location of emergency shelters etc.

2. Post Disaster Management

(i) It has been observed that any disaster is generally followed by break down of communication lines and disruption of essential services. Therefore, the key communication centers shall be protected from natural disasters i.e. flood, fire and earthquake etc. and services restoration shall be taken up on top most priority. Necessary setup shall be created in each of the concerned department for such eventualities.

(ii) Standard type designs and layout shall be prepared by the local bodies and made available to the people so that crucial time is not lost in approval of layout plans and building plans after disaster.

Disaster Management Centers have been proposed to serve people in the case of disaster and provide emergency shelters.

11.1.7 OTHER DEVELOPMENT CONTROLS AND GUIDELINES

- **Regulation for village abadi**s: Special Building Regulations shall be prepared for the development and regulation of an area falling within the Lal Dora or Phirni of the villages falling in the Local Planning Area.
- All Panchayat land of villages falling in Local Planning Area shall be used exclusively for public and semi-public uses including utilities, services, physical and social infrastructure, parks, open spaces, community facilities etc. and not for any other purpose.
- The existing High Tension lines shall be shifted along the road but outside the Right of way to ensure unhindered ROW for traffic and other services for all times.
- The minor drains shall have minimum 10 meters wide (or as may be specified by the state govt. from time to time) green strips on either side of the drain. Other major water bodies shall have minimum 30 meters (or as may be specified by the state govt. from time to time) green strips on each side. Realignment of water bodies shall be permissible wherever feasible, subject to the certification by the Engineering Department to ensure free flow of storm water.
- Contiguous expansion of village abadi's in non-residential zones of Master Plan is permissible up to the extent shown in the Proposed Land Use Plan. However, for the

village abadi falling in the residential zone of Master Plan, no such restrictions shall be applicable.

11.1.8 TRANSFERABLE DEVELOPMENT RIGHTS

To facilitate development, it is necessary to accord top priority to the implementation of public utilities and infrastructure (such as roads, parks, green belts etc.) which will in turn encourage planned development/regulated urbanization. However, the respective technical agency or authority will not be able to proceed with its implementation programmes until the ownership of private land affected by these public utilities and infrastructure has been transferred to the state or to the relevant authority(s).Acquisition of private land for this purpose is proposed to be carried out through one of the following options:

- Cash compensation to be paid to affected land owners whose land is to be acquired or a land-pooling scheme may be formulated and implemented.

Of these options, use of mechanism of TDR (Transfer of Development Rights) is recommended due to the reasons specified below:

- It is relatively simple and direct mechanism to implement and execute.
- The requisite public infrastructure projects can be implemented quickly, thus facilitating rapid urban development.
- The interests of affected landowners are protected.

The TDR scheme shall be restricted to development projects for public infrastructure and facilities which shall be announced from time to time. The additional FAR shall not be transferable from one LPA to another.The Competent Authority on priority shall finalize detailed policy guidelines on the operation and implementation of TDR Scheme.

11.2 SECTION II – ZONING REGULATIONS

In view of the above, Zoning Regulations proposed under this Master Plan are essentially concerned with the control of land use. The proposed land use plan includes following land use zones:

- Residential
- Mixed Landuse
- Institutional
- Industrial
- Warehousing and Godowns/ Logistic hub
- Heritage Zone

- Rural and Agricultural

In addition, specific area/network designations have been indicated in respect of proposed arterial road network, existing rail network, transport terminals etc.

As defined earlier, since sub-division of land and design and construction of buildings is being controlled by well-established Regulations and concerned Competent Authorities, Zoning Regulations under the Master Plan are seen as the reference point for these agencies to ensure that the development permitted by them is within the framework of the Master Plan.

11.3 THE ZONING REGULATIONS PROPOSED FOR ADOPTION IN LPA AMRITSAR ARE PRESENTED BELOW:

Zoning Regulations

The Chief Town Planner, Punjab being the Planning Agency designated under section 57 of the Punjab Regional and Town Planning and Development Act, 1995 as amended in 2006, for the Local Planning Area, Amritsar declared under section 56 of the said Act, following the requirement under clause (d) of sub section 1 of section 70 of the said Act hereby makes following Zoning Regulations as part of the Master Plan prepared for the Local Planning Area, Amritsar.

11.3.1 SHORT TITLE, SCOPE, EXTENT & COMMENCEMENT

11.3.1.1 Title

These Regulations shall be called the Zoning Regulations for Local Planning Area, Amritsar 2010 (hereinafter referred to as “Regulations”).

11.3.1.2 Scope of the Regulations

The scope of these regulations is limited to defining permissible land uses in various land use zones depicted in the Proposed Land Use Plan forming part of the Master Plan. Other aspects of “development” such as sub-division and layout of land or intensity of development measured through FAR, ground coverage, parking requirements, building design and construction etc. will be governed by other Acts and Regulations promulgated by Government from time to time. Competent Authorities under such regulations shall ensure that the developments permitted by them are in conformity with these Regulations.

11.3.1.3 Jurisdiction

These Regulations shall apply to all "development" in the Local Planning Area, Amritsar declared under section 56 of the Punjab Regional and Town Planning and Development Act 1995 *vide* notification no 12/65/2006 – 4 HGI/5599 dated 18th July, 2007.

