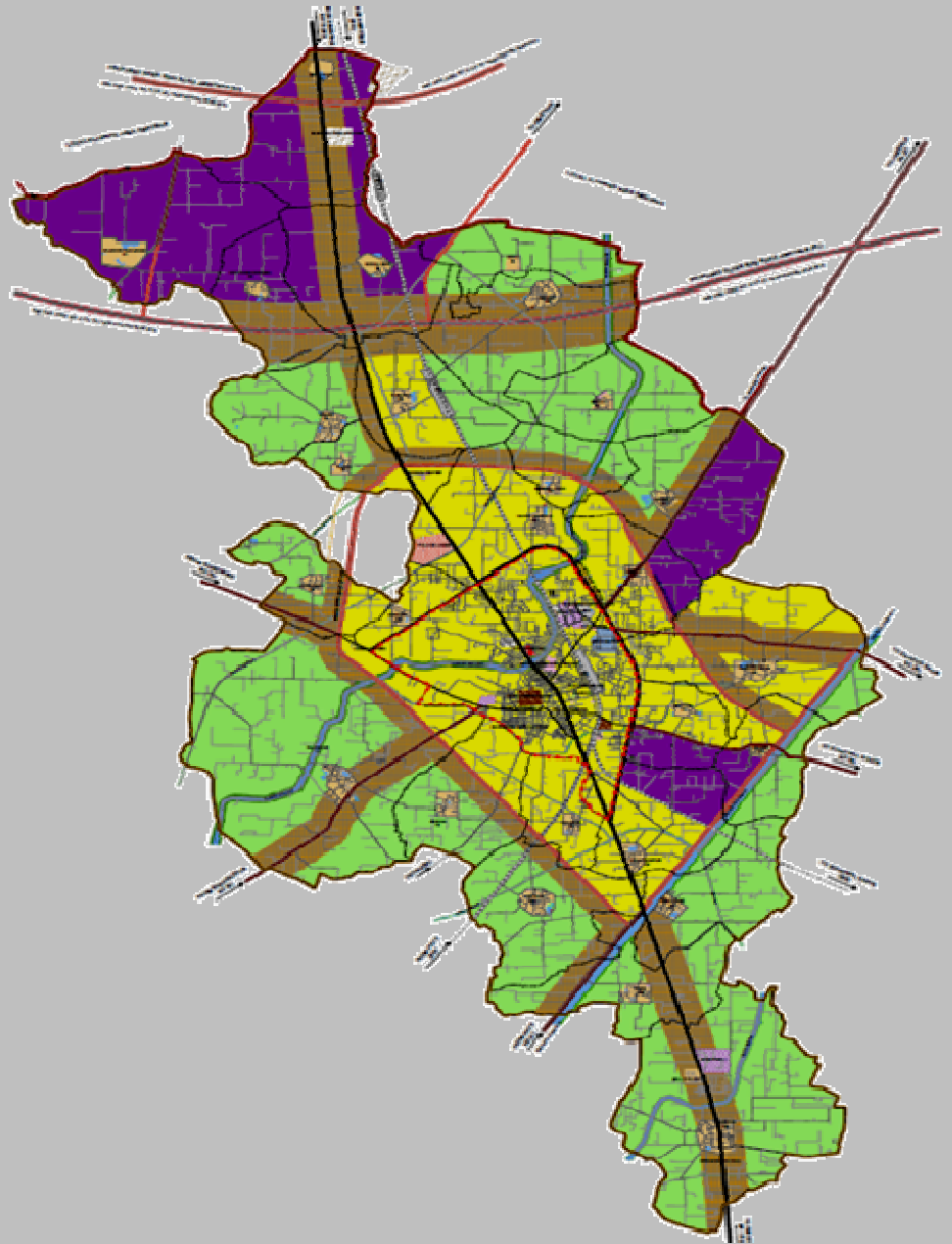


MASTER PLAN FOR TARN TARAN LPA 2010-2031



CLIENT:

**Punjab Urban Planning & Development Authority (PUDA)
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PREFACE

Tarn Taran, founded by the fifth Guru of Sikhs, Shri Guru Arjun Dev Ji, 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, and its close proximity to Amritsar, the cultural and religious capital of the State of Punjab, Tarn Taran seems destined to be multifunctional with numerous prime roles to play in the new millennium.

Considering the role and importance of Tarn Taran and need for promoting its balanced, orderly, sustainable and state of art development of Tarn Taran Local Planning Area, Punjab Urban Planning and Development Authority (PUDA) entrusted the task of preparing Master Plan of Tarn Taran LPA 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 - Amritsar, Kapurthala, Batala, Gurdaspur and Pathankot.

SAI Consultants feel privileged to have the honour of being given the opportunity of preparing the Master Plan of Local Planning Area of Tarn Taran spanning over an area of 113.8 sq. kms., comprising of 1 urban and 29 rural settlements, including Tarn Taran Municipal Council. Master Plan of Tarn Taran LPA for the period 2011-2031 has now been prepared after undertaking detailed study and carrying out indepth analysis of historical, cultural, physical, social and economic development of the town and its environs bringing out major roadblocks hampering the orderly growth and development of the town. Major recommendations for leveraging the growth and development of Tarn Taran are the outcome of intensive consultative process involving series of meetings with various stakeholders, including parastatal agencies, experts, individuals and various interest groups. It is hoped that with the finalization of the Master Plan of Tarn Taran LPA, the town and local planning area will be launched on the path of rapid physical and economic development trajectory in the next two decades. With the effective implementation of the Master Plan of Tarn Taran LPA, avenues of opportunities for employment and economy shall expand enormously and challenges for public administration shall increase.

On the occasion of finalization of the Master Plan of Tarn Taran LPA, we would like to extend our special thanks and gratitude to Hon'ble Chief Minister of Punjab, Shri, Prakash Singh Badal for approving the Master Plan and making it operational to guide the destiny of agro-based, historical, cultural and spiritual town of the state of Punjab.

Master Plan of Tarn Taran LPA is a humble effort to promote the orderly development and leveraging the economy of Tarn Taran to launch it on the path of rapid growth curve. The prime objective of the entire exercise of preparing the Master Plan has been to infuse vitality while retaining the vibrant character of the town. 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 town and region followed by the publication of the draft plan for inviting objections and suggestions from the interested groups, community, stakeholders, parastatal agencies, NGOs and CBOs. The support rendered by all the spectrum of society in terms of ideas, thoughts and suggestions related to planning, development and making Tarn Taran as a vibrant and role model of urban development and governance is gratefully acknowledged. The task assigned for preparing the Master Plan was enormous and challenging. It would not have been completed without the support and guidance of state and local level authorities. SAI Consultants would like to place on record its gratitude for the valuable guidance and support given by the officials of the State Govt. and Department of Town and Country Planning, Punjab. The valuable guidance and unstinted support of the following officers of the State Govt. is gratefully acknowledged for making it possible to take the Master Plan of Tarn Taran LPA to its logical conclusion:

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

Our sincere thanks are also due to Shri K. S. Pannu, the Deputy Commissioner, Tarn Taran and Shri Khushi Ram, the former Deputy Commissioner of Tarn Taran, S. Baljit Singh, Additional Chief Administrator, Amritsar Development Authority, Shri Bhupinder Singh Khera, President, Municipal Committee, Tarn Taran for their support.

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with their staff helped us in every possible manner to successfully complete the project. We also express our gratitude to the PRSC, Ludhiana, for supplying the Base Map of the Planning Area, based on which the Proposed Landuse Plan of Tarn Taran LPA has been prepared. Sincere thanks are also due to all officials/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 humble and sincere attempt to prepare a realistic and futuristic document based on the ground realities. It is hoped that the Master Plan will meet the hopes and aspirations of not only the present but also the future generations of the town in order to usher an era of peace and prosperity through rational and planned growth.

The key professionals involved in the preparation and finalization of Master Plan of Tarn Taran Local Planning Area include:

- 1) Mr. Nitin Shah, President and COO.*
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29) Mr. Jeevan Chamial, Ex. GIS Executive.

30) Ms. Meenu Arora, Ex. Financial Executive

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

EXECUTIVE SUMMARY

To have a quick review of the Master Plan of Tarn Taran LPA, a summary has been prepared under following sub-heads:

History – Tarn Taran is one of the most historical town with history spanning over 400 years. It is an important religious town due to its connectivity with the fifth Sikh Guru Arjun Dev Ji, who founded the town. Tarn Taran is the administrative headquarter of Tarn Taran District recently created out of Amritsar District.

Regional Setting – Located in the north-west of the state, Tarn Taran forms part of the *Majha* Region of the State of Punjab. It is one of the four districts sharing border with the Pakistan. It also shares boundaries with the three districts of the state, including Ferozepur, Kapurthala and Amritsar. The total area of Tarn Taran district is 2,44,900 ha with population placed at 9,39,057 in 2001 and 11,20,070 according to the provisional population figures of 2011 Census. Tarn Taran District houses 4% of the population of the state.

Linkages – Tarn Taran town has a high degree of road and rail connectivity with the other parts of the state. It falls on Jammu-Amritsar-Ferozepur-Fazilka-Kandla National Highway (NH -15). It has excellent road connectivity with adjoining towns of Patti, Goindwal Sahib, Gandiwind, Jandiala and Khadur Sahib. It is connected with the NH 1 through Tarn Taran-Jandiala Road. Broad gauge line of Northern railways, which runs through Tarn Taran, provides rail based linkages with Amritsar, Khemkaran and Patti. The nearest air link is located in Amritsar i.e. Raja Sansi Airport, which provides both national and international connectivity.

Local Planning Area - For the preparation of the Master Plan, Local Planning Area of Tarn Taran was notified u/s 56 (i) of the Punjab Regional and Town Planning and Development Act, 1995 (amended 2006) vide notification number 12/54/2006 - 4HGI/9846 dated 17-12-2007. The Local Planning Area of Tarn Taran comprises of 30 settlements, including Tarn Taran town and 29 rural settlements. The total area of Tarn Taran LPA is placed at 11,380 Ha, out of which Tarn Taran municipal limits accounts for 838 Ha.

Population - The total population of Tarn Taran LPA as per 2001 Census was placed at 1,15,936. Tarn Taran Local Planning Area constitutes 4.65% of the area and holds 12.35% of the population of the district. The population of Tarn Taran municipal area was of the order of 55,587. Tarn Taran town accounts for half (49.4%) of the urban population of the district and 47.94% of the total population of LPA. Among the villages within LPA, the most populated are Palasaur and Sheron with population ranging from 4500 to 5000.

Workforce – The workforce participation ratio in Tarn Taran LPA in 2001 was of the order of 37.5%, which is same as that of Tarn Taran district (37.14%). This shows high percentage of non-workers existing in the LPA. It calls for creating more employment opportunities to optimize the available manpower to promote economic development in the LPA.

Industries - The town has a mix of large, medium and small-scale industries. 53 units are operating in LPA, out of which two fall in the large and medium category, whereas small scale industries are in majority. Considering the agro based economy of the district, Tarn Taran is the hub of rice shellers, which are located on Tarn Taran-Jandiala Road. For promoting industries, PSIEC has set up an Industrial Focal Point in the town. There are 40 units operational in the Focal Point.

Trade and Commerce – Tarn Taran serves as the wholesale and distribution centre for the adjoining rural settlements of the district. Due to its close proximity with Amritsar metropolis, the town has large commercial linkages and dependency with Amritsar. Due to its religious importance, Tarn Taran attracts lot of visitors, which contribute to the economy of the town. There is no organized markets/commercial centres in the town. Majority of the commercial area are located on the streets leading to Gurudwara Darbar Sahib. Because of agricultural base, Tarn Taran is the major marketing centre of the agricultural produce with a Grain Market set up by the Mandi Board. In addition, there are number of agro-based units including dairy, poultry, bee keeping and fish farming.

Tourism – Tarn Taran has a high degree of tourism potential based on numerous religious places located within the town and the LPA, which include Gurudwara Darbar Sahib, Guru Ka Khooh, Gurudwara Lakeer Sahib, Bibi Bhani ka Khooh, Jhulna Mahal, etc. In addition, there are number of important religious places, which are located in close proximity to the town. Amritsar, Goindwal Sahib, Khadur Sahib, etc. are major religious centres sharing visitors with Tarn Taran. Harike International Wetland also offers one of the option for leveraging tourism in the region.

Housing - No. of households recorded in 2001 Census was 9744. The number of occupied residential houses has grown by 14.5% in the decade from 1991-2001. Despite the growth, number of vacant houses have also been found to be high with every third house (35%) remaining unoccupied. The growth rate can be attributed to large scale migration to the town during 1981-2001. Majority of the housing has been constructed in haphazard and unplanned manner. No. of approved colonies are 2. There are large number of unauthorized colonies in the town. Majority of the houses have a mixed occupation pattern of shopping at ground floor and residence at the higher floors. Majority of the houses in the core area are of poor quality

and lack air, light and ventilation due to congestion caused by narrow and absence of open spaces.

Slums - Eight pockets of slum have been found to exist in Tarn Taran housing approximately half of the population of the town 43.67%. The slum pockets are located along the Kasur Nallah and the Muradpur Drain.

Traffic and Transportation - The town has a lot of traffic and transportation problems due to inadequate road network and haphazard growth of the town. Town lacks parking spaces leading to congestion in the commercial area. Majority of road spaces are encroached by informal sectors. Inter and intra city traffic are not segregated and road geometry and quality of road surface are poor. National Highway and railway line passing through the town causes major traffic problems. There is no hierarchy of road network. Absence of supporting infrastructure such as Transport Nagar leads to parking of trucks on the road causing congestion/accidents.

Water Supply - 70% of the area and 78% of population is covered through water supply system. Remaining 22% of the population is served through institutional setup/hand pumps. The per capita water supply is placed at 58 lpcd. Average daily consumption of water is of the order of 3.09 MLD. The town has high degree of unaccounted water (27%). There is no water treatment plant in the town. The major source of water is the ground water. Due to poor water management, water table is rapidly falling.

Sewerage - 70% of the population has the facility of underground sewerage network. 30% of the area of the town is not covered with sewerage network. There is no sewerage treatment plant in the town and the sullage is directly disposed off into the Kasur Nallah and Muradpur Drain leading to ground water pollution.

Storm Water Drainage - Storm water drainage is absent in the town. There is water logging during the rainy season. Storm water drainage is through open drains and nallahs.

Solid Waste Management - Solid waste management is of poor quality. There is no segregation of waste and disposal of waste is not carried out scientifically. Most of the waste is dumped along the Kasur Nallah and Muradpur Drain, which creates unaesthetic and unhygienic conditions.

Power and Electricity - There are 35 electric substations of capacity 66 KV and 3 electric substations of capacity 220 KV in the Tarn Taran jurisdiction of PSEB, serving the Tarn Taran LPA, even then there is a huge gap between demand and supply of electricity in Tarn Taran LPA and a large number of illegal connections occur in the town.

Social Infrastructure - The town has uneven, unplanned and haphazard distribution of social infrastructure such as educational facilities, health facilities, recreational facilities etc. The town lacks in open spaces and sport facilities.

Environment – The Town suffers from noise and air pollution. Use of generators in the context of long electricity cuts leads to air and noise pollution.

MASTER PLAN FORMULATION

Think Tank - Preparation of Master Plan was based on the participatory process involving members of the Think Tank and the District Administration. Detailed studies of the town were carried out physically besides accessing data/studies already available with the parastatal agencies. The demographic data was sourced from Census reports.

SWOT- Based on detailed studies SWOT analysis was carried out to bring out the strengths of the town, identify weaknesses which hamper the growth of the town, taking in to account the opportunities offered by the administrative structure and historical perspective of the town, besides overcoming the emerging threats. The studies made, analysis carried out and interaction held with experts and stakeholders formed the basis for preparation of the Master Plan.

Strategies to obtain land for public purposes - In order to make sufficient land available for the public purpose, strategies for obtaining land has been formulated such as Land Acquisition through 1894 Act, TDR, Development of land through Punjab Apartment and Property Regulation Act 1995, Land Pooling and Govt./ Panchayat / Waqf Board lands. None of the single alternative may be applied on entire area of LPA and thus different alternatives have to be used depending upon the nature, size, location and necessity of the project.

Master Plan Objectives - Outlining the future orderly growth of the town for next two decades (2011-2031) have been identified in terms of rationalizing future growth and development, rationalizing traffic and transportation network, creating more open spaces, creating self-contained communities and providing adequate physical and social infrastructure besides bridging the gaps in the available services.

Vision and Mission (2031) - In order to make Tarn Taran a vibrant urban settlement, vision and mission statements for the town have been prepared providing for Tarn Taran to be a multifunctional town and to be developed as a tourist hub, administrative centre and an industrial town by providing assured employment and quality living to all of its existing and future residents.

Population Projections - The population estimates made on the basis of 5 different methods places the population of Tarn Taran urban area and LPA as under:

Population Projection for Tarn Taran LPA

Level of Settlements	2009	2011	2021	2031
Tarn Taran (M.Cl.)	72337	77261	107385	149256
Villages of LPA	69411	71677	85131	101110
Projected population for LPA	141748	148938	192516	250366

Source: Calculations and computations

Infrastructure Requirements - The Master Plan also details out the infrastructure requirement in respect of water supply, sewerage, solid waste management, storm water drainage, traffic and transportation network, educational institutions, health care facilities, utilities and services.

PROPOSALS

Landuse - Proposed Landuse Plan prepared for 2031 provides for:

- Rationalizing the population distribution and decongesting the core area of the town by including additional area outside Municipal limits for development.
- Providing adequate area under Industrial Zone to create more options for economic development.
- Providing Mixed use on both sides of NH 15, Ring Road and all other roads till R3 category (30 m) to facilitate rationalized growth, adequate parking and other supportive infrastructure.
- Increasing the area under road network for improving the capacity of the road network.

Traffic and Transportation - Proposed Traffic and Transportation plan prepared for 2031 provides for:

- To develop a ring road in order to rationalize the inter and intra city traffic.
- To rationalize the development of the town by creating appropriate service roads, footpaths, improving road junctions in order to smoothen the flow of traffic within the town.
- Six over bridges and two under passes have been proposed in order to minimize the traffic congestion on the railway crossings.
- A well-defined hierarchy of road network ranging from R1 to R8 has been proposed for the smooth flow of the traffic with minimum road width of 1.5-2.5 mt.
- Seven road junctions have been proposed for improvement falling on existing bypass and NH15.