11.3.1.4 Date of Coming into Force

These Regulations shall come into force on the day on which the Designated Planning Agency publishes the final Master Plan along with these Regulations in the *Official Gazette* after obtaining the approval of the State Government under sub section (5) of section 70 of the "Punjab Regional and Town Planning and Development Act 1995". Till such approval, the Authorities while considering the application for permission for development shall have due regard to the proposals and provisions made in these Regulations.

DEFINITIONS

For the purpose of these Zoning Regulations, the following definitions, unless the context otherwise requires, shall apply:

1.**"Act"** means the Punjab Regional and Town Planning and Development Act, 1995 (Punjab Act No. 11 of 1995) as amended from time to time.

2. **"Government"** Means the Government of the State of Punjab.

3. **"Chief Town Planner"** Means the Chief Town Planner of the Department of Town & Country Planning, Punjab or any other officer to whom his powers are delegated.

4. **"Planning Agency "** means the Chief Town Planner Punjab designated as such under Section 57 of the Punjab Regional and Town Planning and Development Act, 1995 (Punjab Act No. 11 of 1995) as amended from time to time for Local Planning Area Amritsar.

5.**"Existing Land Use Plan"** Means the plan showing the different land use existing at the time of preparation of the Existing Land Use Plan of Local Planning Area, Amritsar and as indicated on Drawing No. D.T.P (A) 2/2010 Dated 12/01/2010.

6.**"Local Planning Area"** means the Local Planning Area Declared under section 56(1) of the Punjab Regional and Town Planning and Development Act, 1995 (Punjab Act No. 11 of 1995) as amended from time to time, vide notification no. 12/65/2006 – 4 HGI/5599 dated 18th July, 2007.

7.**"Non- Conforming Building or Use"** means building/use in respect of any land or building in the Local Planning Area, the existing use of which land or building is not in conformity/contrary to the prescribed land use.

8.**"Proposed Landuse Plan"** means the plan showing the proposed any admissible uses of different areas and Land use zones covered in the Local Planning Area, Amritsar and as indicating on Drawing No. D.T.P. (A) 18/2010 Dated 29.09.2010.

9. **"Sector Plan"** means the detailed plan of a part of Master Plan as delineated in the Master Plan and approved by the Chief Town Planner, Punjab showing all or any of the following:-

a) Layout of plots, streets, roads public open spaces, parking areas etc.
b) Area temporarily or permanently prohibited for the building operation.
c) Uses Permitted in respect of each or a group of plots into which the land may be shown to be divided.
d) Any other detail provided in the Layout Plan.

10."**Zoning Plan"** means the plan of area or part thereof or supplementary layout plan approval by the Chief Town Planner and maintained in the office of Competent Authority showing the permitted use of land and such other restrictions on the development of land as may be prescribed in the Zoning Regulations, for any part or whole of the area such as sub-division of plots, open spaces, streets, position of protected trees and other features in respects of each plot, permitted land use of building/lands, height, coverage and restrictions with regard to the use and development of each plot in addition to such other conditions as laid down in these Regulations hereafter.

11**."Knowledge Park":** An area having all such uses and activities but does not include commercial/industrial activities and which makes value addition to the society but are absolutely non –polluting, non hazardous and Environment friendly, free from noise& vibrations, having no polluting effects on air and water and causing no nuisance whatsoever. Uses permitted in such parks will be as determined by Chief Town Planner, Punjab from time to time.

12.**"Farm House**" Farm house means a building allowed on a holding of agricultural land for residential and agricultural related activity of the land holder and shall be governed by the regulations made specified in Para 10.1.1.3. The total floor area of such farm house shall not exceed 2 per cent of the area of holding or 200sq.m.whichever is less.

13.**"Atta Chakki":** Atta Chakki is categorized as service industry where:

- Grinding of only food grains is carried out through the process of crushing under the load rotational movement of two plates or blocks and where maximum electric load does not exceed 20 kW.

- The Atta Chakki shall be used for grinding food grains supplied by the consumers only and no sale/ purchase of food grains/ flour be carried out by the Atta Chakki owner at commercial level.
- The Atta Chakki shall only be permitted on roads having minimum right of way of 13.5 m.

14."**House Hold Industry"** House Hold Industry means house hold occupation/ industry conducted only by family members/persons residing in the dwelling with or without power and does not contravene the provisions of the Water Pollution (Prevention and Control) Act 1974 Air pollution (prevention and Control) Act 1981 and Environment (Protection) Act 1986.

15. **"Cottage Industry":** Industrial units employing less than 10 workers, not creating excessive traffic and not omitting fumes, noise and effluents injurious to the existing sewers and not contrary to the provisions of the Water Pollution (Prevention and Control) Act 1974, Air Pollution(Prevention and Control) Act 1981 and Environments (Protection) Act 1986.

16. **"Micro, Small and Medium Enterprises engaged in manufacture or production of goods"** have the meaning assigned to them in clause (a) of sub-section (1) of section 7 of Micro, Small and Medium Enterprises Development Act, 2006 of Government of India

17.**Large Industries:** Large Industries are the industries in which the investment in fixed assets in plant and machinery is more than Rupees 10 crores or as defined from time to time.