Development Controls - To promote planned and organized development of different land uses, certain development controls have been formulated pertaining to ground coverage, FAR, permissible height, etc.

Zoning Regulations - Zoning regulations have been detailed out in the last section of this report, to have planned and organized development in the future course of time. These rules pertain to land use zones and procedure for permission for development / change of land use in area where Master Plan is in operation, application for licence of a colony, documents to be submitted for grant of licence, etc.

Investment Plan-The total investment estimated to implement the Master plan proposals up to 2031 have been placed at Rs.1131.21 crores that includes Rs. 580.21 crores for the roads, Rs. 48.10 crores for water supply, Rs. 65.37 crores for sewerage, Rs. 18.45 crores for solid waste management, besides Rs. 60.87 crores for the improvement of electricity. The funds for the town is to be generated through various innovative options including funds made available by Govt. of India , State Govt., stakeholders and involving public-private partnership. In addition, operational efficiency and better governance are proposed to be leveraged to generate resources, minimize expenditure and generate more revenues.

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LIST OF ABBREVIATIONS

Abbreviation	Full Form	Fig. No.	Figure Number
@	At the Rate of (for per unit)	FIR	First Information Record
A.D.	Anno Domini	FGD	Focused Group Discussion
ATM	Automatic Teller Machine	FSI	Floor Space Index
ASI	Archeological Survey of India	FY	Financial Year
°C	Degree Celsius (unit of temperature)	G+	Ground (Floor) Plus (other floors)
BT	Bituminous (Road)	GDP	Gross Domestic Product
CAGR	Compound Annual Growth Rate	GIS	Geographic Information System
CBD	Central Business District	GNDU	Guru Nanak Dev University
CBO	Community Building Organisation	gpcd	Gram Per Capita Daily
CC	Cement Concrete (Road)	GSDP	Gross State Domestic Product
CHC	Community Health Centre	G. T. Road	Grand Trunk Road (NH 1).
CI	Cast Iron	Ha/Hct	Hectare
CIP	City Investment Plan	HH	House Hold
CLU	Change of Land Use	HIG	High Income Group
CMO	Chief Medical Officer	HOD	Head of Department
DAC	District Administrative Complex	HPO	Head Post Office
DC	Deputy Commissioner	HQ	Head Quarter
DCR	Development Control Regulations	IDSMT	Integrated Development of Small and Medium Towns
DG	Deisel Generator	IIM	Indian Institute of Management
DTP	District Town Planner	IIT	Indian Institute of Technology
DPR	Detailed Project Report	IRC	Indian Road Congress
DRDA	District Rural Development Authority	IT	Information Technology
ECS	Equivalent Car Space	ITI	Industrial Training Institute
ELU	Existing Land Use	JNNURM	Jawaharlal Nehru National Urban Renewal Mission
e.g.	For Example		
EWS	Economically Weaker Section	KG	Kilo Gram
Etc.	Et Cetera (and so on)	Km	Kilometre
FAR	Floor Area Ratio	KV	Kilo Volt
FCI	Food Corporation of India	KVA	Kilo Volt Ampere
		kW	Kilo Watt
		LIG	Low Income Group

LPA	Local Planning Area	PLU	Proposed Land Use
LPCD	Litre Per Capita Daily		
M.C.I.	Municipal Council	PPCB	Punjab Pollution Control Board
MDR	Major District Road		
mg / l	Milligram per Litre	PPH	Persons Per Hectare
MLD	Million Litres Per Day	PRSC	Punjab Remote Sensing Centre
MoEF	Ministry of Environment and Forest	PR & TP & Dev. Act / PRTPD Act	Punjab Regional and Town Planning and Development Act, 1995
MORTH	Ministry of Road Transport and Highways	PSEB	Punjab State Electricity Board
MP	Master Plan		
MT	Metric Ton		
Mts.	Metres	PSIEC	Punjab Small Industries and Export Corporation
MVL	Mercury Vapour Lamp		
NA	Not Available	PTI	Punjab Town Improvement Act
NBC	National Building Code		
NGO	Non Government Organization	PUDA	Punjab Urban Planning and Development Authority
NH	National Highway		
NIC	National Industrial Classification	PWD	Public Works Department
NPK	Nitrogen Phosphorous Potassium		
ODR	Other District Road	RCC	Reinforced Cement Concrete
OHSR	Over Head Storage Reservoir	ROB	Railway Overbridge
O & M	Operation & Maintenance	ROW	Right of Way
OUVGL	Optimum Utilisation of Vacant Government Land	SC	Scheduled Caste; Sub Centre (Health Unit)
PAPRA	Punjab Apartment and Property Regulation Act, 1995	SDO	Sub Divisional Officer
PAU	Punjab Agricultural University	SGPC	Shiromani Gurudwara Prabandhak Committee
PCO	Public Call Office		
PCU	Passenger Car Unit	Sq. Km.	Square Kilometres
pH	Power of Hydrogen	sq. m. / sqm. / sq. mts.	Square Metre (unit of area)
PHC	Primary Health Centre	sq. yd.	Square Yard

STP	Sewage Treatment Plant	UBDC	Upper Bari Doab Canal
SVL	Sodium Vapour Lamp	UDPFI	Urban Development Plans Formulation and Implementation (Guidelines)
SWOT	Strengths, Weaknesses, Opportunities and Threats	UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
TCPO	Town and Country Planning Organisation		
TDR	Transfer of Development Rights	ULB viz.	Urban Local Body Videlicet (that is; namely; as follows)
TDS	Total Dissolved Solids	VPO	Village and Post Office
u/s UA	Under Section Urban Agglomeration	WBM	Water Bound Macadem (Road)

CHAPTER 1

INTRODUCTION

1.1 INITIAL STEPS

1.1.1 BACKGROUND

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

“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 is an apex institution established in July 1995 for promoting the development of 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 Tarn Taran Local

Planning Area with the guidance from Government of Punjab to address the infrastructure and service delivery gaps in Tarn Taran and to make the growth and development of Local Planning Area rational. The key objective of the Master Plan is to formulate a long-term vision and strategy to make the Local Planning Area 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 Tarn Taran Local Planning Area.

1.1.2 OBJECTIVES

The prime objective of the Master Plan is to promote, guide and rationalize the future growth and development of urban centres. It will endorse growth in the desired direction; promote economic development and service delivery and provide 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.

- (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 inter-relationships.
- (v) Minimizing haphazard and un-controlled 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.
- Formulating vision and working out strategy.

- Formulation of concept plan and policies for the 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 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 (amended 2006)”.
- Formulation of framework for implementation of the Master Plan, Zoning 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. Procedure for preparing the Master Plan under the Punjab Regional and Town Planning and Development Act, 1995 (hereinafter called PRTPD Act 1995 as amended in 2006), has been defined in Chapter X of the said Act.

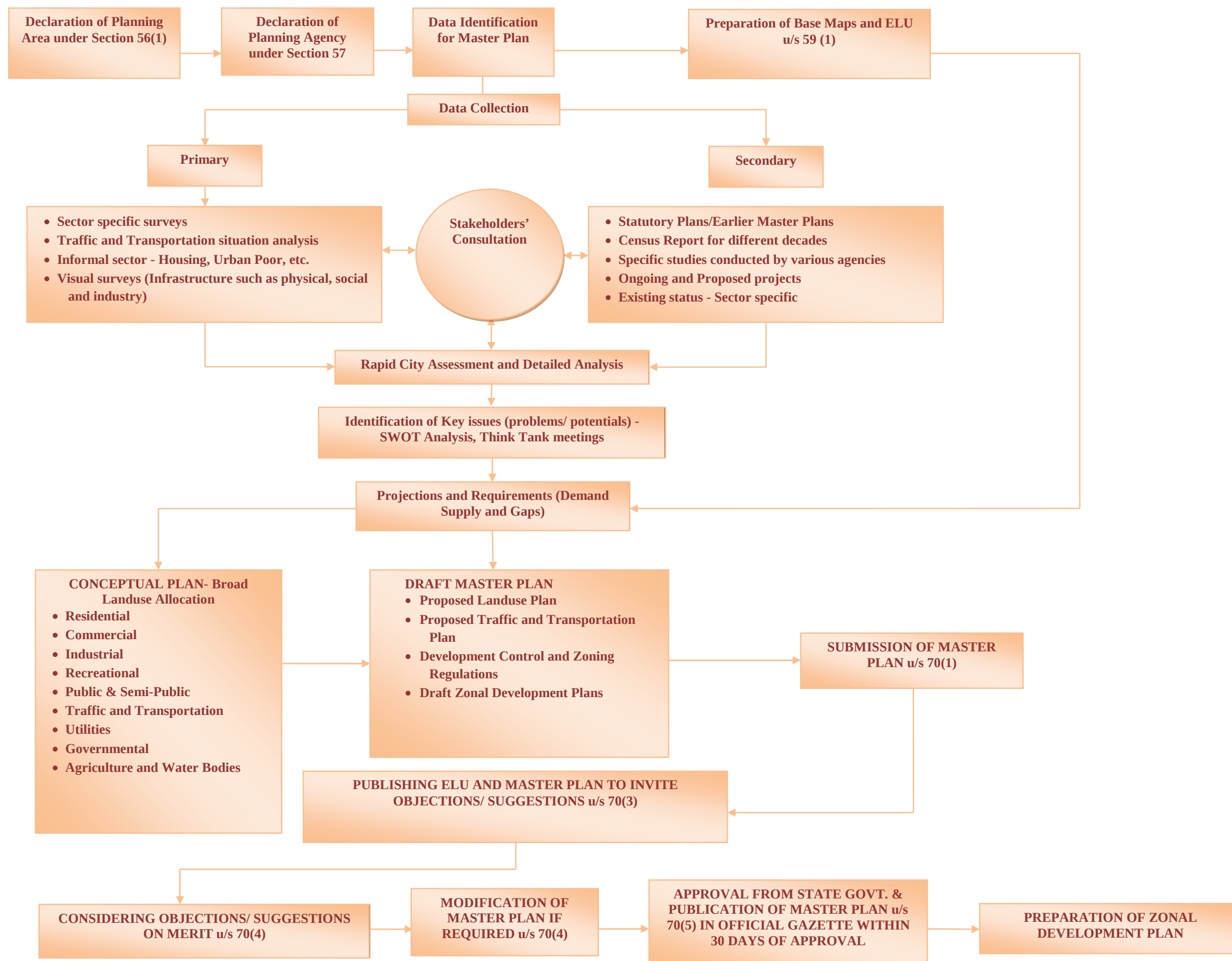
1.1.5 APPROACH TO THE MASTER PLAN

Approach to the preparation of Master Plan would involve outlining the critical issues of town development, undertaking a demand/supply gap analysis and formulating a management framework including outlining strategies and guidelines for future growth and development of Tarn Taran 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 and implementation plan comprising of implementation schedule, role of stakeholders, regulation and institutional strengthening mechanism will form integral part of the Master Plan. The Master Plan will take into account the status of municipal services - its fiscal status, operational and management procedures, besides putting in place effective monitoring mechanism.

The detailed methodology for the preparation of Master Plan of Tarn Taran LPA includes data collection, city assessment, identifying gaps in service delivery and infrastructure network, identifying strength, weakness, opportunities and threats, preparing Existing Land Use Plan, Thematic Maps, Proposed Landuse Plans, Zonal Development Plan, etc. as defined below (Refer Fig No.1):

Fig no.1: METHODOLOGY



1.1.6 METHODOLOGY FOR MASTER PLAN

The various stages of preparation of Master Plan include:

1. Identification of Local Planning Area (as per the Government notification under PRTFDA- 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*
 - *Traffic and Transportation*
 - *Physical Infrastructure (Water Supply, Sewerage, Solid Waste Management, Electricity)*
 - *Social Infrastructure (Educational, Medical, Health, Recreational, Miscellaneous Facilities)*
 - *Environmental Studies*
 - *Heritage and Tourism*
 - *Growth Pattern*
 - *Land Use Studies*
 - *Available Studies and Report*
 - *Ongoing and Proposed Projects*
 - *Demographic Studies*
 - *Socio-Economic Studies*
4. Involving Stakeholders (through F.G.D. 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 Landuse 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 (DCRs)

- *Based on Existing Land Use Plan*
- *Studies and Assessment made*
- *Gaps and problems identified*
- *Stakeholder's 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 TARN TARAN LOCAL PLANNING AREA

The Tarn Taran Local Planning Area was notified under section 56 (i) of the Punjab Regional and Town Planning and Development Act, 1995 (amended 2006) vide notification number 12/54/2006 - 4 HGI/9846 dated 17-12-2007. Exercising the power vested under Section 56(7) of the Act.) (Refer Annexure no. I)

The Tarn Taran Local Planning Area (LPA) comprises of 29 rural and one urban settlement i.e. Tarn Taran M.Cl. The total area of Tarn Taran LPA is 11,380 Ha with a population of 1,15,936 persons. The area of Tarn Taran M.Cl is of the order of 838 hectares with a population of 55,587 persons as shown in the table below. The list of all settlements falling in Tarn Taran LPA is attached as annexure II showing area and population details

Table 1: Area and Population in Tarn Taran LPA

S. N.	Settlement	Area (Ha)	Population (2001)
1	Tarn Taran M.Cl.	838	55,587
2	Tarn Taran LPA villages (29)	10,542	60,349
3	Total LPA	11,380	1,15,936
4	Tarn Taran District	2,44,900	9,39,057

Source: Punjab Govt. notification no. 12/54/2006 - 4 HGI/9846 dated 17-12-2007, Statistical Abstract of Punjab: 2008

Further, it has been observed that the Tarn Taran Local Planning Area is 4.65% of the area and 12.35% of the population of the district. (Refer table 1)

While delineating Tarn Taran Local Planning Area, following factors as 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 center
- Geographical features of the area including Asal Distributory, Jodhpur Minor, Daburji Distributory, branch of UBDC and other physical features like roads and railway lines.
- Means of communication and accessibility
- Present and future growth trends and distribution of the population
- Preservation of historical and cultural heritage of the areas.
- Urban expansion trends and management of periphery areas
- Ecological and Environmental balance.
- Dispersal of economic activities to alleviate pressure on Tarn Taran town and balanced development of the area.

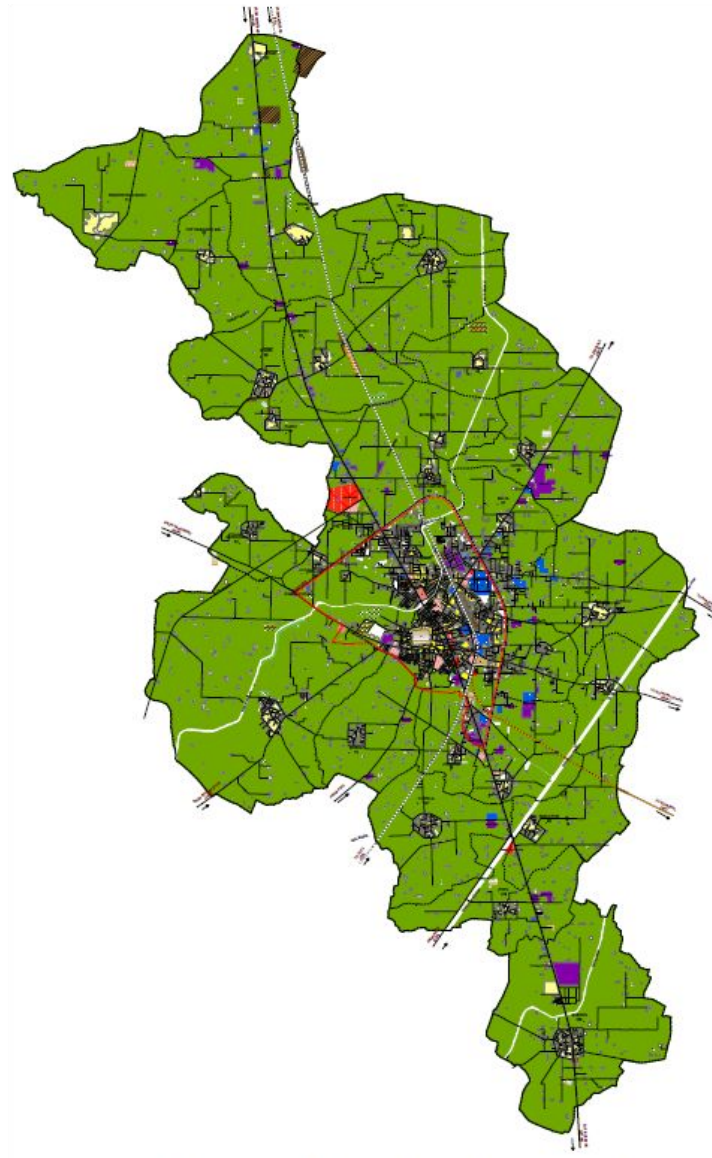


Fig No.2: Local Planning Area of Tarn Taran

1.2 REGIONAL SETTING

The Tarn Taran Local Planning Area forms part of the Tarn Taran district, which is one of the four border districts of Punjab, the other three are namely Amritsar, Gurdaspur and Ferozepur. The Tarn Taran town is the district headquarter falling in the Tarn Taran LPA. It shares boundary with the Amritsar LPA in the north, which is a major city in the close vicinity on which Tarn Taran is dependent for its various higher-level needs.

The Tarn Taran LPA has strong regional linkages in terms of both road and railways. It has Jammu-Amritsar-Ferozepur-Fazilka-Kandla National Highway (NH 15) passing through the centre of the LPA which connects it to the Amritsar metropolis, other districts of Punjab such as Ferozepur, Faridkot, Bathinda in the south and with other states such as that of Rajasthan

and Gujarat. It is also connected with nearby towns of Jandiala, Khadur Sahib, Goindwal, Patti, Bhikhiwind and Jhabal by metalled road.

The broad gauge line of Northern Railways running through Khemkaran-Patti-Tarn Taran further makes its linkages stronger with Amritsar.