18.**Public and Semi Public activities:** Public and semi public activities means governmental/ semi governmental offices, educational, medical institutions, recreational and entertainment facilities, cultural and religious institutions etc.

19.**Mixed Landuse:** means the multiple use of land is allowed to co-exist such as residential, commercial, institutional etc.

Terms and phrases used, but not defined in these Regulations, shall have the same meaning as assigned to them in the Act.

11.3.3 LAND USE ZONES

The proposed land use plan incorporated in the Master Plan of LPA, Amritsar depicts the following land use zones

- Residential
- Mixed Landuse

- Industrial
- Warehousing
- Heritage Zone
- Rural and Agricultural

11.3.4 LAND USE CLASSES

For the purposes of these Regulations, various land uses are grouped into following land use classes**.**

Sr.No.	Land Use Class	Use Class Code
1	Housing	A
2	Trade and Commerce	B
3	Manufacturing	C
4	Transport, Storage & Warehousing	D
5	Offices	E
6	Education, Training and Research Institutes	F
7	Health Care Facilities	G
8	Recreation, Entertainment	H
9	Public Utilities and Services	I
10	Agriculture, Forestry and Fishing	J

11.3.5 USE PROVISIONS IN LAND USE ZONES

Following table describes the land use classes and their further sub-classes permitted in various land use zones. The shaded cells in the table indicates that the use is generally permissible. A number in the cell indicates the conditions listed at the end of the table subject to which the use is permissible.

LAND USE ZONES AND PERMISSIBLE LAND USES						
USE CLASS		**LAND USE ZONES**				
Sub Code	**Description**	**Residential**	**Commercial**	**Industrial**	**Warehousing**	**Rural and Agricultural**
A	**Housing**					
A1	Residential houses in the form of plotted development, group housing, farm houses for customary residence including household industry, EWS housing			**1**		**2**
A2	Old Age Homes, Orphanages, Hostels for students, working women etc.					**3**

LAND USE ZONES AND PERMISSIBLE LAND USES						
USE CLASS		**LAND USE ZONES**				
Sub Code	**Description**	**Residential**	**Commercial**	**Industrial**	**Warehousing**	**Rural and Agricultural**
A3	Service Apartments, Hotels including Star Hotels, Motels, Guest Houses, Dharamshalas, Lodging Houses			**4**		
A4	Jails, Asylums, Reformatories and the like					
A5	Residences for watch and ward staff, residences for industrial workers/ management					
A6	Housing not classified above					
B	**Trade and Commerce**					
B1	Retail trade including markets for fruits and vegetables, meat and fish; super markets, informal shopping					
B2	Department stores, Malls including super market, retail trade, restaurants and multiplexes					
B3	Personal and Community Services like laundry, hair dressing, beauty parlors, tailoring, coaching classes, cyber cafes, Atta Chakki, Repair of Household Appliances, Bank Branches, ATM					
B4	Wholesale trade with storage of commodities excluding storage of explosives and firecrackers					**5**
B5	Filling Station **					
B6	Kerosene Storage/Gas Godown and storage of fire works	**8**				
B7	Gas Distribution (without storage of cylinders)					
B8	Trade Fares, Exhibition and Conventional centers					
B9	Showroom of Mills/ Factory Retail Outlets, Auto Showrooms and Auto Workshops					
B10	Trade not classified above					
C	**Manufacturing (NIC Section C)** *					
C1	Manufacture of Food Products (NIC Division 10)					
C2	Manufacture of Beverages (NIC Division 11)					
C3	Manufacture of Textiles (NIC Division 13)					
C4	Manufacture of Wearing Apparel (NIC Division 14)					
C5	Manufacture of leather and related products (NIC Division 15)					
C6	Manufacture of wood and products of wood and cork, except					

LAND USE ZONES AND PERMISSIBLE LAND USES						
USE CLASS		**LAND USE ZONES**				
Sub Code	**Description**	**Residential**	**Commercial**	**Industrial**	**Warehousing**	**Rural and Agricultural**
	furniture; (NIC Division 16)					
C7	Manufacture of paper and paper products (NIC Division 17)					
C8	Printing and Reproduction of Recorded Media (NIC Division 18)					
C9	Manufacture of coke and refined petroleum products (NIC Division 19)					
C10	Manufacture of chemicals and chemical products (NIC Division 20)					
C11	Manufacture of pharmaceuticals, medicinal chemical and botanical products (NIC Division 21)					
C12	Manufacture of rubber and plastics products (NIC Division 22)					
C13	Manufacture of other non-metallic mineral products (NIC Division 23)					**6**
C14	Manufacture of Basic Metals (NIC Division 24)					
C15	Manufacture of fabricated metal products, except machinery and equipment (NIC Division 25)					
C16	Manufacture of computer, electronic and optical products (NIC Division 26)					
C17	Manufacture of Electrical Equipment (NIC Division 27)					
C18	Manufacture of Machinery and Equipment.(NIC Division 28)					
C19	Manufacture of motor vehicles, trailers and semi-trailers (NIC Division 29)					
C20	Manufacture of other transport equipment (NIC Division 30)					
C21	Manufacture of Furniture (NIC Division 31)					
C22	Other Manufacturing (NIC 32)					
C23	Repair of Machinery and Equipment (NIC Division 33)					
C24	Milk Chilling (independent plot), Pasteurization Plant, Cold Storage/ice factory					
C25	Rice Shellers, Processing of Farm Products, Brick Kilns, Lime/ Charcoal Kilns					
C27	Cottage Industry, Repair of Household Articles, Cycles and					