The distance of Tarn Taran LPA from major urban settlements of the State is given below:

Table 2: Distance of Major Urban Settlements from Tarn Taran LPA

Place	Distance (km)
Pathankot	110
Amritsar	24
Jalandhar	87
Hoshiarpur	105
Chandigarh	230

Source: Internet

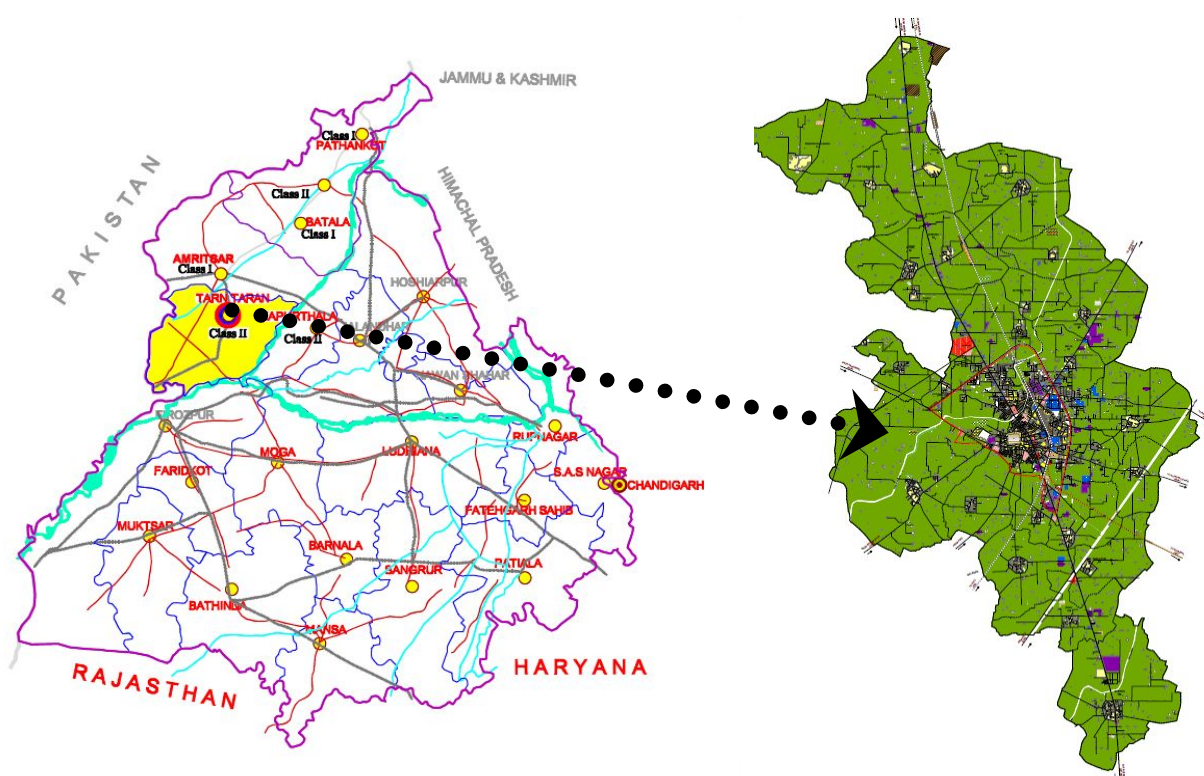


Fig no. 3: Location of Tarn Taran District in state of Punjab

1.3 PHYSICAL CHARACTERISTICS

1.3.1 TOPOGRAPHY

Topographically, LPA is a continuous level plain unbroken by hills or valleys. The topographic gradient is about 0.4m/km in the LPA. It is situated at a height of 227.23 m above mean sea level. The terrain of Tarn Taran LPA is placed under three categories: The Upland Plain, Bluff along the Beas and Floodplain of Satluj.

Drainage:

The area of LPA is broadly drained by river Sutlej and its distributaries from the southern boundary of the district. River Patti flows from north-east to south-west and drain water to river Sutlej. The Tarn Taran LPA forms the lower part of the Upper Bari Doab and is one of the interfluvial tracts of the Punjab Plain.

Geology:

The LPA area is mainly underlain by Indo-Gangetic alluvium comprising of clay, silt sand and Kankar of Quaternary age, which forms the principal ground water reservoir.

Soil:

The soil in Tarn Taran LPA is 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). Primarily saline and alkaline soils occur in the district. Soils with salt content exceeding 0.2% are considered high salt soils and this concentration is injurious for plant growth. Soils with pH value more than 9.0 have been classified as high alkali soils and this alkalinity renders the soil impervious. The alkali soils present in the area has low fertility as compared to normal soils.

The soils of the district are categorized as tropical arid brown (weakly solonized) and arid brown soil (solonized). These soils are deficient in NPK.

Water table slopes mainly northeast to southwest indicating the flow direction in the district.

1.3.2 CLIMATE

The climate of the LPA can be classified as tropical steppe, semi arid and hot. It is generally dry except in the south-west monsoon season, a hot summer and a cold winter.

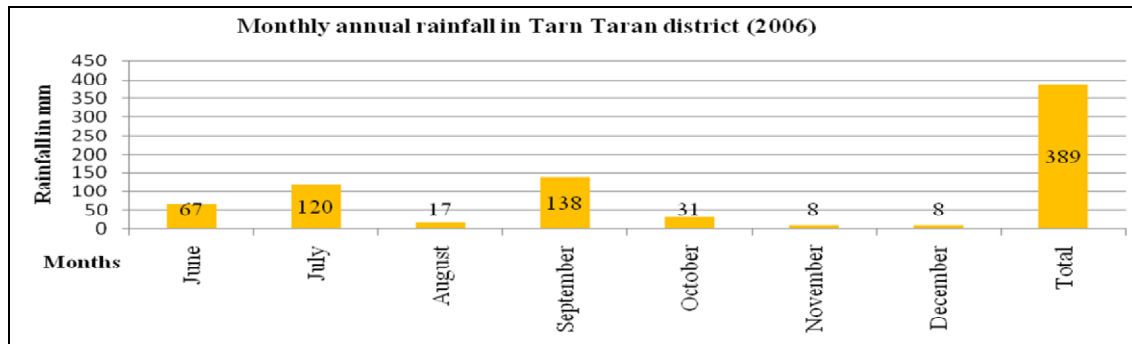
(i) Seasons, Temperature and their duration:

The year may be divided into four seasons. The cold season is from November to March when minimum temperature reaches 4.5°C. The period from April to June is the hot season when maximum temperature reaches 40.5°C.

(ii) Rainfall

The southwest monsoon season is from the beginning of July to the first week of September. The succeeding period lasting till the beginning of November is the post-monsoon or transition period. Tarn Taran LPA received an annual average rainfall 389 mm in 2006 out of which 74% occurred during southwest monsoon.

Fig no. 4: Rainfall in Tarn Taran District



Source: Statistical Abstract of Punjab, 2007

1.4 HISTORICAL PERSPECTIVE

Historical Growth of Tarn Taran

The fifth Guru of Sikhs, Shri Guru Arjun Dev Ji, founded the Tarn Taran town. The Guru visited a *dhab* in which a leper was drowned to death and as such, the villagers would not allow their children and cattle to take bath in this Dhab. Guruji addressed the village Khara, “Don’t worry! Boys won’t get drowned in this dhab, it is *Tarn Taran*”. This is how the *dhab* came to be known as Tarn Taran. Guru purchased that *dhab* and the surrounding land for Rs 1.57 lacs. The town was founded in 1596. In 1653, the Guru started the brick kiln around the area in order to get the tank brick lined.

In 1678, when Baba Buddha Singh Faizalpuria became the ruler of Patti Parganas, he declared that whosoever wished to settle at Tarn Taran, should offer one rupee and one “*Dheli of gur*” to Darbar Sahib and occupy a suitable site for his dwelling. Thus, many people were attracted towards Tarn Taran town.

Formerly, two melas were held at Tarn Taran on Amavas days of Bhadon and Chet month. The former commemorated the start of digging of the sacred tank and the latter its completion. Later, sixth Guru Shri Guru Hargobind Ji desired that a mela be held on the eve of Amavas day every month. After Mohammedan’s invasion, Tarn Taran again progressed in the days of Sikh misls. Maharaja Ranjit Singh visited this town a number of times and got the construction of Shri Darbar Sahib done in an artistic style, which was carried out at the site of old Darbar Sahib which was simple house-type structure. 30 bungalows were also built in those days, which served as rest houses for the people visiting this place on the eve of Amavas Mela. The number of such bungalows increased to 106 later on.

The overall history of Tarn Taran town can be divided into four phases that are:

Table 3: Phase Wise History of Tarn Taran Town

Phases	Periods	Years
I.	Guru Period	1590 A.D-1707 A.D.
II.	Maharaja Ranjit Singh Period	1707 A.D-1850 A.D.
III.	British Period	1850A.D- 1947 A.D.
IV.	Post British Period	After 1947 A.D.

Source: District Gazetteer, Amritsar

Phase 1: Guru Period (1590 A.D-1707 A.D): Guru Arjun Dev ji had inaugurated the conversion of a natural pond lying along the Delhi Lahore highway into a quadrangular tank in 1590.

Phase 2: Maharaja Ranjit Singh Period (1707 A.D. - 1850 A.D.): Gurudwara Lakeer Sahib, Gurudwara Takkar Sahib, Guru Arjun Dev primary school, Leprosy Hospital have been developed.

Phase 3: British Period (1850 A.D. - 1947 A.D.): In this period, police station, railway line and railway station were developed.

Phase 4: Post British Period (1947 A.D. Onward): Bus stand, St. Marry Hospital, Mata Ganga College, Grain Market, Animal market etc. were developed

CHAPTER 2

DEMOGRAPHIC PROFILE AND ECONOMIC BASE

2.1 DEMOGRAPHIC CHARACTER

Tarn Taran Municipal Council is the most urbanized settlement in the LPA. It comprises of 47.95% of the total population of LPA. It holds 49.4% of urban population of the Tarn Taran district (refer table 4). Tarn Taran district ranks as tenth most populated district of Punjab. Among the villages in LPA, the highest populated are Palasaur and Sheron with population ranging from 4500 to 5000.

Table 4: Distribution of Urban Population in Tarn Taran District and Town

Area	Urban Population	%age to District Urban Population
Tarn Taran District	1,12,464	-
Tarn Taran Town	55,587	49.4%

Source: District Census Handbook, Tarn Taran, 2001

Further, in order to determine the hierarchy of settlements (29 rural settlements and 1 urban settlements) falling in LPA, they have been categorized into 5 broad groups (refer table 5). 39.29% of the village settlements falling in the Tarn Taran LPA have population in the range 2000-3000 persons followed by 28.57% of the villages falling under population range 1000-2000 persons. Only 7.14% of the settlements falling in LPA have population above 5000, which are namely Palasaur and Tarn Taran M.Cl (Refer table no. 5)

Table 5: Settlement Hierarchy as per population in Tarn Taran LPA

Sr. No.	Population	No. of Settlements	%age
1	Below 1000	3	10.71
2	1000-2000	8	28.57
3	2000-3000	11	39.29
4	3000-4000	4	14.29
5	>5000	2	7.14
	Total	28	100.00

Source: DTP, Amritsar and Tarn Taran

Note: Nallagarh village is uninhabited

Population of Muradpur village is included in M.Cl.

2.1.1 POPULATION GROWTH

The growth of population of Tarn Taran over the years is given in the table below:

Table 6: Growth Rate of Population in Tarn Taran Town (1901-2001)

YEAR	POPULATION OF TARN TARAN (M.Cl.)	PERCENTAGE GROWTH
1901	4428	-
1911	5260	+18.79
1921	5988	+13.84
1931	10103	+68.72
1941	16607	+64.38
1951	16344	-01.58

YEAR	POPULATION OF TARN TARAN (M.CL.)	PERCENTAGE GROWTH
1961	20961	+28.25
1971	24128	+15.05
1981	36903	+53.02
1991	47529	+28.79
2001	55587	17.00

Source: District Census Handbook, Tarn Taran, 2001

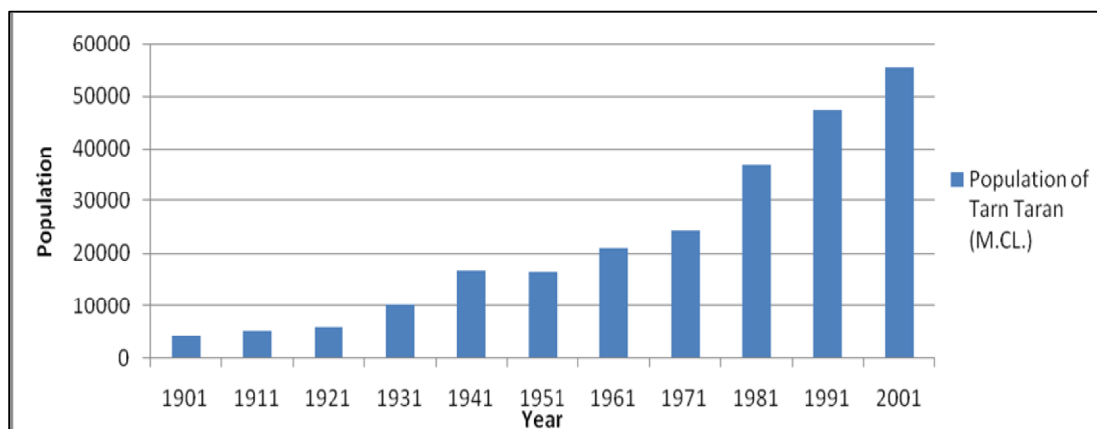


Fig No. 5: Decadal Growth of Population of Tarn Taran (M.Cl.)

From the table above, a sharp decline in the growth of the population has been observed in the decade 1941-1951 from 64.38% to -01.58% respectively following the partition of India in the year 1947. Then Tarn Taran was the only Tehsil in Punjab with a majority of Sikh population. It was the time when city experienced negative growth rate. Thereafter, it showed a gradual increase in the growth of population until 1981, wherein it was of the order of 53.02%. In the period following 1981, growth of population declined to 28.79% in 1991 following disturbed conditions in the state of Punjab. This decline in the growth rate continued till 2001 wherein it was of the order of 17%.

2.1.2 POPULATION DENSITY

Table 7: Demographic Details of Tarn Taran LPA

Category of settlements	Total Population			Density (No. of per/Sq.Km)		
	1981	1991	2001	1981	1991	2001
Tarn Taran (M.Cl.)	36,903	47,529	55,587	NA	1,320	6,633
Villages (LPA)	NA	50,108	60,349	NA	454	571

Source: District Census Handbook, Tarn Taran, 2001

Density of population of villages in LPA was 454 persons /sq.km in 1991 and 571persons/ sq km in 2001. Population density in Tarn Taran (M.Cl.) in 1991 was 9,732 persons/sq. km, and in 2001 was reduced to 6,633 persons/sq km (refer table 7). M.Cl. area is highly dense in comparison to district, which had density of 389 persons/ sq km in 2001.

Now, taking into consideration wardwise density of Tarn Taran M.Cl, a considerable variation has been found within different wards of the town (refer table 8). The average density of the town is 173 PPH. As against this, the lowest density has been found to be 20 PPH in ward no.11. It can be observed that the core area is highly dense and the density goes on decreasing as we move from core to peripheral areas.

Table 8: Ward Wise Demographic Details of Tarn Taran M.Cl.

Ward No.	No. of Households	Population	Area (Ha)	Density (PPH)	Literacy Rate (%)
1	517	2819	93.75	30	74.51
2	446	2905	30	97	49.96
3	687	4433	18.61	238	51.04
4	657	3492	105.64	33	83.46
5	419	2254	13.98	161	91.11
6	416	2513	8.74	288	87.28
7	525	3026	20.76	146	83.07
8	413	2754	14.63	188	67.58
9	470	2856	15.62	183	81.61
10	512	2829	64.57	44	80.82
11	579	3132	156.39	20	74.53
12	516	2909	8.15	357	90.40
13	442	2509	64.78	39	69.58
14	523	2787	20.5	136	80.19
15	530	3094	46.24	67	67.90
16	562	3096	12.72	243	71.04
17	552	2977	25.73	116	76.48
18	568	3082	5.12	602	84.37
19	410	2320	7.95	292	85.26

Source: District Census Handbook, Tarn Taran, 2001

2.1.3 SEX RATIO

In case of LPA villages, the sex ratio experienced an increase, which was of the order of 872 in 1991 and 898 in 2001. In 2001, sex ratio in Tarn Taran (M.Cl.) was 907, which is higher than that of villages (898) and Tarn Taran District i.e. (887). Sex ratio has shown increasing trend in the district from 874 in 1991 to 887 in 2001 and in the M.Cl. area increased from 877 in 1991 to 907 in 2001. Males constitute 52.45% of the population of town and females 47.54 % (In 2001).

Table 9: Sex Ratio in Tarn Taran LPA

Category of Settlements	Sex Ratio (No. of Females/1000 Males)		
	1981	1991	2001
Tarn Taran District	N.A	874	887
Tarn Taran (M.Cl.)	896	877	907
Villages (LPA)	N.A	872	898

Source: District Census Handbook, Tarn Taran, 2001

2.1.4 LITERACY RATE

Out of all the settlements falling in Tarn Taran LPA, highest literacy rate is observed in Tarn Taran M.Cl, which is of the order of 75.6% in the year 2001 that is higher than the district literacy rate of 59.9% for the same year.

In case of villages falling in Tarn Taran LPA, literacy rate observed was 62.3% in the year 2001 from 47.13% in the year 1991, an increase of 15.17% which is a positive indicator for increased awareness for education in the rural settlements. (Refer table no. 10).

Table 10: Literacy Rate in Tarn Taran LPA

Name	Literacy Rate (%)	
	1991	2001
Tarn Taran District	48.79	59.9
Urban settlement within LPA		
Tarn Taran (M.Cl.)	73.23	75.6
Rural population within LPA		
Villages (LPA)	47.13	62.3

Source: District Census Handbook, Tarn Taran, 2001

2.1.5 SC COMPOSITION

Percentage of SC population in rural areas of Tarn Taran LPA was 35.36% in 2001, which was higher as compared to M.Cl. area i.e. 22%, whereas the percentage of SC population in Tarn Taran district was 32.09% (Refer table no. 11).

Table 11: SC Population in Tarn Taran LPA

Category of settlements	Percentage of SC Population		
	1981	1991	2001
Tarn Taran District	N.A.	N.A.	32.09
Tarn Taran (M.Cl.)	15.12	18.83	22
Villages (LPA)	N.A	32.89	35.36

Source: District Census Handbook, Tarn Taran, 2001

2.2 ECONOMY AND EMPLOYMENT

Occupational structure helps in determining the economic status of the town. It is observed from the (table no. 12) that work force participation ratio in the state of Punjab in 2001 was 37.5 %, which is more or less same as that of Tarn Taran district, which is of the order of 37.14%. This shows that there is burden on working population as well as economy as the percentage of non-workers was higher 66.39%.

2.2.1 WORK FORCE PARTICIPATION

The overall work force participation ratio for Tarn Taran LPA is 33.18%, which is less than that of the state and district figure of 37.5% and 37.14% respectively. The Tarn Taran M.Cl is observed to have the least work force participation ratio of 30.44% when compared to the

figure for state, district and for villages falling in Tarn Taran LPA (Refer table 12), hence the percentage of non workers is dominant i.e 69.50%.

Table 12: Percentage of Workers in State and LPA in 2001

Unit	Population	Total Workers	Total Workers (% of Total Population)	Non-Workers (% of Total Population)	Main Workers (% of Total Workers)	Marginal Workers (% of Total Workers)
State	24358999	9127474	37.5	62.50	85.8	14.2
District	939057	348748	37.14	62.86	80.04	19.96
M.Cl.	55587	16986	30.44	69.50	94.90	5.10
Villages of LPA	60349	21485	35.60	63.24	74.97	2.4
Total LPA	115936	38471	33.18	66.39	83.77	3.58

Source: District Census Handbook, Tarn Taran, 2001

DEPENDENCY RATIO

Dependency ratio refers to the ratio between number of non-workers and number of workers. The table below indicates that dependency ratio in case of state, district, TarnTaran M.Cl and villages falling in LPA. It has been observed that dependency ratio in case of Tarn Taran LPA (2.00) is much higher as compared to state (1.67) which indicates that the proportion of non-workers is much higher in Tarn Taran LPA as compared to the state (refer table 13). However, the proportion of non-workers within the Tarn Taran LPA is double as compared to workers. Further, lot of variation has also been observed in the dependency ratio existing within the Tarn Taran LPA. The highest dependency ratio within the LPA has been found to be within Tarn Taran M.Cl. where it is of the order of 2.28. As against this, lowest dependency ratio has been found to be within the rural areas where it is of the order of 1.78. This calls for creating more jobs and employment opportunities within the urban areas in order to reduce the dependency ratio. Further, the positioning of Tarn Taran in close proximity to Amritsar metropolis needs to be exploited and made optimum use of in order to attract more industries in Tarn Taran.

Table 13: Dependency Ratio of Tarn Taran LPA in Comparison to State and District

State/District/Town/Village	Dependency Ratio
State	1.67
District	1.69
M.CL.	2.28
Villages of LPA	1.78
Total LPA	2.00

Source: District Census Handbook, Tarn Taran, 2001

OCCUPATIONAL STRUCTURE:

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

Table 14: Percentage of Main Workers in Tarn Taran Town (2001)

Category of settlements	Category of Main Workers in the Town				
	Year	Cultivators	Agriculture Laborers	HH Workers	Others workers
Tarn Taran M.Cl.	1991	791 (5.56%)	1,333 (9.38%)	109 (0.77%)	11,984 (84.29%)
	2001	312 (1.84%)	275 (1.62%)	487 (2.87%)	15,912 (93.6%)

Source: District Census Handbook, Tarn Taran, 2001

From the table above, it has been observed that 93.6% of the workers in Tarn Taran are engaged in other activities (mainly tertiary activities), 2.87% in household industry and 3.46% in primary activities i.e cultivators and agricultural laborers.

2.2.2 INDUSTRY

Industry is one of the major engine of growth of modern economy apart from trade and commerce. Industries are scattered in the entire Tarn Taran LPA and forms one of the major economic base. Major industrial location includes areas along NH 15, Jhabal Road, Jandiala Road and Goindwal Road and the industrial focal point.



Fig no. 6: Industrial Units in Tarn Taran LPA

As per the available data, total number of industrial units operating within the Tarn Taran LPA has been found to be 135. Majority of the units fall under Cottage industry (Khadi & Village industry), which constitutes 60.74% of the total units. Small-scale industry accounts for approximately one third (37.77%) of the total units. There are only 2 large scale industrial units constituting 1.48% of the industrial units existing within the LPA that are namely Tarn Taran Cooperative Sugar Mills and Kochar Sun Up-Acrylic Ltd. The distribution of various categories of industrial units is shown in the figure below.

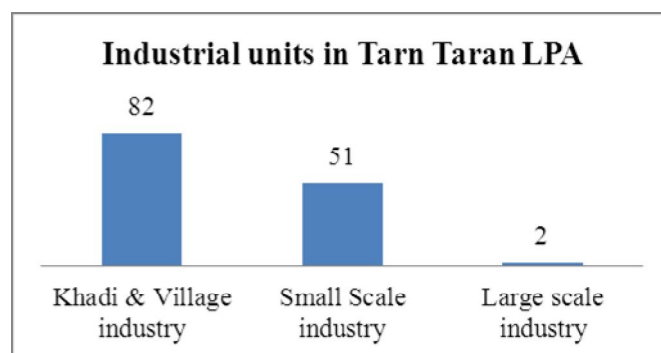


Fig no. 7: No. of Industrial units in Tarn Taran LPA

Table 15: Employment Generation by Industries in LPA

Khadi & Village Industry Employment	Small Scale Industry Employment	Large Scale Industry Employment
194	320	380

Source: District Census Handbook, Tarn Taran, 2001

As depicted in the table above (refer table. 15) Khadi & Village industry provides least employment i.e. 194 whereas the large scale and small scale industries are the highest generator of employment i.e. 380 and 320 respectively and thus are the backbone of the entire industrial structure in the LPA. The type of industries constituting the large and small scale industries are shown in the table below.

Table 16: Type of Large, Medium and Small-Scale Industries in LPA

Large and Medium Scale Industries			Small Scale Industries	
Type	Name	No.	Type	No.
Sugar mill	Tarn Taran Co-op Sugar Mills (Large Scale)	1	Brick Kiln	15
Textile	Kochar Sun Up-Acrylic Ltd.(Medium)	1	Apple and Egg Tray	2
-	-		CI Casting	8
-	-		Rice mills	15
-	-		Saila plant	10
			Hot Mix Plant	1
Total		2		51

Source: Industries Department, Amritsar

The small-scale industries constitute highest number of brick kilns and rice mills, followed by saila plant and CI casting industry. In case of large-scale industry, there is only 1 sugar mill and 1 textile mill. The following table gives the details of small-scale industries in the LPA in terms of the name of the industry, its location and its product.

Table 17: List of Small Scale Industries in Tarn Taran LPA

S.N.	Name of Industry	Location	Product
1.	Khalsa Pulp Moulding	VPO Kadgill Bagrian Road	Apple and egg tray
2.	Khalsa Tray	VPO Kadgill	Apple and egg tray
3.	Mohindra Brick and Tile Industry	Village Daburji	Brick Kiln
4.	Satpal Sharma	Vill. Gohalwar	Brick Kiln
5.	Brij Mohan BKO	Vill. Malian	Brick Kiln
6.	Avtar Brick Kiln	Vill. Pandori Ran Singh	Brick Kiln
7.	Gupta Bros	Vill. Balachak	Brick Kiln
8.	Jodhpur Brick Kiln	Vill. Aladinpur	Brick Kiln

S.N.	Name of Industry	Location	Product
9.	Kahan Chand Khanna	Vill. Aladinpur	Brick Kiln
10.	Mahindra Brick Industries	Vill. Daburji T.T. Road	Brick Kiln
11.	New Age Building Gram Udyog Samiti	Kadgill	Brick Kiln
12.	R.K Gupta and Company	Vill. Gohalwar	Brick Kiln
13.	Santosh Singh BKO	Vill. Alladinpur	Brick Kiln
14.	Wariam Singh and sons	Vill. Fatehpur	Brick Kiln
15.	Kanwar Gram Udyog Samiti	Vill. Pandori gola	Brick Kiln
16.	The New Age Builders (NAB)	Vill. Kadgill	Brick Kiln
17.	Bansal Industries	77, Focal Point, Tarn Taran	C.I.Castings
18.	Harbhajan Singh Kairon and Company	95 Focal Point ,Tarn Taran	C.I.Castings
19.	Paneshwar Industrial Corporation	57-58 Focal Point ,Tarn Taran	C.I.Castings
20.	Sokhey Casters	Amritsar Road ,Tarn Taran	C.I.Castings
21.	Sokhi Foundry and Engg. works	Amritsar Road ,Tarn Taran	C.I.Castings
22.	Tarn Taran Foundry and Engg. Works	55-56, Focal Point Tarn Taran	C.I.Castings
23.	Hira Sales Co.	5 Focal Point	C.I.Castings
24.	Rohit Industrial Corporation	Sarhali Road Tarn Taran	C.I.Castings
25.	Mohan Singh and Company	Kakka Kandiyala	Hot Mix Plant
26.	Dheeraj Rice Mills	Tarn Taran	Rice Mills
27.	Dinesh Rice and oil mills	Railway Road	Rice Mills
28.	Dinesh Rice and oil mills	Jandiala Road ,Village Kadgill	Rice Mills
29.	Ganesh Rice and oil mills	Village Pandori Road	Rice Mills
30.	Hardit Singh Santok Singh	Tarn Taran	Rice Mills
31.	K.N Rice Mills	Muradpur Village Road	Rice Mills
32.	Mohindra Rice and General Mills	Railway Road	Rice Mills
33.	SH Rice Mills	Tarn Taran	Rice Mills
34.	S.K Rice Mills	Tarn Taran	Rice Mills
35.	S.S. Rice Mills	Jandiala Road	Rice Mills
36.	Tarn Taran Food	Pandori Gola Road	Rice Mills
37.	B.P Rice Mills	Pandori Gola Road	Rice Mills
38.	A.M. Rice Mills	Harike road	Rice Mills
39.	Bharat Rice and Oil mills	Tarn Taran	Rice Mills
40.	C.J Durga Rice Mills	Tarn Taran	Rice Mills
41.	Taneja Overseas	VPO Kadgill	Saila Plant
42.	Dashmesh Agro Export	Vill. Kadgill	Saila Plant
43.	Daulat Ram ,Ramesh Kumar &CO,Unit No.2	Vill. Alladinpur	Saila Plant
44.	Punjab Rice Land Pvt. Land	Tarn Taran	Saila Plant
45.	Satdev Sunil Kumar	Jandiala Road ,Village Kadgill	Saila Plant
46.	Daulat Ram Ramesh Kumar and Co.	Village Bachre ,Goindwal Road	Saila Plant
47.	Taneja and Co.	Vill. Pandori Gola	Saila Plant
48.	AV & Co.	Vill. Pandori Road	Saila Plant
49.	Capital Agro Pvt. Ltd.	Vill. Bachre , Goindwal Road	Saila Plant
50.	Capital Overseas(P) Ltd.	Vill. Pididi	Saila Plant
51.	Kunj Lal Agrawal & Co.	Daburji	Brick Kiln

Source: M.Cl., Tarn Taran

Industrial Focal Point, Tarn Taran:

P.S.I.E.C. has set up an industrial focal point at Tarn Taran to give boost to the industrial development in the region. The Industrial Focal Point is located adjacent to railway line and opposite to the existing bus stand. Out of the total 111 industrial sheds/plots, approximately 40 are working at present employing nearly 270 workers. The industries operating in the industrial focal point, Tarn Taran is enlisted below:

Table 18: Industry Details in Industrial Focal Point, Tarn Taran

Type of industry	No. of units
Corrugated Box	1
Paper Pulp, Apple and Egg Trays	3
Steel Fabrications	5
Power Looms	6
Rice Sheller Plant Machinery	4
Foundry Units	4
Repair Workshops	4
Ice Factories	2
Cycle Parts	1
Screw and Nut Bolt Industry	1
Oil Expeller	1
Arra Machines	2
Kohlu Machines	1
Power Press	1
Medicine Unit	1
Paint and White Wash	1
Machinery Unit	2
TOTAL	40

Source: Industrial Focal Point, Tarn Taran

The wastewater from the industrial focal point is drained out directly into the sewers without any treatment that needs to be regulated by way of treating the discharge before disposing it into the sewer. It also lacks in the provision of storm water drainage network that leads to water being accumulated in the area especially in rainy season, thus causing damage to the existing road infrastructure. Thus, there is a need to provide proper storm water drainage network to prevent water logging and ensure smooth flow of traffic especially during rainy season.

Key Issues: Since, the Industrial Focal point only have few industries, which are operating at present, the reasons for the same have been found based on primary surveys that are enlisted below:

- Lack of overall development of the town
- It falls in the border area
- The town doesn't have adequate markets for selling the produce
- It faces competition from its nearby major markets i.e Amritsar, Jalandhar and Kapurthala.
- There are no specialized institutes for training the youth for industrial entrepreneurship
- There is lack of skilled workers in the area

Industrial areas in immediate surroundings of LPA:

Industrial growth for Tarn Taran has been studied in terms of nature of industries, number of units, employment status and the investment scenario of various industries.

- **In the eastern direction of LPA**, Goindwal Sahib is the main town situated at a distance of 24 kms from Tarn Taran town having an industrial focal point. The railway link to Goindwal Sahib (from Dera Beas to Goindwal) is under construction.
- **In the northern direction of LPA**, there are many industries in Chaba village which fall in the Amritsar LPA and adjacent to village Balachak on the northern side of Tarn Taran LPA. The small-scale industries in village Chaba are as shown in the table below:

Table 19: Small Scale Industries in Chabba village

Category	Number
Brick Kilns	7
Rice Mills	9
Hot Mix Plant	1
Saila Plant	2

Source: Industries Department, Amritsar

Therefore, the impact of industrial development in Goindwal and Chabba village can be observed from the fact that the trend of overall growth and development in Tarn Taran town is highest towards these two directions.

Hence, following needs to be considered:

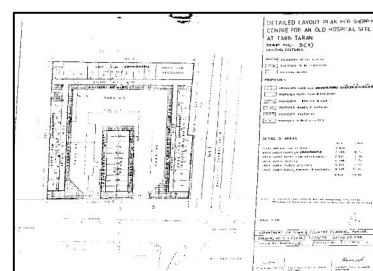
- Thrust on provision of more economic activities with related infrastructure such as improvement in regional level linkages that will result in overall economic development of the town and its surroundings.
- Provision of significant area for agro-based industries like rice mills needs to be done which will create employment for more people as paddy generated in the town is exported in the form of rice to other states, which generates revenue in large amount and hence may reduce out migration of population.

2.2.3 TRADE AND COMMERCE

Trade and commerce primarily constitutes the tertiary sector of the economy. It shows a growth when the economy becomes stronger on the front of primary (agriculture and livestock) and secondary (manufacturing and construction) sector. In fact, it is the third stage of economic growth and signifies a healthy economic condition and total transformation of a settlement to an urban area. The main areas of study under trade and commerce in the Tarn Taran LPA are retail commercial areas and the existing grain market.

Commercial:

The Tarn Taran does not have any specialized markets, CBDs or District Centers existing in the town. Local and retail

**Fig no. 8: Palika Bazaar**

shopping is primarily concentrated along National Highway running centrally through the town and other major roads like Jandiala road, Khadoor Sahib road, Goindwal Sahib road and narrow lanes leading to Gurudwara Darbar Sahib. Commercial area along roads causes encroachment and on street parking on these stretches.

There are no specialized commercial markets or trade activities in town except one planned commercial centre i.e. Palika Bazaar located at Char Khamba chowk which has 26 showrooms and 21 booths in an area of 0.37 Ha with parking facilities.



Fig no. 9: Commercial areas near Gurudwara Darbar Sahib

Informal Sector:

Most of the vegetables and fruits in the town are sold by informal sector along the NH 15 inspite of the presence of a wholesale fruit and vegetable market existing inside the grain market. Lack of organized and well-distributed fruit and vegetable markets in town results in the activity being carried out on NH 15 and other major roads causing traffic problems.



Fig no.10: Informal Rehris along the roads

Existing Grain Market:

A large grain market/mandi was established in the town in the year 1989 along existing bypass near Jandiala road covering an area of 41.49 acres at a distance of about one km. from railway station. The grain market serves the entire Tarn Taran LPA. The various components of the grain market are listed below:



Fig no.11: View of shops in grain market

Table 20: Components of Grain market in Tarn Taran Town

Components of Grain Market	No.	Area in Acres
Grain Shop cum Flats	167	8.57
Sabzi Shop cum Flats	21	0.192
Shop cum Flats	40	1.47
Semi Industry	11	0.63
General Booths	17	0.58

Chara Booths	23	0.16
Auction Platform	2	12.06
Market Committee Office Complex	1	1.63
Disposal Works	1	0.32
Water Works	1	0.48
Site for Vikas Bhawan	1	0.19
Reserved	5	1.37
Weigh Bridge	1	0.07
Cinema Site	1	1.05
Toilets	3	0.13
Roads Parking Pavements		11.86
Total Area		41.49

Source: Mandi Board, Tarn Taran

There are also 22 commodity wise processing units in the market, a cold storage and a grading and analyzing laboratory with adequate garbage disposal system.

The mandi is fully utilized for four months in the year i.e. April, May, June, July and for another 8 months it remains vacant. Hence, during this period it is utilized for conducting cultural programmes and rallies.



Fig no. 12: Cultural Programmes being held in the Grain Market

Key Issues:

In view of significant agricultural produce and the town being the main centre of its trade, there is need for more land to be allocated for grain markets and godowns.

Market Committee:

The market committee standardizes various market practices and enforces the use of standard weights, thus ensuring a fair deal to the cultivators. The Market Committee/Mandi Board also takes care of the work of construction, maintenance and up-gradation of all village link roads. The regulated markets play an important role in helping the sale of commodities at the most fair and reasonable prices.

In Tarn Taran LPA, there are 7 Market committees located at Tarn Taran, Jhabal, Bhikiwind, Khemkaran, Patti, Naushera Panuan and Khadoor Sahib each having one main mandi which stores the produce, while there are other sub-yards or purchase centers, which are distributed within various villages like Jeobowal, Khalra, Amarkot, Kot Buddha etc. In Tarn Taran block there are two purchase centre's namely in Tharu and Kang villages. There are also 4 permanent mandis.

The market influence area extends up to 4-5 kms. Wheat and paddy is the main crop for Grain market. In Tarn Taran Mandi on an average 30-35 trolleys comes at peak season. The commodities, which are important in terms of arrivals to grain market are Wheat, Paddy and Basmati.