LAND USE ZONES AND PERMISSIBLE LAND USES						
USE CLASS		**LAND USE ZONES**				
Sub Code	**Description**	**Residential**	**Commercial**	**Industrial**	**Warehousing**	**Rural and Agricultural**
	scooters repair					
C28	I.T. Parks, Knowledge Park & Industrial Park	**10**				
C29	Cement, Sand and Concrete Mixing Plant(Batching plant), Bitumen, Sand, Concrete Mixing Plant (Hot Mix Plant)					
D	**Transport Storage and Warehousing**					
D1	Warehousing and storage activities for transportation (NIC Division 52) and Loading & unloading yard					**7**
D2	Rail and Air Freight Terminals					
D3	Truck Terminals					
D4	Bus Terminals, Auto-Rickshaw/ Taxi Stand					
D5	Warehousing, Logistic Park, Storage & Godowns, Freight complex, Container Yards					
E	**Offices**					
E1	Publishing of Books, Periodicals and other publishing activities (NIC Group 581) Software publishing (NIC Group 582)					
E2	Motion picture, video and television programme production, sound recording and music publishing Activities (NIC Division 59)					
E3	Broadcasting and Programming Activities (NIC Division 60)					
E4	Telecommunications (NIC Group 61), Govt./ Semi-Govt. / Private Business offices					
E5	Computer Programming, consultancy and related activities (NIC Division 62)					
E6	Information service activities (NIC Division 63)					
E7	Finance, Banking and insurance (NIC Section K)					
E8	Real estate activities (NIC Section L)					
E9	Professional, scientific and technical activities (NIC Section M)					
E10	Administrative and support services (NIC Section N)					

LAND USE ZONES AND PERMISSIBLE LAND USES						
USE CLASS		**LAND USE ZONES**				
Sub Code	**Description**	**Residential**	**Commercial**	**Industrial**	**Warehousing**	**Rural and Agricultural**
E11	Public administration and defence; compulsory social security (NIC Section O)					
E12	Professional Services like Lawyers, Accountants, Architects, Charted engineers					
F	**Educational, Training and Research Institutes**					
F1	Pre-Primary Schools, Play schools, Kinder Garden					
F2	Primary Schools,					
F3	Secondary Schools, Colleges, Vocational Training Institutes,					
F4	Research and Training Centres, Universities, Centres of Advanced Education and Training e.g. IIM or IIT					
F5	Educational, Training and Research Institutes not classified above					
G	**Health Care Facilities**					
G1	Medical and Dental Clinics and Dispensaries	**9**				
G2	Hospitals (NIC Group 861) and Health Center	**9**				
G3	Nursing Care Facilities (NIC Group 871)	**9**				
G4	Residential care activities for Mental Retardation, Mental Health and substance abuse (NIC Group 872)					
G5	Residential care activities for the elderly and disabled (NIC Group 873)					
G6	Veterinary services					
G7	Health Care Facilities not classified above.					
H	**Arts, Entertainment, Recreation, Cultural and Religious Activities**					
H1	Arts, Entertainment and Recreation (NIC Section R) and Multimedia					
H2	Libraries, Archives, Museums and Other Cultural Activities (NIC Division 91)					
H3	Gambling and betting activities (NIC Division 92)e.g. Race Course					

LAND USE ZONES AND PERMISSIBLE LAND USES						
USE CLASS		**LAND USE ZONES**				
Sub Code	**Description**	**Residential**	**Commercial**	**Industrial**	**Warehousing**	**Rural and Agricultural**
H4	Sports activities, Amusement and Recreation activities (NIC Division 93), activities of membership organisations (clubs etc) (NIC division 94),tot-lots, playgrounds, stadia, golf courses etc.					
H5	Places of Worship					
H6	Marriage Palaces					
H7	Arts, Entertainment and Recreation activities not classified above					
I	**Public Utilities and Services**					
I-1	Electricity, gas, steam and air conditioning supply (NIC Section D),Telecom tower/antina					
I-2	Water collection, treatment and supply (NIC Division 36)					
I-3	Sewerage (NIC Division 37)					
I-4	Waste collection, treatment and disposal activities; material recovery (NIC Division 38) and Carcass Disposal Site	**8**				
I-5	Postal and courier activities (NIC Division 53)					
I-6	Police station					
I-7	Fire Station					
I-8	Public utilities and Services not classified above					
I-9	Cemeteries, Graveyards, Cremation grounds					
J	**Agriculture, Forestry and Fishing (NIC Section A)**					
J1	Crop and Animal Production, Hunting and Related Service Activities (NIC Division 01)					
J2	Land Conservation and Preservation measures such as Storage, Check Dams and other water harvesting measures					
J3	Fishing and Aquaculture (NIC Division 03)					
J4	Quarrying of stone, sand and clay (NIC Group 081)					
J5	Plant Nursery and Greenhouses related to Nursery, Floriculture					