2.2.4 AGRICULTURE

Due to high degree of land utilization for production and large area brought under agriculture, at district level, 82% of the land area is dedicated to farming. The total cropped area of the district is 5,12,000 hectares and about 2,24,000 hectare area is sown more than once. Almost 86.5% of area is irrigated in comparison to gross cropped area. Hence, 7132 Ha of the total area is cultivable in the Tarn Taran LPA.



Fig no. 13: Agricultural crops in LPA

Table 21: Agricultural Details in Tarn Taran LPA

Sr.no.	Village Name	Cultivable land (In Ha)
1	Bala Chak	362
2	Pandori Ran Singh	528
3	Kot Dasaundi Mal	248
4	Gohalwar	372
5	Khara	259
6	Daburji	291
7	Thathi	152
8	Palasaur	1020
9	Muradpur	24
10	Bugha	309
11	Jodhpur	150
12	Alladinpur	258
13	Sange	202
14	Kad Gill	412
15	Malia	208
16	Pandori Gola	496
17	Bachre	124
18	Kotli	217
19	Ratual	435
20	Behla	287
21	Kaironwal	215
22	Kaka Karyala	360
23	Mughal Chak	126
24	Kazi Kot	71
25	Nalagarh	6
Total		7132

Source: Mandi Board, Tarn Taran

Principle Crops:

In the villages falling in Tarn Taran LPA, wheat and rice are the principal crops. Apart from wheat and rice, Maize is produced in villages of Kakka Karyala and Kadgill while pulses are

produced in the villages of Alladinpur, Kot Dasaundi Mal, Khara, Gohalwar, Daburji, Nallagarh, Palasaur, Pandori Ran Singh, Bugha, Balachak and Rataul.

Plantations/ Orchards

The plantations and orchards also form part of agricultural practice carried out in the LPA. The highest number of orchards in Tarn Taran LPA is of Pears. Details of orchards and plantations grown in the Tarn Taran LPA are given in table below:

Table 22: Orchards in Tarn Taran LPA

Villages	Orchards		Flora
	Number	Area (Ha)	
Bala Chak	1	3	Pear
Gohal War	2	5.3	Pear
	1	1.2	Guava
Daburji	2	3.2	Pear
Thathi	1	3	Pear
Jodhpur	2	2	Guava
Allahdinpur	1	1.1	Pear
	1	0.6	Guava
Chatala	1	1.6	Kinnow
Piddi	1	0.6	Pear
Behla	2	10.5	Pear
Kaironwal	1	1.4	Pear

Source: Horticulture Department, Tarn Taran

2.2.5 ALLIED ACTIVITIES

Being an agro based economy there are significantly higher number of dairy units followed by bee and fish units. Similarly, the village wise scenario in terms of livestock indicates the highest number in the village Sheron followed by Palasaur and Gohalwar.

Table 23: Allied Activities in Tarn Taran LPA

Category	Number	Location
Dairy Units	14	Aladinpur, Sanghe, Kaironwal, Kakkakaryala, Khara, Gohalwar, Jodhpur, Daburji, Palasaur, Pandorigola, Pandori Ran Singh, Piddi and Rasulpur, Nallahgarh
Poultry Units	1	Piddi
Bee Units	3	Chautala, Piddi, Rasulpur
Fish Units	3	Two in Alladinpur and one in Daburji

Source: Town & Village directory, Tarn Taran, 2001

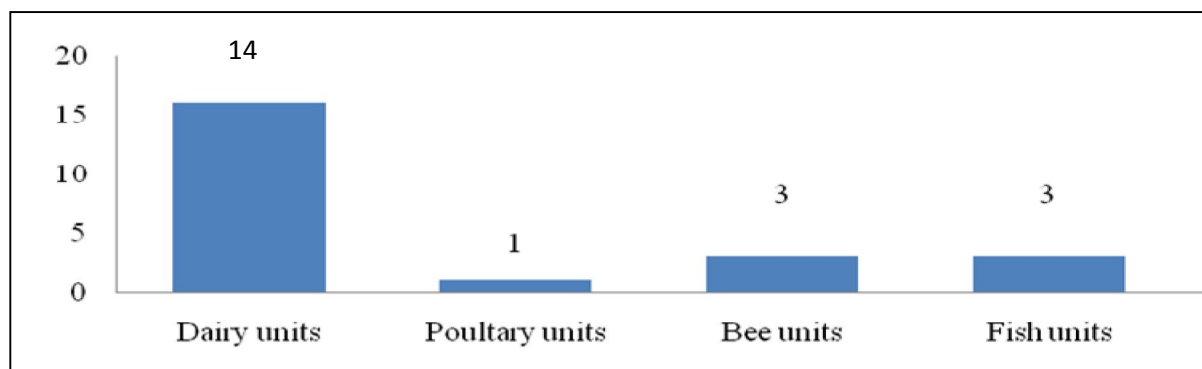


Fig no. 14: Allied activities in LPA

There are 14 Dairy Units, 1 Poultry unit, 3 Bee unit and 3 Fish units existing in Tarn Taran LPA, which are sustaining the employment. The maximum employment is generated by Dairy units i.e. 62% population within LPA, followed by fish units (17%), bee units (13%) and poultry units (8%) (refer Fig 15).

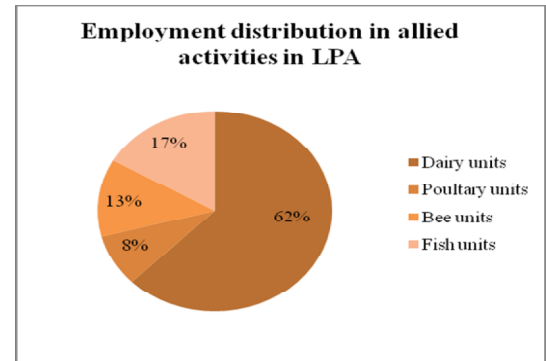


Fig no.15: Employment distribution in allied activities in LPA

2.3 HERITAGE AND TOURISM

Punjab known as “the Granary of India”, is also considered as a famous tourist hub. Besides one of the world’s famous site Golden Temple, it also has many historical, religious, cultural, archeological spots that make it a greater asset for the tourism promotion. Tourism plays vital role in the city and its upgradation. The similar perspective is there for the surroundings of the town since it has a positive effect in terms of the attraction of the people hence increase in the floating population. While preparing the Master Plan, these sites are required to be identified and their potential must be explored to boost the cultural heritage/heritage tourism and the economy of the town. Tourism aspect in the Master Plan is studied with respect to locations, their importance, nature, potential, tourism infrastructure (accommodation, transportation etc.) and related issues. Heritage sites are generally located in the old city areas and in surroundings. The approach axis is the problematic areas since they cannot sustain the heavy vehicular traffic. In addition, parking is the key problem. There are encroachments by hawkers, the signages and the hoardings that create problems. All the electrification needs to be upgraded.

Tourism plays an important role in Tarn Taran town’s economy as Tarn Taran has few important places, which can be recognized as a resource for the development of the tourism. Each site in the town and its surroundings has its own importance from point of view of historical, architectural, archeological, cultural or ecological angle. While preparing Master Plan, these sites are required to be identified and their potential needs to be explored fully to boost the religious tourism and economy of town. Tourism aspect in the Master plan is studied with respect to these locations, their importance, nature, potential, existing infrastructure (in terms of accessibility etc) and other relevant issues. Handling floating population is a challenge in itself.



Fig no. 16: Tourists coming to TarnTaran LPA for religious purposes

TOURISM POTENTIALS IN TARN TARAN LPA & ITS SURROUNDINGS:

The TarnTaran LPA has potential for domestic and international tourism because of various important religious places and wetlands in the town and its surroundings. Tarn Taran LPA and its surroundings have ample treasure of religious buildings. The basic and most important attraction is Darbar Sahib/ Tarn Taran Sahib Gurudwara.

The religious tourist places in Tarn Taran are Guru Ka khooh, Gurudwara Lakeer Sahib, Bibi Bhani ka khooh, Shivala Mandir, Madan Mohan Mandir, Shani Mandir, Smadhs, Church, Dera Radha Swami, Bungas, Gurudwara Takkar Sahib and Gurudwara Jhulna Mahal, Thatti Khara. Tarn Taran is under developed in terms of tourist infrastructure owing to lack of awareness about existing resources and potential.

Punjab Tourism Policy 2003 has listed out various types of tourism, which can be developed in the state. In view of the regional context, Punjab government has identified few tourist circuits. The TarnTaran LPA with major tourist locations within a range of 15-25 kms can also be viewed in this context, as it can be developed as an an important tourist circuit.

Table 24: Tourist Places in Tarn Taran Town

Sr. No.	Religious components	Importance	Visitors	Time spent
1.	Darbar Sahib	It was founded by Guru Arjun Dev Ji in 1590. Darbar Sahib is the first comp. in Tarn Taran	10000- 20000 daily, above 1 lakh on Masya	1 or 2 hours daily 5 or 7 hours on Amavasya
2.	Guru Ka Khooh	Guru Angad Dev Ji used to rest here while construction of the sarovar	20- 25 daily and on special evenings 700-800	2 hours
3.	Takkar Sahib Gurudwara	It was made when 34 Sikh Saints died in an accident with train	20- 25 daily, on special eve 400- 500	1/2 hours
4.	Lakeer Sahib Gurudwara	In 1757, Baba Deep Singh Ji made a line with his sword and asked followers to cross the line if they are willing for fight with Jahan Khan at Amritsar. It was built in 1978	10-20 daily and on special eve 400- 500	1-2 hours
5.	Shivala Mandir	No historical Importance	50- 100 daily and on festivals 1000- 1500	1-1/2 hours
6.	Shani Mandir	-	20- 25 daily and on Saturday 200- 300	1-1/2 hours
7.	Church	-	20- 50 daily and on festivals 500- 600	2 hours
8.	Madan Mohan Mandir	-	50-100 daily and max. 500- 600	1/2 hours
9.	Bibi Bhani ka Khooh	Guru Arjun Dev Ji made this gurudwara on the name of his mother, Bibi Bhani	It is under construction	1-1/2 hours

Source: SGPC, Tarn Taran

RELIGIOUS PLACES WITHIN TARN TARAN LPA

Gurudwara Sri Tarn Taran Sahib:

Around 1590, Guru Arjun Dev ji bought some land and laid the foundation of Gurudwara in honor of Guru Ram Dasji and started the excavation of a tank even bigger than Amritsar.

The Gurudwara is located in the southwestern part of town with an enormous tank. Although, there is no scientific evidence that the water cures leprosy, it is said to have healing properties. This Gurudwara attracts more than 1 lakh pilgrims on Amavas day of every month.

On regular days also there is significant tourist inflow. The Gurudwara has a main entry and other secondary entries in all directions. The Gurudwara has a sarai and provision of public toilets on one side of the Gurudwara only. Here the critical problem is of parking space that needs upgradation. Here the main access to Gurudwara is from National Highway that is not an ideal situation as it causes congestion on the Highway. Besides provision of space for mela and related tourist facilities, alternative entries to the precinct need to be identified.

Gurudwara Bibi Bhani Da Khuh

It is a holy water well in the name of Bibi Bhani Ji, the daughter of Guru Amar Das and the wife of Guru Ram Das (fourth guru of the Sikhs) and the mother of Guru Arjan Dev. This religio-historic well was dug by Guru Arjan Dev Ji in memory of his mother at the place where Mata Bibi Bhani Ji used to serve food, water, and medicine to needy and visiting pilgrims. Bibi Bhani Da Khuh is being managed by Gurudwara Bibi Bhani Da Khuh Management Committee (Registered).

Gurudwara Guru Ka Khuh:

It is also situated in Tarn Taran M.Cl. in the south western part. This well belongs to Guru Arjun Dev Ji. A historic Gurudwara has been built at this place. Guru Ka Khuh has moderate tourist inflow during the entire year besides the festivals. Because of the mela on festival days there is a significant tourist



Fig no.17: Entry to the Gurudwara in front of the parking is less congested



Fig no.18: Main Entry of Gurudwara Tarn Taran Sahib



Fig no.19: Gurudwara Guru Ka Khuh

inflow, hence the infrastructure has to sustain the floating density during these periods.

Being another important site of religious importance within town, it faces the problem of undeveloped precinct and surroundings. The location of the site is in midst of high density residential development. There is a need to define the site in order to promote tourism development since there is no demarcation between surrounding built-up and the tourism precinct. There is no availability of parking space outside the premise. The access road is only 8 ft wide inner city road. There are no utilities and amenities developed in the surrounding. There are no proper signages and the street furniture for directing the tourists. The surroundings are purely residential area; hence, the Gurudwara being public place there is a chaos.

Gurudwara Takkar Sahib is located at the junction of National Highway 15 and railway line. At the back side of the Gurudwara the surroundings are very unhygienic. Owing to its significance, it needs attention in terms of the precinct development.

Madan Mohan Temple: This is a temple located abutting the Highway and is a cause of generation of increased density in such major road. There is a scope for development within temple precincts and its immediate surroundings.

RELIGIOUS PLACES OUTSIDE TARN TARAN LPA

Three spots exist in the surroundings of Tarn Taran, which have become important once seen in regional level tourist circuit.

Goindwal Sahib:

Goindwal (also known as Goindwal Sahib) is a religious place in Tarn Taran district, about 22 km from Tarn Taran town. It became an important center for the Sikh religion, during the Guruship of the Guru Amar Das. Goindwal Sahib was the first center of Sikhism and was established by Guru Amar Das. The Hindus went on pilgrimage to Haridwar and Benaras but the Sikhs needed a place of their own.



Fig no. 20: Gurudwara Goindwal Sahib

Understanding this Guru Amar Das purchased the land and personally helped in the construction of the Gurudwara and Baoli (well) with 84 steps leading down to it. Guru Amar Das said that whoever recited the entire Japji prayer of Guru Nanak on each of the 84 steps with a pure heart before bathing in the Baoli would receive spiritual emancipation. The devout believe that by reciting Japji Sahib, after taking a bath in the Baoli provides 'Moksh', liberation from 84,00,000 cycles of life of this world.

The Religious Places in Goindwal Sahib are Sri Bali Sahib, Shri Darbar Sahib, Thira Sahib, Langat Sahib, Gurudwara Sri Chamber Sahib, Kelli Sahib, Chamber Baba Mohan Ji, Joti Jot Asthan Patshahi Tiji, Guriai Asthan Guru Ram Das Ji, Janamasthan Sri Guru Arjan Dev Ji, Khuh Guru Ram Das Ji, Joti Jot Asthan Bhai Gurdas Ji and Gurudwara Damdama Sahib. The road leading to Goindwal needs improvement as lot of tourists are going to Goindwal from Tarn Taran on regular basis as well as for mela.

Khadur Sahib:

Khadur Sahib is symbolically attached with the name of Guru Angad Dev Ji. This place got sanctified by the visit of eight Sikh Gurus. This town is 38 kms from Amritsar, 20 Kms from Tarn Taran, 9 kms from Goindwal Sahib. He spent 13 years of his Guruship at Khadoor Sahib, spreading the message of Guru Nanak Dev Ji.



Fig no.21: Gurudwara Khadur Sahib

Khadur Sahib is the place, which was sanctified by visits of eight Sikh Gurus. It is the place where Gurmukhi *Lipi* (Script) was introduced for the first time, as medium of language after careful modification by Guru Angad Sahib. It is the place where first school was established by Guru Angad Sahib Ji and where first Gutka of Guru Nanak Sahib's Bani was prepared. It is the place where first Mal Akhara for wrestling was established and where Guru Angad Sahib started regular campaign against intoxicants and social evils. Religious Places in Khadoor Sahib are: Gurudwara Tapinana Sahib, Gurudwara Tap Asthan Sri Guru Angad Dev Ji, Gurudwara Darbar Sahib, Angitha Sahib, Gurudwara Thara Sahib Guru Amar Das, Gurudwara Mai Bharai, and Gurudwara Mall Akhara.

Gurudwara Bir Baba Budha Ji:

Gurudwara Bir Baba Budha ji is situated on the right side of village Thatha on the Amritsar Patti road. Baba Budha was a disciple of Guru Nanak. He lived from the period of Guru Nanak till the period of Guru Hargobind Sahib. He used to take care of the Guru's cattle in the Bir (forest).



Fig no.22: Gurudwara Bir Baba Budha Ji

Harike International Wetland:

Harike Wetland is situated about 35 kms south of the Tarn Taran town on the NH 15 towards Ferozepur. It is the largest wetland in the northern India and is the most important sanctuary in the State. Hari-ke-Pattan is a natural serene place famous for its bird sanctuary. A number of globally threatened species have also been recorded in Harike.



Fig no.23: Harike Wetland

This type of habitat is not met anywhere in Punjab. The shallow reservoir was created in 1953 by the construction of a barrage at the confluence of the Sutlej and Beas rivers. Harike Lake was declared as a 41 sq km wide wildlife sanctuary in 1982.

This wetland can be explored for giving the town an identity as a tourist and recreational spot. With availability of such resource in proximity, the town has tremendous growth potential in terms of tourism. Migratory birds about 350 odd species, coming from far flung lands of China, Siberia, Afghanistan and Pakistan, making it a popular place for bird watching and boating, characterize winter (November onwards). Hari-ke-Pattan is also one of India's leading in-land sweet water fish market.

Identification of these spots will help in formulating tourism promotion strategies in the Master Plan by evolving new tourist limits in LPA and its immediate surroundings. Owing to dynamics of historical inheritance, important heritage nodes acts as a pause within and in surrounding of the town. As there is much potential for the development of the local tourism network, there is need to provide the basic infrastructure and accessibility to these places. With provision of amenities, cultural tourism can be upgraded in such an order to assess the need in terms of quantum of amenities and utilities. There is a need to understand the existing tourist movement viz. a viz. the projected tourist inflow. Accordingly, those reflections can be incorporated in the planning proposals of the town.



Fig no. 24: Gurudwara's unplanned parking

Key Issues

- Lack of tourist infrastructure for regular tourists such as restaurants, parking, toilets, sarai/resting rooms, medical, general shops and tourist information counter etc. Facilities like public toilets are available only near Gurudwara Shri Tarn Taran Sahib and not at any other important tourist places, like Gurudwara Guru Ka Khuh, Gurudwara Takkar Sahib etc.
- Lack of public transportation facilities: The tourists coming to Tarn Taran are religious tourists, with the main motive of visiting Darbar Sahib. Hence, they take public transport like autos or rickshaw from bus terminals and railway stations to it. There is lack of efficient public transportation for the same and the roads from railway station and bus terminal to Darbar Sahib needs to be carefully planned. Provision of adequate public transportation facilities would facilitate the tourist movement within town.
- Lack of tourist infrastructure for melas: No proper arrangement for the tourists coming on *Masya* days such as special tents, hotels are absent and people face lot of problems, as expressed by people during field survey. The facilities provided like the rooms at Sarai are not up to the international standards to cater to NRI's and other foreign tourists visiting it.
- No signboards to guide the tourists to various tourist locations, lack of landscaping and proper signages at proper places.
- There is a need to define pedestrian routes especially the narrow access roads.

Proposed or Ongoing projects:

There is a proposal for construction of a tourist complex opposite new bus stand at a site of 1000 sq. yards already in possession of M.Cl. The building is designed to accommodate other social and cultural gatherings such as marriages etc.

CHAPTER 3

HOUSING AND URBAN POOR

3.1 TARN TARAN HOUSING SCENARIO

HOUSING SCHEMES

To meet the housing needs of the TarnTaran LPA and its surrounding areas, the Punjab Urban Planning and Development Authority has selected sites within Municipal Council limits of the town. The 2 proposed schemes have been given in the table below:

Table 25: Details of Govt. Approved Colonies in Tarn Taran Town

S. No.	Name of Colony	Area (Acres)	Location
1	Mahindra Avenue	9.73	On the left side of the road about 500 m before the Bypass Chowk
2	Mahindra Enclave	9.79	While going from Bye-pass Chowk to Jhabal at a distance of 400m towards village Kazikot on the left side

Source: M.Cl. Tarn Taran

Two approved colonies covering a total area of 20 acres within M.Cl. have been implemented by PUDA. Besides the above-mentioned two schemes, remaining housing stock in town reflects an unplanned private housing development.

Unauthorized Colonies: However, there are twelve unauthorized colonies, which are independent of the slums pockets. Following is the table indicating the location and the areas of unplanned colonies.



Fig no. 25: Unauthorized colony along Sachkhand Road

Table 26: List of Unauthorized Colonies in Tarn Taran LPA

Location	Area in Acres
Village Kakka Kandiala	16
Village Muradpur	3
Village Nallagarh	5
Jhabal Kalan	9
Village Kazikot	4.5
Village Bachre	4
Village Malia	8
Village Nallagarh	2,5
Total	52

Source: Police Station (from FIRs recieved), Tarn Taran

Housing Stock:

Growth in number of households is not keeping pace with the growth in number of occupied residential houses. In case of TarnTaran LPA, growth rate in number of households was 24.77% in 2001. In case of Municipal Council, highest growth rate in number of households

has been observed in 1991, which was of the order of 31.95%, which declined to 22.58% in 2001.

It has been observed from the growth pattern of the occupied residential houses that the number of occupied houses has grown by 14.5% in the decade from 1991-2001, which is also the largest growth. The number of occupied residential houses has grown significantly in the decade of 1981-1991, which has reduced in the decade of 1991 to 2001 (refer table 27). The high growth rate of residential houses can be attributed to rural migration to Tarn Taran town. The growth rate of households for the LPA is given in the table below:

Table 27: Increase in Number of Households in Tarn Taran LPA

Level	1981	1991	2001	Growth Rate (1991)	Growth Rate (2001)
M.Cl.	6027	7953	9744	31.95	22.58
29 villages	N.A	8159	10360	NA	26.97
LPA	-	16112	20104	NA	24.77

Source: District Census Handbook, Tarn Taran, 1981, 1991, 2001

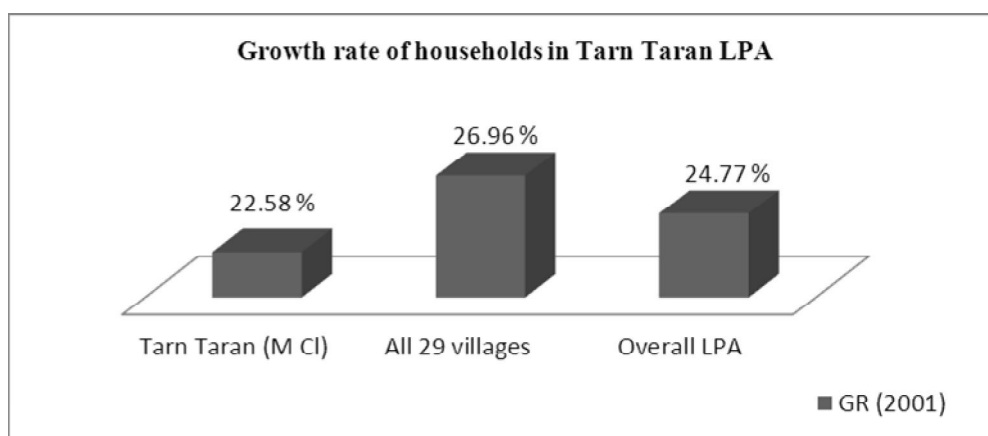


Fig No. 26: Growth Rate of Households in Tarn Taran LPA

Housing in TarnTaran M. Cl.

Table 28: Housing Scenario in Tarn Taran M. Cl. (2001)

No. of Houses	No. of Households	No. of Occupied residential Houses
15096	9744	9778

Source: Census 2001; Tarn Taran M. Cl.

As per Census 2001, TarnTaran M.Cl was having 15096 houses accommodating nearly 9744 households, which shows that nearly 35% of the total houses in the M.Cl are vacant (refer table 28).

Pattern of Housing:

Mixed use of houses that is for both residential cum commercial use has been observed along NH 15. The residential development has been observed along all the important district roads and other roads within old city area.

Housing Condition:

Besides looking at the housing stock in terms of growth of number of residential houses, the condition of the housing stock has also been looked upon to qualitatively ascertain the condition of the available houses in the town. The majority of houses are part of unplanned development on privately owned lands. Housing condition has been assessed as per use of material, livable condition and the infrastructural development within the unplanned proximities. Majority of the houses in the town are permanent in nature (85.54%) with merely 2.67% of the temporary housing stock. Further, 11.78% of the Tarn Taran's housing stock is semi permanent in nature that requires upgradation (Refer Table 29)

Table 29: Housing Details: Tarn Taran M.Cl.

Type of Structure					
Permanent	Semi Permanent	Temporary		Unclassifiable	Total
		Serviceable	Non Serviceable		
8095	1115	162	91	0	9463
85.54%	11.78%	1.71%	0.96%	0.00%	100.00

Source: Census 2001

Visual Survey: The housing in town is primarily confined to Municipal Council limits. The residential areas have mixed land use with shops in front and residences at the back. Most of the houses in town have exposed brickwork and follow oblique lines and acute angles. There is a need to regulate future housing development with statutory development controls. The HIG type of houses are primarily located along NH 15 and between Bypass and NH 15. The residential areas in the core city is of middle and lower income type. Residential areas along nallahs are facing severe problem of unhealthy environs.



Fig no. 27: View of residences along nallah

KEY ISSUES:

- Absence of open spaces within residential neighborhoods
- Growth of unauthorized colonies is leading to cluttered development
- Land is a limited resource and that its appropriate utilization with respect to different land uses is absent in the town.
- Lack of optimum utilization of the existing housing stock as approximately 35% of the existing housing stock is vacant.
- Lack of adequate planned housing efforts in the town.

3.2 URBAN POOR & 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.

DEMOGRAPHIC PROFILE

The demographic profile of slums in Tarn Taran has been analysed and it has been found that 43.51% of the total population of the town lives in slums (refer Table 30). This implies that every second household in Tarn Taran lives in slum area.

Table 30: Demographic Characteristics of Slums in Tarn Taran Town

Item	Urban	Slum	%age of Slum vis-a-vis Total population	% within slums
Total households	9744	4339	44.52%	-----
Total population (including Institutional and houseless population)	55587	24273	43.51%	-----
Population in the Age group (0-6)	7053	-----	-----	-----
Schedule caste population	12124	-----	-----	-----
Literates	36857	14563	39.51%	59.99%
Total workers	16986	-----	-----	-----
Main Workers	16119	-----	-----	-----
i) Cultivators	295	-----	-----	-----
ii) Agricultural laborers	218	-----	-----	-----
iii) Household Industry workers	456	-----	-----	-----
iv) Other workers	15150	-----	-----	-----
Marginal workers	867	-----	-----	-----
i)Cultivators	17	-----	-----	-----
ii)Agricultural Labourers	57	-----	-----	-----
iii)Household Industry workers	31	-----	-----	-----
iv)Other workers	762	-----	-----	-----

Source: M.C.I. and Census 2001

Further, out of the total slum population there are 59.99% literates residing in the areas, who are deprived of educational facilities. Hence, there is a clear evidence of the struggle of the people to gain the education.

Slums in Tarn Taran

At present, there are 8 slums existing in the town housing approximately 43.51% of the towns populations (24273 persons). From the table below, it can be observed that majority of these slums have emerged in the decade from 1981-1991 following disturbed conditions in the state of Punjab.

Table 31: List of Slums in Tarn Taran Town

Sr. No.	Slums	Year of Development
1	Guru Ka Khuh	1981-1990
2	Nanaksar (Civil Hospital)	1981-1990
3	Takkashatri	1981-1990
4	Nanaksar(Jandiala road)	1981-1990
5	Gokalpur	1981-1990

Sr. No.	Slums	Year of Development
6	Jaswant Singh	1981-1990
7	Fateh Chak	1991-2001
8	Muradpur	1991-2001

Source: Tarn Taran M.Cl.

Table 32: Share of Slum Population to Towns' Population (2001)

Year	Town Population	Slum Population	% to Town Population
2001	55587	24273	43.51

Source: Tarn Taran M.Cl.

3.2.1 INFRASTRUCTURAL STATUS OF SLUM AREAS:

The availability of physical as well as social infrastructure plays an important role in the living conditions of the habitat. The slum pockets within the city needs to be assessed in terms of the existing infrastructure vis-a-vis need and possibilities for its upgradation. Here, Tarn Taran slum scenario is critical, as there is a deficit in terms of fundamental infrastructure.



Fig no. 28: Slums along Kasur Nallah

The slums have poor living conditions as they lack in basic infrastructure like water supply, sewerage and drainage network, vehicular access, proper solid waste disposal system, street lights, community spaces, and the social infrastructure. Hence existing slum pockets needs up gradation in terms of development of hygienic conditions and the facilities for the intellectual development of the slum dwellers.

Eight slums in the town exist on private land, while temporary jhuggis and kutcha houses are also present on the Government land (refer Table 33).

Table 33: Ownership of Land under Slums in Tarn Taran Town

Ownership of the Land	Number of slums
Government	83 Jhuggis of slums and 3 kutcha houses
Private Land	8 slum pockets

Source: Tarn Taran M.Cl.

CHAPTER 4

EXISTING LANDUSE AND TRANSPORTATION NETWORK

Preparation of Base Map

The work of preparation of base map for the Tarn Taran Local Planning Area was assigned to Punjab Remote Sensing Centre, P.A.U., Ludhiana. The base map of entire Tarn Taran Local Planning Area is generated on 1:13,100 scale using Cartosat I data of 2.5m spatial resolutions. 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 Cartosat I data to demarcate village and musteel boundaries. The features like roads, rails, high and low lands, drains and settlements etc. have also been delineated from Cartosat I data, by the concerned agency and shown on the base map prepared on basis of satellite imagery. After editing the map details, the attributes to different features were assigned. After the preparation of LPA plan on 1:13,100 scale using Cartosat I data, the base map for densely populated built up areas of Tarn Taran town (core areas) was prepared on 1:5000 scale using quickbird satellite data of 0.6 mt spatial resolution. The quickbird data (satellite imagery) has been received by the PRSC, Ludhiana from National Remote Sensing Agency, Hyderabad.

Enhancement through Field Surveys-Land Use and Road Network

The base map for the Tarn Taran Local Planning Area 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 who also have Tarn Taran under their jurisdiction. 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 was 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.

4.1 EXISTING LANDUSE DISTRIBUTION (2010)

The existing land use distribution in terms of area under various uses including residential, commercial, industrial, traffic and transportation, recreational, utilities, public and semi-public has been analysed both within Tarn Taran LPA and within developed area of Tarn

Tarn council. Detailed analysis of the Tarn Taran LPA has been made based on the existing land use plan prepared by the Punjab Remote Sensing Centre, Ludhiana as detailed out in the Tarn Taran Local Planning Area, Existing Land use Plan- 2010, in drawing no. D.T.P. (A) 07/09, dated: 11-11-09 of the Department of the Town and Country Planning, Punjab. The detailed analysis has been shown in the table given below.

Table 34: Existing Land use Distribution in Tarn Taran LPA, 2010

Land use	Area of Tarn Taran M.Cl. (ha)	%age to Total Developed Area within Municipal Limits	%age to Total Area within Municipal Limits	%age to the Total LPA	Percentage as per UDPFI Norms
Residential	350	62	41.77	-	40-45
Commercial	46	8	5.49	-	3-4
Industrial	28	5	3.34	-	8-10
Traffic & transportation	49	9	5.85	-	12-14
Recreational	32	6	3.82	-	18-20
Public and semi public	63.7	11	7.60	-	10-12
Developed area	569	100	-	-	
Agriculture/Vacant area/ area under water bodies	269	-	32.14	-	
Total M.Cl. area	838	-	-	7	
Area under agriculture and water bodies in LPA outside M.Cl.	10139	-	-	90	
Area under village settlements in LPA outside M.Cl.	403	-	-	3	
Total LPA Area	11380	-	-	100	

Source: P.R.S.C., Ludhiana

As per Existing Landuse Plan, Tarn Taran LPA: 2010, it has been observed that approximately 67.86% of the total M.Cl area is developed with remaining 32.14% of the area under either agriculture or is vacant at present (refer table 34). Thus, nearly one third of the area within the M.Cl has already been developed for various uses such as residential, commercial, industrial etc. that have been discussed in detail below:

Residential

From the table above, it has been observed that majority of developed area within the municipal council limit is under residential which is of the order of 62% (refer table 34).

The town has a gross residential density of 66 PPH as per Census 2001 and is divided into 19 wards. The wards in the core area around Gurudwara Tarn Taran Sahib have the highest density of more than 160 PPH. The density decreases as one move away from the core area. The residential development in the town is along all the roads like NH 15, which is the main spine of the town and along Jandiala Road, Khadur Sahib Road and Goindwal Road. At present, the trend of residential development is towards north-east direction and has extended

beyond the existing bypass. In the south, Muradpur drain marks the limit of residential development. At present, the town has only two planned and government approved colonies namely, Mahindra Avenue and Mahindra Enclave, located along the bypass in the northern direction near village Kazikot.

Commercial

Only 8% of the total developed area within municipal limit is under the commercial use. The use is in the form of retail shops developed along the major traffic corridors and the bus stand. There are no specialized or wholesale commercial markets in the town. Only one planned commercial area under the IDSMT scheme namely the Palika bazaar exists in the town. The town also lacks city centre or District shopping centre. Due to lack of planned commercial areas, informal sector has mushroomed up. The informal markets or stretches in the town are along NH 15, Jandiala road, Khadur Sahib road and the inner city roads around the Gurudwara.

Besides this, the TarnTaran LPA has a planned grain market established in 1989 located on the bypass near the bus stand. This grain market was proposed in order to free the congestion in the old Anaaj mandi due to a smaller area. The fruit and vegetable market is within the grain market. The towns as well as LPA have various godowns and stacks for storage of the grains like wheat and paddy.

Industry

The area under the industrial use is only 5% of the total developed area within municipal limits and forms one of the important economic activities of the town as well as LPA. The LPA has the highest number of small-scale industries like rice shellers, brick kilns etc which are scattered in the entire LPA. The town also has industrial focal point developed by P.S.I.E.C. to boost the industrial development of the region. The Industrial Focal Point is located adjacent to railway line and opposite to the existing bus stand. Total number of industries in this Industrial area is 111, but only 40 industries are working. Approximate numbers of workers in the focal point are 270.

Traffic and Transportation

9% of the total developed area of Municipal Council of Tarn Taran is under traffic and transportation use. NH 15 passing through the centre of LPA forms the central spine of the town followed by the Major District Roads like Jhabal Road, Goindwal Road and Other District Roads like Jandiala Road and Khadur Sahib Road. Existing bypass runs from north-eastern to southern direction of the town in order to check the through traffic passing from the

town. The road condition in the town ranges from moderate to bad, which needs immediate attention. Majority of the roads require upgradation in terms of widening and strengthening.

Recreational

The total area under recreational use is 6% of the total developed area and only 4% of the total municipal council area, which is less than the prescribed standard of 10-15% as per UDPFI guidelines. This reflects that the town lacks in provision of green areas. In terms of recreational use, there is only one town level park namely Gandhi Park, which is poorly maintained and lacks in provision of public facilities such as parking, toilets and drinking water. The Dussehra Ground, located adjacent to the Gandhi Park is also poorly maintained. There is only one stadium present in the LPA which is located outside the Tarn Taran M.C.I limits near to the cattle fair ground. However, the town lacks in green areas.

Public/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. land etc. The town being district headquarter houses many district level government offices such as district courts, PWD department, agriculture office etc that together accounts for 11% of the total developed area and only 7.60% of the total municipal council area. The offices are mainly concentrated in a linear manner along the NH 15. This use is described in detail in Chapter No. 5 “Infrastructure and Service Delivery”.

Agriculture/Rural Area in TarnTaran LPA

Approximately 90% of the LPA area is under agricultural use excluding the area under village abadies. Even within the municipal limits, around 32.14% of the area is under agricultural use. The main agricultural crops in the LPA are wheat and paddy. The area under this category includes area under water bodies, vacant land, plantation, orchards and area under agriculture/cropped land.

On analyzing the existing land use pattern in the Tarn Taran LPA, it has been observed rationalization of different landuses shall be done while planning for the new proposals in order to bring it to the prescribed norms. In view of the existing scenario, special consideration shall be given for traffic and transportation by creating additional road network and increased existing road capacity. More open spaces needs to be created in town in order to improve quality of life. Industrial component also needs to be increased in order to improve the economy of the town.

4.2 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.

Tarn Taran is well connected to other parts of the state and country through a well-defined network of roads. There is one National Highway, 2 MDRs and 3 ODRs passing through the Tarn Taran LPA. NH 15 connecting Amritsar-Tarn Taran-Ferozepur passes through the centre of the LPA, acting as the central spine cutting the area into two halves (refer map). Further, 2 Major District Roads and 3 Other District Roads emerging out of the city core connects the town to other major nearby urban settlements of Jhabal, Jandiala, Khadoor Sahib, Goindwal Sahib, Walipur, Shahbazpur etc.