Notes:			
NIC	National Industrial Classification (All Economic Activities) 2008, Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India		
A	Shaded areas indicate that the use class is permissible in the zone		
B	Shaded area with number /notation indicates the conditions attached		
	Only EWS housing		1
	Only Farm Houses permissible		**2**
	Old Age Homes and Orphanages only		**3**
	Hotel, Motel and Guest houses		**4**
	Wholesale trade in agricultural commodities only		**5**
	Only Manufacture of Bricks, Earthen Pots, Country Tiles etc.		**6**
	Warehousing for agricultural commodities only.		**7**
	Only in Low Density Residential Zone		**8**
	Subject to fulfillment of conditions of Pb. Govt. Notification No. 17/17/5-Hg2/311 dated 11.01.08 and instructions issued from time to time		9
	Only Knowledge Parks as defined at Sr. No. 11 above		**10**
	Except Milk chilling		**11**
* All types of industries permitted in the designated land use zone are subject to the fulfillment of requirements of different departments			
** The siting of petrol pumps shall be subject to instruction / guidelines of IRC/ MORTH/TCPO/Punjab govt. issued from time to time.			
C	Minimum area required for Educational and Health care facilities shall be as prescribed by government or the accrediting authorities from time to time		
	All developments will be subject to Environmental Clearance wherever required.		
	Minimum width of the access road for all public places and involving “Assembly” occupancy shall be 18 m.		
	Storage and manufacturing of firecrackers shall not be permitted in any habitable zone. However, it will be permitted in the industrial, rural and agricultural zone subject to the rules and regulations made for storage and manufacturing of firecrackers including compliance of the provisions of Department of Explosive.		
	The activities not mentioned in the table above but found compatible for particular land use zone shall be permissible with the approval of competent authority.		

11.3.6 DESIGNATED AREAS

Following areas have been specifically designated in the Proposed Land Use Plan.

- Mixed Landuse
- Traffic and Transportation
- Utilities
- Public & Semi Public
- Recreational
- Heritage Zone/Protected Monuments/Conservation Sites
- Other Special Areas
- Prohibited Areas
- Forest Areas

USE PROVISIONS IN DESIGNATED AREAS

Following uses are permissible in the designated areas mentioned above.

- **Mixed Landuse**: **Permissible Uses**

All types of public utilities and public buildings , regional level entertainment places, Residential use (plotted/flatted), commercial uses like Shopping malls, Multiplexes, IT/ITES, Institutes, Hotels, Motels, Hospitals, Clinics, Amusement parks, Rides, Water sports, Green houses, Nurseries, Mela grounds, Warehouses, Marriage palaces, Bus terminals, Truck terminals, Check barriers, Weigh bridges Buffer zones, Electric grid stations, Residences for watch & ward staff, Petrol pumps and Filling Stations.

The following four broad types of mixed use shall be permissible in mixed landuse:

a) Commercial Activity

Vegetables, fruits, flowers,Bakery items,Confectionary items,Karyana, General store, Dairy product, Stationery, Books, Gifts, Book binding, Photostat, Fax, SID, PCO, Cyber café, Call phone, Booths, LPG booking office,Showroom without LPG cylinders, Atta Chakki, Meat, Poultry and Fish shop, Pan shop, Barbershop, Hair dressing saloon, Beauty parlour, Laundry, Dry cleaning, Ironing, Sweet shop,Tea stall without sitting arrangement, Chemistshop, Clinic, Dispensary, Pathology lab, Optical shop, Tailoring shop, Electrical,Electronic repair shop, and Photo studio, Cable TV,DTH Operation, Hosiery, Readymade, Garments, Cloth shop, ATM, Cycle Repair Shop, Ration shop & Kerosene Shop under PDS.

b) Industrial activity:Uses permissible

All industrial uses except those of red category shall be permitted in this zone.

c) Other activity: Uses permissible

The following public and semi-public activities shall also be permitted in the residential plots abutting roads of minimum ROW 13.5 mts. or above, whether or not the road is notified as mixed use street except in approved residential colonies.

Primary/Sr. Secondary school (including nursery/Montessori school, creche), Nursing home,Clinic, dispensary, pathology lab and diagnostic center, Bank, Fitness center (including gymnasium, yoga/meditation centre),Coaching centre, tuition centre other than those imparting structured courses leading directly to the award of a degree or diploma

Note:

The stand-alone projects having depth more than the proposed mixed landuse shall be considered for approval irrespective of the prescribed depth

d) Professional Activity: Uses permissible

Subject to the general terms and conditions, professional activity is permissible in plotted development and group housing under the following specific conditions:

a) Professional activities shall mean those activities involving services based on professional skills namely Doctor, Lawyer, Architect, and Chartered Accountant, Company secretary, Cost and Works Accountant, Engineer, Town Planner, Audio and Video Media professionals and documentary Film maker.

b) In group housing, and plotted development with multiple dwelling units, professional activity shall be permitted subject to maximum of 25% of the constructed area or 500 sq feet which ever is less.