EXISTING ROAD NETWORK AND HIERARCHY

The road network of any town is defined as lifeline of the town. For effective development of the town, the road network shall be adequate and well maintained.

The table below lists the important roads passing through the Tarn Taran LPA which is as follows:

Table 35: Road Network in Tarn Taran LPA

S. No.	Category	No.	Name of the Road
1	National Highway 15(Scheduled Road)	1	Amritsar -Ferozepur
2	Major District Roads	2	Tarn Taran -Goindwal road
			Tarn Taran -Jhabal/ Gandiwind Road
3	Other District Roads	3	Tarn Taran -Jandiala road
			Tarn Taran- Khadur Sahib Road
			Tarn Taran- Old Patti Road

Source: PWD, Central Division No. 2, Amritsar

The Tarn Taran M.CI has primarily ring radial pattern of road network with NH 15 passing through the centre of the town and eight radial roads emerging from the city providing accessibility to the surrounding areas/settlements. The existing bye-pass in the northeast direction of the town acts as the ring but is incomplete which requires to be provided in the southwest direction in order to rationalize the road network of the town.

The existing road network within the town is characterized by irregular road alignment, inadequate road width and frequent intersections, which hamper effective utilization of roads. The town has roads ranging from 7 to 10 mt in width on an average. The broad cross sectional details of all major roads have been prepared and encroachment along all roads has been marked. There is encroachment on ROW of almost all major roads reducing the effective road width.

Cross Sections of all Major Roads and Inner City Roads

The provision of new roads and maintenance of the existing ones in the town of Tarn Taran is primarily the responsibility of PWD and municipal council of Tarn Taran while provision of village link roads and their upgradation or maintenance is the responsibility of Mandi Board, Tarn Taran. The details of cross sectional elements as supplied by PWD for the major roads have been illustrated in the table no 36.

Road Section Details as per Study

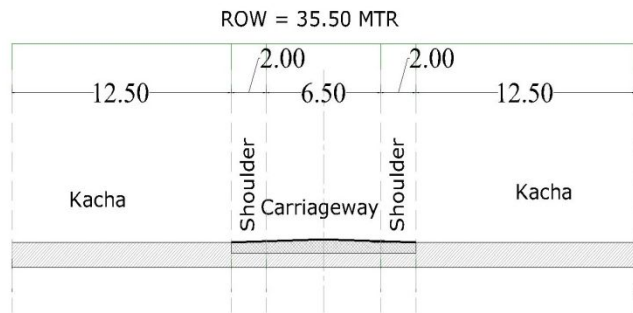
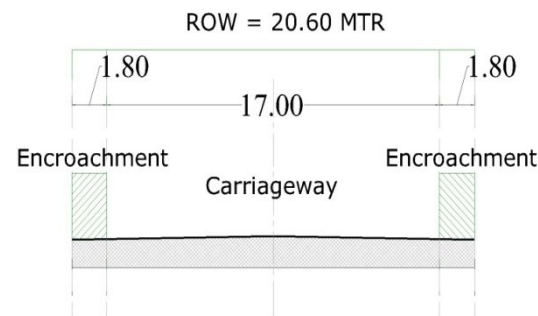
SAI team conducted primary survey of the important roads and junctions in the town to assess the critical sections/junctions in the town. The cross sectional details of all major roads have been assessed and encroachments along these roads has been identified and marked. It has been observed that the 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 also observed the width of the road varies from section to section especially in case of NH 15 and other district roads passing through the town due to encroachments.

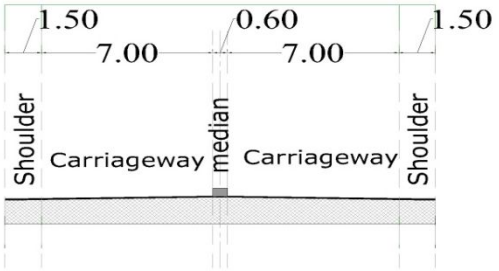
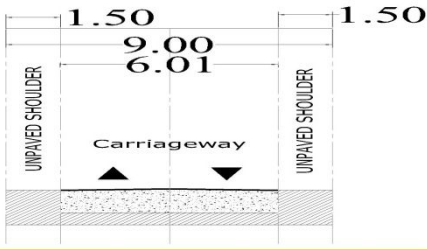
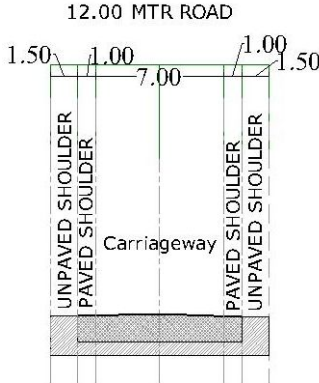
Table 36: Cross Sectional Details of Major Roads in Tarn Taran LPA

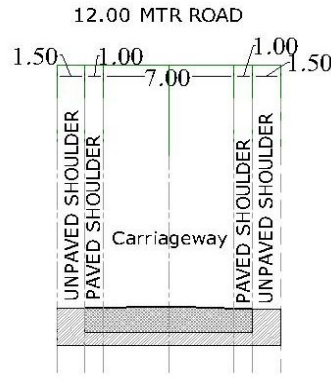
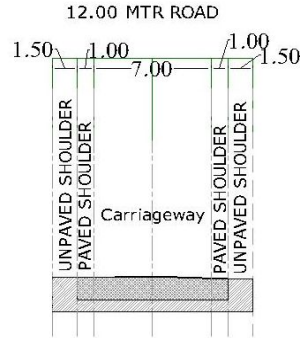
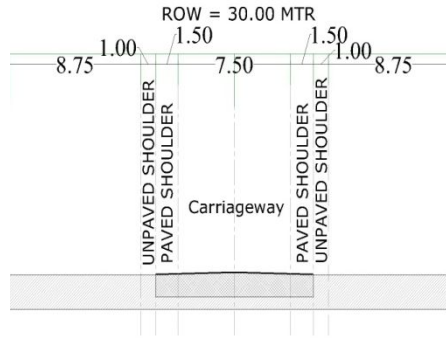
Sr. no.	Name of the Road	Category	Length in Km	Metalled width(in mt)	Right of Way (ROW in mt)
1	Amritsar -Ferozepur	National Highway 15	21.45	6.5	35.5
2	Jhabal/ Gandiwind Road	Major District Road	3.82	6	9
3	Goindwal Road	Major District Road	2.48	7	12
4	Jandiala Road	Other District Road	5.49	7	12
5	Khadur Sahib Road	Other District Road	4.15	7	12
6	Byepass	Bypass	8.69	7.5	60

Source: PWD, Tarn Taran

Table 37: Details of various road cross sections in Tarn Taran LPA

Sr.No	Road Name	Cross section	Photograph	Description of Road
National Highway 15				
1.	Near Amritsar Chowk	 AT AMRITSAR CHOWK		- The surrounding landuse on both sides is residential cum commercial in nature as a result it attracts onstreet parking on the stretch. The vehicles parked include autos, two wheelers etc. - The road condition is average with potholes and uneven stretches. - During rainy season, there is problem of water logging which causes inconvenience and hampers smooth flow of the traffic.
2.	At Bohriwala Chowk	 AT BOHRI WALA CHOWK		- From this junction there are access roads towards Gurudwara Darbar Sahib and there is mixed land use along both sides of the road. - The cross sectional detail indicates encroachment on both sides of road upto 1.8mt by shops and onstreet parking. Hence, it is one of the most congested junctions. - However, condition of NH 15 as observed from this point ranges from moderate to bad, which results in hindrance in free flow of traffic movement and creates traffic congestion.

3.	Near Char Khamba Chowk	17.60 MTR ROAD  AT CHAR KHAMBA CHOWK		- Char Khamba Chowk comes next to Bohri wala chowk - The details indicate that the metalled width of the National Highway is 14 mt with a central median of 0.6 mt in comparison to the right of way of 17.6mt ,thus reducing the effective road width. Both sides of NH 15 have been encroached upon by parking of vehicles, shops and rehri.
Major District Roads				
1.	Jhabal/ Gandiwind Road	 AT JHABAL CHOWK		- This connects Tarn Taran to the town of Jhabal, which is an important settlement in vicinity of Tarn Taran town. The metalled portion is 7 mts with ROW of 12mts. - As the road enters the developed area, there is encroachment of shops, vehicles and informal markets on both sides of road which causes traffic congestion during peak hours. - At many places along the road, garbage is dumped creating unhygienic conditions. The types of vehicular traffic include rickshaws, cars and two wheelers. - There is no street furniture along the road.
2.	Goindwal Road	12.00 MTR ROAD  GOINDWAL ROAD		- This road starts from railway station near the Dera Baba Jeevan Singh Gurudwara and connects the town to the settlement of Goindwal Sahib in the southeast. - Major landuse along the road is residential cum commercial. This road has a carriageway of 7 mt. against the ROW of 12 mt. It also has paved shoulders of width 1 mt on both sides of the road. - Encroachment by informal rehri, vehicles etc. is observed on these paved shoulders on both sides. This creates problem for pedestrian movement adding to traffic problems.

Other District Roads				
3.	Jandiala Road	 JANDIALA ROAD		- Jandiala road connects the town area to the settlement of Jandiala in the northeast direction and has residential cum commercial use along it. - Because of encroachment observed on both paved shoulders and even beyond that upto 2mts, the effective road width is reduced. - The encroachment on both sides of the road lessens the metalled width upto 5mts. The encroachment by shops and onstreet parking on metalled part of the road creates problems in vehicular movement ultimately leading to traffic congestion at peak hours.
4.	Khadur Sahib Road	 KHADUR SAHIB ROAD		- This road starts from Jandiala road in front of the DC Office and connects the town to the settlement of Khadur Sahib in the east. - Because of encroachments, the effective road width gets reduced. The encroachment on metalled part of the road creates problems in vehicular movement leading to traffic congestion during peak hours. The nature of encroachment is primarily shops and on street parking.
5.	Byepass Road	 BYEPASS		- This existing bypass in the town starts from Amritsar chowk on the north and ends in south intersecting NH 15 near Majha College for women. This road has a carriageway of 7.5mt and ROW of 30mt. - Along this road, there is sparse residential development.

4.2.1 VEHICULAR GROWTH:

The table below shows the growth of vehicles in Tarn Taran town from the period 2004 to 2009. The table reflects 22% increase in number of two-wheelers in the year 2006-2007. The share of two wheelers among total number of vehicles in Tarn Taran town has also increased from 85% in the year 2004-05 to 87% in the year 2008-09. The increase in number of cars/jeeps in the period from 2004-09 has been very steep. The rising number of cars/jeeps indicates increased income levels of the people residing in the town (refer table 38).

Table 38: Growth of Motor Vehicles in Tarn Taran, 2004-2009

S.NO	YEAR	CATEGORY					
		Buses	Light motor vehicles	Two wheelers	Cars/ Jeeps	Tractors	Trailors
1	2004-05	-	-	4786	30	784	-
2	2005-06	-	-	4961	38	889	-
3	2006-07	6	5	6208	73	882	5
4	2008-09	12	8	6457	621	310	6

Source: Traffic Police, Tarn Taran

The personalized modes of vehicles such as two wheelers and cars together hold approximately 95.5% share of the total passenger vehicles in the year 2008-09. The number of buses have also doubled in the year 2008-09 from 2006-07.

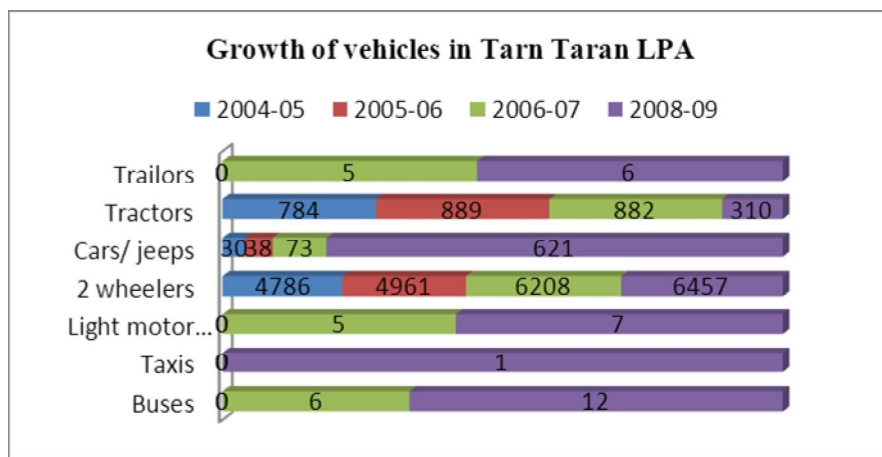


Fig no. 29: Annual Growth of Vehicles in Tarn Taran LPA

Having studied the vehicular growth in the Tarn Taran, the table below shows the peak hour capacity of the main approaching roads to the Tarn Taran which is as follows:

Table 39: Peak Hour Capacity on Main Approaching Roads in Tarn Taran Town

Sr.No.	Name of the Road	Peak Hour Capacity (PCU)	Timing
1	Amritsar-T.T Road (NH 15)	400	8-9 AM
2	Goindwal Road	100	8-9AM
3.	Nordic Road	110	8-9AM
4.	Old Patti Road	60	10-11AM
5	Jandiala Road	200	8-9 AM
6	Kazikot Road	50	8-9 AM
7	Road Rohi Kanda	15	9-10AM
8	Railway Road	200	10-11 AM
9	SBI Road	150	10-11 AM
10	Factory Road	30	10-11 AM

Sr.No.	Name of the Road	Peak Hour Capacity (PCU)	Timing
11	Muradpur Road	125	8-9 AM
12	Master Colony	45	10-11.30 AM
13	Circular Road	175	8-9 AM
14	Bath Road	120	10-11AM

Source: M.C.I., Tarn Taran

NH 15 has maximum volume carrying capacity at peak hour, which is of the order of 400 PCUs, next in order is Jandiala road with ROW of 55' and carriage way width of 30' and has peak hour capacity of 200 PCU followed by Railway Road (refer table 39).

Road Accidents:

To know the safety scenario of town in relation with increasing vehicular growth, road accident statistics needs to be studied.

The table 40 shown below illustrates the accident trend in the Tarn Taran LPA. It can be seen that the number of accident cases in the Tarn Taran LPA have gone up by 35% in the period from 2003-07. Nearly 65% of the accidents occurring in the Tarn Taran LPA are fatal in nature resulting in loss of life. The cause of accidents may be linked to growth of vehicles, encroachments reducing effective road width and improper road geometry.

Table 40: Trend of Accidents in Tarn Taran LPA in the Period from 2003-2007

Year	No. of accidents	Fatal	Non Fatal
2003	85	62	23
2004	78	55	23
2005	73	47	26
2006	100	74	25
2007	115	75	40

Source: Traffic Police Dept., data till Dec.2007

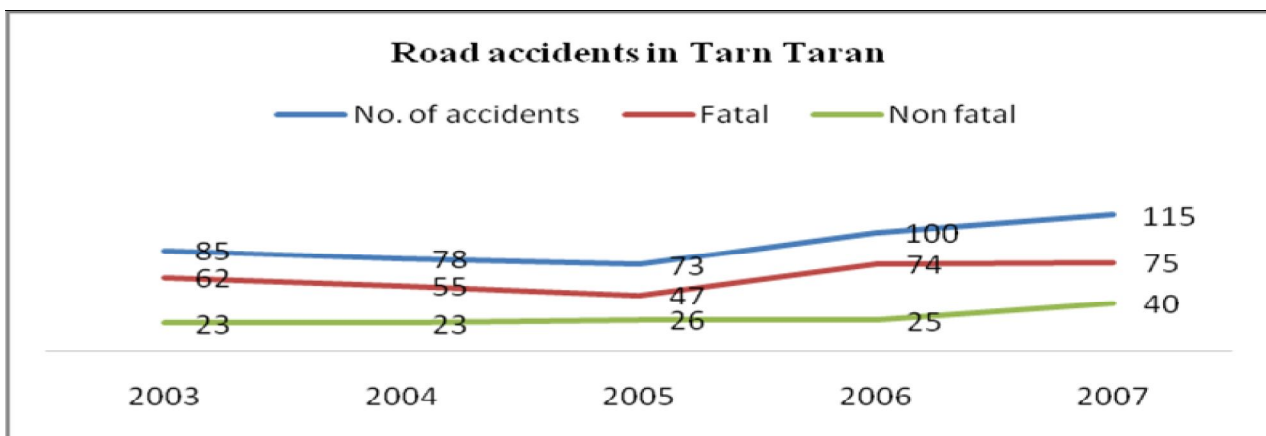


Fig no. 30: Road Accidents in Tarn Taran LPA

The Tarn Taran town has eight junctions in total, namely the Amritsar bypass, Bohri wala chowk, Charkhamba chowk, Jhabal chowk, Goindwal Sahib chowk, Jandiala chowk, Khadur Sahib chowk and Bypass Chowk in the southern direction. Though all of these junctions have the problem of traffic congestion and encroachment by rehriis and shopkeepers, the most

problematic and accident prone junctions are Amritsar Chowk and the Jhabal Chowk. A detailed study of these two accident prone junctions has been done which is explained below.

Table 41: Details of Accident Prone Junctions in Tarn Taran M.CI.

Accident prone Junctions	Details
Amritsar Chowk	NH- 15 is 10 m wide
	NH 15 bypass is 10 m wide
	City road is 7 m wide
	Jhabal road is 7m wide
Jhabal Chowk	Tarn Taran road is 7 m wide
	Attari road is 7 m wide
	Amritsar road is 7 m wide
	Khemkaran road is 7 m wide

Source: PWD, Central Division No. 2, Amritsar

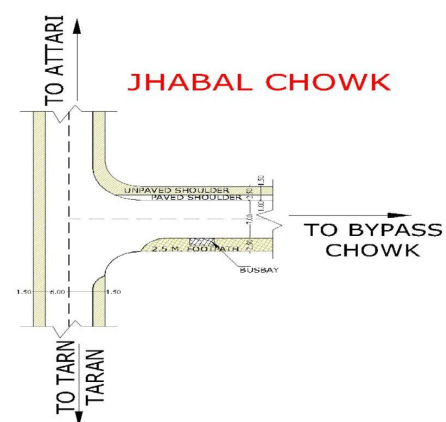
Jhabal Chowk

This junction lies on the north-western direction of the town on the Jhabal Road. It is a T-junction formed by Bypass with the road going to Jhabal. This junction has very sparse residential use along it and also has the facility of bus bay.