- **Traffic & Transportation: Permissible Uses**

Railway yards, Railway station & sidings, Transport Nagar (including, Post & Telegraph offices & Telephone exchange, Dhabas, Labor yards, Areas for loading and unloading, Stores, Depots, and Offices of goods booking agencies, Petrol Filling Station & Service Garages, Parking spaces, public utilities and buildings) Bus Terminus & depot, Bus Stop Shelter, Taxi/ Tonga/ Rickshaw/Scooter Stands, parking spaces.

- **Utilities: Permissible Uses**

Water supply, drainage, storm water disposal, waste processing and disposal, electricity, communication systems and related installations etc.

- **Public and Semi-Public Activities: Permissible Uses**

Governmental and semi governmental offices, Governmental administrative centres, Secretariat, Educational- Cultural and Religious institutions including Theaters, Auditoriums etc. Medical Health Institutions, Community Centres, Club, Orphanage, Old Age Home, Banks, Police Stations etc.

- **Recreational :Permissible Uses**

Green Belt (Forest, Agriculture use, Vegetation belt, Wild life sanctuary, Bird sanctuary, Biodiversity Park, Fire Post, Amenity Structure (List given in note), Agro forestry, Floriculture farm etc), Regional Park (Zoological Garden, Botanical Garden, Orchard, Plant Nursery, Picnic Hut, Shooting Range etc), City Park (Aqua park/water sports park,

Amphitheatre, Open Playground,), District Park (Theme Park, Recreational club, National Memorial, Open-air food court, Children Park, Area for water –harvesting, Archaeological park, Specialized Park etc.) Local Parks, Sports Stadium/Complex, Cricket Stadium, Sports Training Centres, Open Air Auditorium, Holidays Resorts with ground coverage not exceeding 2%, Public Institutional Libraries, Swimming Pools with built up areas not exceeding 2%, Music, Dance & Drama Training Centre, Yoga, Meditation, Spiritual & Religious Centre, Recreational Club, Banquet Hall, Open Air Theatre, Auditorium, Museum, Exhibition-cum-Fair Ground, Museum, exhibition centre & art gallery, auditorium & open air theatre, Cultural & Information Centre, Social & Cultural Institute, International Convention Centre, Planetarium.

Note:

a) The following amenity/ structures are permissible in the above use premises except in Central Vista and Heritage areas: Toilet blocks, Pump Room, Electric Room, Guard Room and Equipment Room.

b) Interpretation Centre and Administrative office is permissible only in Heritage Areas.

- **Heritage Zone /Protected Monuments/ Conservation Sites:**

Permissible Uses

The use includes Protected Monuments/ Heritage Buildings or Conservation Sites as notified by the Competent Authority and shown on the Master Plan. The uses to be permitted in the zone/area shall be as notified by the Competent Auhtority from time to time, the provisions of relevant laws governing the conservation/preservation of such monuments/sites and the Heritage Regulations framed for such buildings/sites by the Competent Authority. Monuments/Sites/Buildings which are subsequently notified by the Competent Auhtority as Heritage Buildings /Protected Monuments/Conservation Sites shall also be governed by the above provisions. No use other than the uses notified by the Competent Auhtority shall be permitted in the zone/area identified in this category.

- **Other Special Areas: Permissible Uses**

All the uses related to Defence Services and any other use as decided by the Ministry of Defence. No other uses are permitted.

- **Other Special Areas: Permissible Uses**

All the uses related to Defence Services and any other use as decided by the Ministry of Defence. No other uses are permitted.

- **Prohibited Areas: Permissible Uses**

The areas around the Protected Monument up to the distance of 100 meters from the protected limits as describe in the notification no. S.O.1764 Dated 16th June, 1992 issued by the Department of Culture, Archaeological Survey of India are to be prohibited areas and beyond it up to 200 meters regulated areas for the purposes of both mining operation and construction.

- **Forest Areas: Permissible uses**

This area indicates all Reserved Forests as notified by the Forest Department. No activity other then Forest is permitted in this area unless expressly allowed by the Forest Department.

SPECIAL CONDITIONS

The sitting of Petrol Pump / Filling Stations shall be subject to instructions/guidelines of IRC/MORTH/TCPO /Punjab Govt. issued from time to time.Minimum width of access road for warehousing uses shall be 80 feet.

11.3.8 EXCEPTIONS

- Any use not listed above under a specific zone will not be permissible in the respective zone
- Uses determined by the Chief Town Planner, Punjab as compatible with uses permissible shall be allowed in respective zones. Use of land covered under Optimum Utilization of Vacant Government Land (OUVGL) Scheme of the State Government shall be as determined by the Government at any appropriate time not withstanding the provisions of these regulations. Similarly, in case of the land owned by the Amritsar Development Authority (ADA), its use shall be as determined by the ADA/State Government, not withstanding the provisions of these regulations/proposals shown in the Proposed Landuse Plan. Development Projects approved prior to coming into force of these Regulations shall be deemed to be in compliance with these Regulations.
- In case of Defence Land, the extent of No Construction Zone around such lands shall be as notified by the Central Government from time to time depending upon the nature of the use of the land, irrespective of the fact whether such uses are indicated/not indicated on the Proposed Landuse Plan.
- In case of any ambiguity/clarification regarding the interpretation of the Land Use Plan, the Master copy of drawing based on GIS shall be referred.

11.3.9 RESIDENTIAL DENSITIES

The entire Residential zone for LPA, Amritsar has been defined in the Proposed Land Use Plan Drawing No. D.T.P. (A) 18/2010 Dated 29.09.2010. The Residential Zone has been divided into two sub zones. Keeping in view the peculiar quality and pattern of development within walled city, the area enclosed within the walled city has been designated as especially residential zone whereas remaining residential area has been put into other category. The maximum permissible residential density in the sub - zone other than the walled city shall be 200 persons per Acre. The gross density for the walled city shall not exceed 150 persons per Acre.

11.3.10 WALLED CITY

Keeping in view the special character of the walled city and its pattern of development, special regulations for the development of area falling within walled city shall be formulated in order to ensure decongestion of population and decongestion of activities for creating more open spaces and improving the quality of life by making available land for physical and social infrastructure. Strategies would also include pedestrianisation of the congested area of walled city, minimizing change of land use, minimizing sub-division of land, preserving and enhancing the ambience of buildings of historical, cultural and religious importance besides rationalizing the traffic and transportation.

11.3.11 IMPLEMENTATION OF THESE REGULATIONS

- All authorities competent to grant permission for layout or sub-division of land or construction of building or development of land in any other form shall ensure that the permitted development is in compliance with these Regulations.
- Landowners desirous of developing their land can obtain, by applying to the designated authority in writing and giving details of their land along with necessary maps, a list of permissible uses.
- Similarly, landowners proposing development of certain uses on their land can obtain certificate of “Compliance with Master Plan” from a designated authority.

CHAPTER 12

INVESTMENT PLAN

City Investment Plan has been prepared through a comprehensive process of gap assessment in physical and social infrastructure sectors in alignment with identified vision for Amritsar city. This assessment has also led to the identification of sector-specific strategies, implementation actions and associated reforms with specific inputs from stakeholders. The strategies adopted primarily have three dimensions - improving service delivery by efficiency measures; improving service delivery by creating infrastructure assets; and improving the governance aspects of the Corporation. This section summarises the capital investments required for creating infrastructure assets and various strategic interventions required in the implementation of such projects; these strategies are both investment-oriented and administration-oriented.

Investment Plan for the city highlights broadly the investment required for physical infrastructure such as water supply, sewerage, solid waste, etc. As far as social infrastructure is concerned, it is assumed that the required facilities shall be developed through Govt. on the basis of the latest PPP models.

12.1 INVESTMENT PLAN

The City Investment Plan is the multi-year scheduling of identified and prioritized investments. The scheduling or phasing of the Plan is based on studies of fiscal resources availability (for new investments and O&M), technical capacity for construction and O&M, and the choice of specific improvements to be carried out for a period of five years. The Infrastructure Plan is needed for:

- Assessement of growth and accordingly meeting infrastructure needs (to be carried out once every five years).
- Scheduling of investments of ongoing projects due to cost and/ or time overruns.
- Assigning of priorities within the constraints of available financial resources

12.1.1 INSTITUTIONALISING THE CIP PROCESS

The City Investment Plan is an important element of the Master Plan and is significant in terms of the town's management process and sustainability with regard to the delivery of basic services. As a part of the Master Plan, the CIP prepared includes the following:

- Desired norms and standards for infrastructure services;

- Roles and responsibilities of various stakeholders in the implementation of identified projects.
- Project phasing and strategies for implementation

Municipal Corporation, Amritsar is the primary agency responsible for delivering municipal services and hence the proposals ought to be implemented by Corporation. The projects, prioritization, investment phasing, strategies and action plan are framed accordingly. The CIP involved the identification of public capital facilities to cater the demands of the city populace by the year 2011 and 2031 according to their short, medium and long-term infrastructure needs. The project identification has been done through a demand-gap analysis of the services and DPRs available with the Corporation. Further, project prioritisation and strategising of the investments/ phasing of investment are based on strategies, listed under each service sector as identified through stakeholder consultations. The projects derived are aimed at ensuring the optimal and efficient utilisation of existing infrastructure systems and enhancing the capacity of the systems/ services to cater the demands of future population additions. Certain other projects listed as part of the CIP include developmental projects other than those addressing the core service sectors viz. system modernization etc.

The CIP and the forecasted future needs for provision of capital facilities under each identified sector are presented below. These assets will help to universalise services for the current population as well as accommodate the expected increase in population. In sectors where long-term planning is required (for example, source development for water supply and development of landfill site), the planning horizon till the year 2031 is considered. Assets created in such sectors consider the projected population in this horizon.

12.2 SECTOR WISE INVESTMENT NEED

12.2.1 Water Supply

Sector Strategies and requirement for Investment

Strategy Identified	To cover the uncovered area by water supply network by augmenting the present distribution system network and to ensure equitable distribution of potable water to all through piped water supply ,and to provide a water treatment plant in the city.
Expected Outcome	Assured ability to meet year 2031 demand
Total Investment Need	**Rs. 33117 lakhs**

The total investment calculated is as per the detailed requirement (Component-wise) given below:

Infrastructure Components	Requirement	Units	Rate (lakhs)	Cost (lakhs)
Treatment Plant	162	MLD	25	4050
Network Distribution	652	km	25	16300
OHT	83*	Nos.	55	4565
Metering System	273388	Nos.	0.03	8202
Total				**33117**

*1 OHT with 1 MLD capacity

The investment for various heads of water supply has been calculated for the year 2031 by taking into account unit cost of each of the head as well as gap (requirements) identified respectively. The total investment need for water sector by 2031 is estimated at Rs.33117 lakhs.

12.2.2 SEWERAGE

Sector Strategies & Investment Need

Strategy Identified	Capacity expansion and up gradation of the existing collection and conveyance system to match additional water supply and provide for environmentally safe disposal
Expected Outcome	Synchronisation with water supply capacity
Total Investment Need	**Rs. 56594 Lakhs**

The total investment calculated is as per the detailed requirement (Component-wise) given below:

Infrastructure Components	Requirement	Units	Rate (lakhs)	Cost (lakhs)
Treatment Plant	41.47	MLD	50	2074
Distribution Network	1363	km	40	54520
Total				**56594**

The total investment need for sewerage sector by 2031 is estimated at Rs.56594 lakhs.

12.2.3 STORM WATER DRAINAGE

Sector Strategies & Investment Need

Strategy Identified	Laying down of closed pucca drains throughout the whole city and providing it a separate distribution line other than the sewerage one.
Expected Outcome	Universal coverage and disposal capability, restrict sewerage flow into storm water drains
Total Investment Need	**Rs.480500 lakhs**

The total investment calculated is as per the detailed requirement (Component-wise) given below:

Infrastructure Components	Requirement	Units	Rate (lakhs)	Cost (lakhs)
Network	1922	KM	250	480500
Total				**480500**

The system plans to cover 100% of the road network for service efficiency. The total investment need for drains sectors by 2031 is estimated at Rs.480500 lakhs.

12.2.4 SOLID WASTE MANAGEMENT (Door to door collection, Mechanical sweeping, Collection through vehicles, landfill site development and incinerators etc)

Sector Strategies & Investment Need

Strategy Identified	Source segregation and door-to-door collection, effective transportation and environmentally safe disposal
Expected Outcome	Reduced waste generation, hygienic conditions and a clean city
Total Investment Need	**Rs.18275 Lakhs**

The total investment calculated is as per the detailed requirement (Component-wise) given below:

Infrastructure Components	Requirement	Units	Rate (Lakhs)	Cost (lakhs)
Collection, Transportation and Disposal	406110	KG	0.045	18275
Total				**18275**

The total investment need for Solid Waste Management sector by 2031 is estimated at Rs. 18275 lakhs.

12.2.5 TRAFFIC AND TRANSPORTATION

Sector Strategies & Investment Need

Strategy Identified	Increase carrying capacity through widening and improve riding quality
Expected Outcome	Hassle-free travel on the roads, safe driving during nights
Total Investment Need	**Rs.388250 lakhs**

The total investment calculated is as per the detailed requirement (Component-wise) given below:

Infrastructure Components	Numbers	Units	Rate (lakhs)	Cost (lakhs)
Roads	1321	km	250	330250
ROBS	22	Nos.	2500	55000
Flyovers and Bridges	1	Nos.	1000	1000
Junction Improvement	20	Nos.	100	2000
Total				**388250**

Identified investments based on the demand-gap assessment above presented are meant for the up-gradation of existing un-surfaced roads; new road development; widening and strengthening of major roads; implementation of the public transport system, traffic management systems and junction improvements; provision of street lighting, etc. Improve identified major roads and the construction of R.O.Bs at various critical intersections to achieve an efficient traffic management system.

The total investment need for roads, transportation and traffic management sectors by 2031 is estimated at Rs. 388250 lakhs.

12.2.6 ELECTRICTY

Sector Strategies & Investment Need

Strategy Identified	Installation of new electric sub stations as per the requirement by 2031, minimize the transmission losses and laying down of new hierarchical electric distribution system
Expected Outcome	Supply of regular uninterrupted electricity throughout the year
Total Investment Need	**Rs.107200 Lakhs**

The total investment calculated is as per the detailed requirement (component wise) given below:

Infrastructure Components	Requirement	Unit	Rate (Lakhs)	Cost (Lakhs)
Sub Station (11KV)	134	Nos	800	107200
Total				**107200**

The total investment need for electricity sector by 2031 is estimated at Rs.107200 lakhs.

12.2.7 SUMMARY OF COST ESTIMATION FOR DIFFERENT SECTORS OF PHYSICAL INFRASTRUCTURE

INFRASTRUCTURE COMPONENTS	TOTAL EXPENDITURE (LAKHS)
Water Supply	33117
Sewerage	56594
Storm Water Drainage	480500
Solid Waste	18275
Traffic and Transportation	388250
Electricity	107200
Grand Total	**1083936 (LAKHS)**
	10839.36 (CRORES)

The total investment for physical infrastructure is approximately **11,000** Crores.