It is one of the main accident prone junctions of the town, because here the bypass road intersects the Jhabal road and has a sudden narrow ending creating a bottle neck. The carriageway of bypass is 7 mt with 1 mt paved shoulder on both sides whereas the Jhabal road is 6mt wide with 1.5 mt shoulders.



Fig no. 31: Jhabal chowk



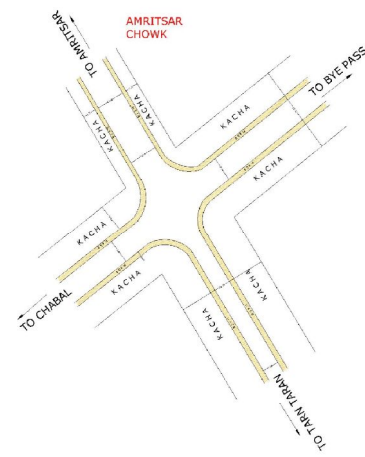
Amritsar Chowk

This junction lies on the northern side of the town. It is a cross junction with roads leading to Tarn Taran town on the south, Amritsar on the north, bypass on the east and bypass leading to Jhabal chowk in the west. This junction is most problematic due to varying widths of the roads meeting here.



Fig no. 32: Amritsar chowk

The Amritsar road has the carriageway of 10mts at the meeting point while it widens further to 11 mt. The bypass road has a carriageway of 9.6mt; similarly, the Jhabal road has the carriageway of 9.6mts. Road leading to the town has a ROW of 35.5 mts. The junction has the commercial use in its surroundings.



4.2.2 PARKING

Parking is another area of concern in TarnTaran LPA with in Municipal Council limits. With increasing number of vehicles, narrow roads, absence of parking spaces within majority of built areas, parking becomes critical for planning and development. Planning needs to include assessment and provisions for parking facilities near all commercial areas, hospitals etc.

There is no specific parking space provided in the town and thereby on–street parking is commonly seen. On major roads such as NH 15, private cars, scooters and rickshaws are parked on the street itself, thereby leading to traffic congestion and jams. Since the National Highway is acting as a backbone of the town, various important activities are located on this road.



Fig no.33: Parking in Palika Bazaar

This causes congestion and jams. The most problematic stretch on NH 15 is from bridge of Kasur Nallah to Char Khamba Chowk. The other area of concern is Bus stand. Outside bus stand since there is no separate parking space provided for autos and rickshaws, the carriageway width of adjoining road decreases from 7 mts to 5 mts which further causes traffic congestion, jams on roads, time delay and accidents.

Within M.Cl. there are only two organized parking spaces, one is a large parking space for tourists near Gurudwara and other is in a planned commercial area named Palika Bazaar on NH 15 near Char Khamba chowk. The Kasur drain passing through the M.Cl. area is being used for parking purpose.

4.2.3 TERMINALS

Study of the various terminals in the LPA as well as town in terms of various aspects like location, number, capacity are quite important as these act as nodal points in the transportation network.

Bus Terminal in Tarn Taran Town

The Bus terminal is located in the northeastern part of Tarn Taran town. Earlier the buses used to come to the central Bohri wala chowk, where the road width is less causing problems of congestion, accidents etc. Hence, bus stand is now shifted on the outskirts of town in front of the Industrial Focal Point on Bye-Pass on Jandiala road.

The area covered by bus stand is 8.42 acres. The buses move along all local and regional level routes. Frequent bus service is available on different routes operating from Tarn Taran town. The frequency of bus services is about 5-8 minutes. The details of number of buses plying on different routes are given below:

Table 42: Annual Bus Traffic Route-Wise (One Way) From Year 1999 To 2007 in LPA

Name of Roads	1999	2001	2003	2005	2007
Tarn Taran- Goindwal, Kapurthala	100	113	113	127	135
Tarn Taran to Khadur Sahib	72	80	80	80	82
Tarn Taran-Bikhiwind	77	85	90	102	104
Tarn Taran- Jandiala, Jalandhar side	105	125	130	147	157
Tarn Taran- Munda Pind	50	60	67	74	74
Tarn Taran- Chohla Sahib	52	53	53	70	78
Tarn Taran- Amritsar side	106	140	146	148	149
Tarn Taran- Jhabal Attari side	85	90	92	103	103

Source: Municipal Council, Tarn Taran

As shown in above table, in 2007, annual bus traffic from Tarn Taran was maximum towards Jalandhar side (157) followed by Amritsar (149) and towards Kapurthala (135). Bus traffic on all routes has shown an increasing trend year wise (1999-2007). This shows that Tarn Taran has good connectivity with surrounding urban areas.

For maintenance and repair of buses, there is Punjab Roadways workshop on NH 15 and a Bus Depot at the back of Bus terminal. Presently the entire system is being managed by State transport, but is not properly organized.

Further, 46% of the total villages falling in Tarn Taran LPA are connected with the bus service facility (refer table 43). The remaining 54% are devoid of the facility and people have to travel a distance of about 1-5 kms for availing the bus services.

Table 43: Bus Service in Villages of Tarn Taran LPA

	Bus service	
Villages of Tarn Taran LPA	Available	Not available
	46%	54%

Source: Town & Village Directory, Tarn Taran 2001

Transport Nagar

Presently there is no truck terminal or transport nagar in the LPA and the town. There are approximately 400-450 trucks entering the town per day back and forth, from different parts of India like Rajasthan, Maharashtra,



Fig no. 34: Truck parking along NH15

Gujarat, Bihar and also within Punjab. The trucks are parked on major roads such as NH 15. Hence, there is a need to have a well planned truck terminal/ transport nagar in the town.

Table 44: Truck Parking in Tarn Taran Town

Sr.No.	Roads Having Majority On Street Truck Parking	Road Width
1	NH 15	5mt of road width encroached upon on both sides
2	Bypass Road	
3	Grain Market Road	
4	Road to FCI Godown	

Source- Primary survey, SAI team, August 2009

Based on visual survey, on-street parking of trucks has been observed all along NH 15 and Bypass road, inside Grain market and on the road to FCI godown. This parking further reduces 5mts. of effective road width and hinders smooth flow of traffic on roads.

4.2.4 RAILWAYS AND AIR NETWORK

Rail Terminals

The Amritsar-Khemkaran railway line passes through the TarnTaran LPA. The railway track runs almost parallel to the NH 15 and crosses NH 15 at the southern end of town near Gurudwara Takkar Sahib. The Railway Station is located between Jandiala and Goindwal road in the eastern part of town near old anaj mandi and is approximately 2 Kms from Bus Stand.



Fig no. 35: View of Railway Station

Total number of passengers coming daily to Tarn Taran is about 600, which can be averaged as 1.5 lakh/ month. On special occasions like Amavasya Days when mela is held in the Gurudwara Tarn Taran Sahib, the passenger count increases upto 1800-2000/day. In one month on an average, there is an inflow of about 6-10 goods trains to the town depending upon demand from Food Corporation of India. The railway station has following amenities:

Table 45: Passenger Amenities Details in the Tarn Taran Railway Station

Amenities	Available	Required
Waiting hall (sq m)	544	0
Shelter (sq m)	144	0
Tap/ Hand Pump	8	1
Lavatories	6	1
Urinals	1	1
Seats	72	10

Source: Railway Station, Tarn Taran

There are number of level crossings, which cause traffic bottlenecks during peak hours. To ensure smooth traffic flow, there is need for provision of ROBs/underpasses within LPA at all the existing level crossings and for the new level crossing for all proposed roads. All existing level crossings are manned in Tarn Taran LPA.

Air Network

The nearest airport serving entire Tarn Taran LPA is Raja Sansi International Airport located at Amritsar, which is at a distance of 26kms.

Key Issues:

As per the secondary data available and primary survey done for the traffic and transportation aspect the key issues identified are:

- Locations of Bus Stand with in core area create enormous congestion.
- Intermixing of local and regional traffic causing congestion problems at peak hours.
- Increase in number of vehicles, no improvement in Road structure.
- Lack of city bus service.
- Inadequate parking spaces, leading to on street parking on all roads that reduces the effective road width.
- Majority of the roads have been encroached in the town by the Informal sectors and shops.
- Lack of footpaths along the roads, which have been encroached upon by informal shops.
- Absence of traffic lights at important junctions and roads
- Lack of awareness in public regarding traffic rules.
- No truck terminal in the town, unauthorized truck parking at NH 15 and Bypass.
- Railway line crossing the town creates traffic congestion and jams during peak hours.

CHAPTER 5

INFRASTRUCTURE AND SERVICE DELIVERY

5.1 PHYSICAL INFRASTRUCTURE

5.1.1 WATER SUPPLY

5.1.1.1 Sources of Water Supply

The main source of water supply for entire Tarn Taran LPA is ground water. The system of water supply is based on ground water, which is extracted through tube wells and supplied to the residents through a system of OHSRs. There are 14 tube wells that have been installed in the town for extraction of ground water to meet the water requirements of the residing population. This has resulted in falling water table in the area. The amount of ground water extracted daily is of the order of 13.10 MLD (refer table 46).

Table 46: Water Supply Details in Tarn Taran Town

No. of Tubewells	14
Total Amount of extracted ground water daily	13.10 MLD

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

Further, most of the villages falling in Tarn Taran LPA have water supply through tube wells and hand pumps and almost every village has a tap. Among villages, there are 23 tube wells serving 29 villages falling in Tarn Taran LPA. This shows that almost every village has one tube well except 6 villages which are connected to tube well of other villages for supply of water or are dependant on hand pumps or individual boreholes. The table below give details of the sources of water supply for the villages falling in Tarn Taran LPA.

Table 47: Sources of Water Supply within LPA Villages

Sr.No.	Source	No. of Villages Served	Remarks
1	Tube well	23	1 village is uninhabited
2	Canal	17	
3	Tap	27	
4	Wells	3	
5	Hand Pump	26	

Source: Town & Village Directory, Punjab, 2001

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. Further, there is need for adoption of strategies such as rainwater harvesting, recycling of the wastewater, minimizing the wastage in the water supply system and creating awareness among community for water conservation to minimize the pressure on ground water and recharge the ground water, which at present are absent. Hence, a provision should be made to make water-harvesting mandatory as part of building byelaws.

Area and Population Coverage:**TARN TARAN MUNICIPAL COUNCIL**

The total area covered by water supply network in Tarn Taran M.Cl is of the order of 70% with remaining 30% of the area being unserved (refer table 48). In terms of population coverage, the network is serving 90% of total M.Cl population. The population is served by 14 tubewells with average daily water production of 13.10 MLD (refer table 49).

Table 48: Area Coverage of Water Supply in Tarn Taran Town

Item	Area (%)
Covered Area	70%
Uncovered area	30%

Source: M.Cl., Tarn Taran

The table below gives details of water supply in the Tarn Taran M.Cl area. The population served by piped water supply includes service through the house connections, stand posts and independent institutional set ups. It has been observed from the table below that out of the 90% of the town population served by piped water supply, 92.3% of the town population is served by means of house connections only, with remaining 7.7% either having independent set up or being served by standposts. The remaining 10% of the population living on 30% of the town area is yet to be provided with the piped water supply network. The water is supplied on an average of 12 hrs per day to the residents in the town.

Table 49: Water Supply Information in Tarn Taran M.Cl. (2008)

Items	Percentage/No.	Remarks
Total Population (2008)	66075	
Population Access to Piped water supply	59468(90%)	
Population served by house connection	54910 (92.3%)	92.3% of population having access to piped w/s
Duration of Water Supply	12 hrs	
Un accounted Water	27%	
Total amount of Ground Water Extracted	13.10 MLD	Through tube wells
Average daily water consumption	9.60 MLD	
Water Demand per capita per day	135 LPCD	As per UDPFI Guidelines
Water Supply per capita per day (Supplied by M.Cl.)	58 LPCD	
Total No. of Tube Wells	14	
Total No. of OHSR	4	
Total No. of OHSR in Working condition	3	2.41 MLD

Source: Punjab Water Supply and Sewerage Circle Amritsar, 2008 and M.Cl., Tarn Taran

Despite the fact, the water extracted is higher (13.10 MLD) than the actual consumption (9.6 MLD), but the water available to the residents is of much lower order due to high wastage (about 27%) of the water supply which means 27% of the water extracted goes un accounted (refer table 49). In addition, it is also observed that per capita water supply made to the residents is less than the per capita demand for water supply. This wastage of water is a result of inefficient service delivery due to transmission losses old age of system, water leakage,

poor maintenance and lack of awareness on the part of community. Hence, 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. In order to improve the efficiency, it will be critical to reduce transmission losses besides creating additional capacity to meet the existing shortfall in the service.

Villages in LPA

Further, piped water supply is not restricted to urban sector only. Majority of rural settlements in Tarn Taran 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 23 tube wells serving 29 villages. Therefore, on an average one tube well serves up to maximum of 2 villages in LPA. The other sources of water supply in these villages include stand post, hand pumps, tap and individual boreholes.

Water Treatment:

There is no formal system of water treatment in operation in the settlements falling in Tarn Taran LPA 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.

Distribution System

At present, 100% of water is supplied through tube wells under dual system with or without intermediate storage. The water is extracted through tube wells and is stored in the Over Head Reservoirs from where it is supplied to the town (refer table 50). Out of the total 4 OHSR only 3 OHSR are in operation with a total capacity of 2.41MLD. Total length of distribution pipe is 65 km. in the town (2008).

Table 50: Type of Water Supply Network in Tarn Taran M.Cl.

Network System	No. of Tubewells	No. of Water Reservoir
System1-Direct Supply i.e.(without intermediate storage)	4	Nil
System2-Dual Supply system i.e. (with or without intermediate storage)	10	4

Source: M.Cl. Tarn Taran, 2009

Water Connections

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 Tarn Taran M.Cl. There are total of 5673 registered water connections in Tarn Taran M.Cl. and primarily the numbers of connections have increased in years 1990 and 2000.

Table 51: Water Connections in Tarn Taran M.Cl.

Year	No. of Water Connections
1970	654
1980	511
1990	1200
2000	1599
2002	109
2003	224
2004	123
2005	459
2006	593
2007	116
2008	85
Total	5673

Source: M.Cl.Tarn Taran

In comparison to commercial connections, there has been significant increase in number of water connections in domestic sector. Further, the water supply in entire Tarn Taran LPA 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.

KEY ISSUES

- 30% of the M.Cl area is devoid of piped water supply
- 10% of M.Cl population not covered by water supply
- High wastage due to water leakage, i.e 27%.
- Network problems due to obsolescence and aging.
- Limited water treatment based on chlorination
- Absence of water treatment plant in Tarn Taran LPA
- People are using private sources like hand pumps and submersible pumps which results in further lowering of water table. Since municipal authorities have no control on this, it is untreated and people are consuming water, which may not be fit for consumption.
- About 16.5% of the developed area is affected by inadequate pressure of water supply. This is the core area around the main Gurudwara, which is very old.
- There exists a high gap in the per capita supply of water with respect to per capita demand.
- Areas need to be identified where ground water recharge wells can be set up. It is essential to raise the level of ground water table as the level is going down at an increasingly fast rate in the whole of Tarn Taran district having an agrarian economy and farmers depend largely on ground water for irrigation of their crops. Mostly people are using private sources like hand pumps and submersible pumps. This results in further, rapid lowering of the ground water table.

- Need for exploring appropriate strategies and mechanism 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.

5.1.2 SEWERAGE SYSTEM

Provision of sewerage facility in the town is one of the basic function of municipalities/municipal councils. Providing sewage disposal network is mandated due to its impact on the quality of life and quality of environment. This section deals with the assessment of sewage system, sewage disposal and population coverage within Tarn Taran M.Cl. and LPA.

Area and Population Coverage

MUNICIPAL COUNCIL

The population served by sewerage system includes service through the house connections, and individual set ups. Approximately, 70% of the area and population is covered by sewerage system and remaining 30% is served through septic tanks/soak pits (refer table 52). Out of the population served, 93.3% of the town population is served by sewer connections while 5.7% of the population is served by individual set up.

The periphery of town is devoid of sewerage network facility. The population living in peripheral areas use septic tanks/soak pits as mode of sullage disposal. The sewerage pipes have been broken at many places leading to blockage especially in core area of town. 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. This lack of access of sewerage facility to population leads to degradation of environment and thus deteriorates the quality of life.

The total length of sewer line in Tarn Taran M.Cl is of the order of 68 kms, out of which the length of the main sewer pipeline is 6 kms and sub main sewer pipe line is 62 kms. Presently total average daily sewage flow is of the order of 9.80 MLD (refer table 52).

Table 52: Area and Population Covered by Sewerage System in Tarn Taran Town

Items	Percentage/Nos.	Remarks
Total Area Covered (M.Cl.)	70%	
Total Population access to sewerage network (M.Cl.)	70%	Population covered is 46250
Population served through sewer connections (M.Cl.)	93.3% (of 46250)	Population covered is 43150
Population served through individual set up (M.Cl.)	5.7% (of 46250)	Population covered is 2500
Population served through septic tanks	30%	Population covered is 22925
Total Generation in 2009(MLD)	9.8 MLD	@ 80% of water supply

Source: Punjab Water Supply and Sewerage Circle, Amritsar

To have a good livable environment total population must have access to proper sewerage system which is not so in case of Tarn Taran town. Lack of access to sewerage facility leads to unhygienic conditions in the town area, which further degrades the environment of town and spreads various diseases and effects the quality of life.

Further, in case of villages in Tarn Taran LPA, it has been observed that they too depend on septic tanks/soak pits for disposal of sewage in the absence of formal system. The system of open drainage also exists in these villages.

Sewer Connections:

It has also been observed that out of the total population having access to sewerage network, 93.3% of the population is having sewer connections (refer table 52). The table below shows the trend of sewerage connections in the Tarn Taran M.CI

Table 53: Sewerage Connections in Tarn Taran Town

Year	Sewerage connections
1990	410
2000	5244
2003	5590
2004	5690
2005	5840
2006	5972
2007	6425
2008	7465

Source: Municipal Council, Tarn Taran: 2009

With increase in population, the number of sewer connections within the town has also increased. However not a very rapid increase in terms of sewer connections has been observed, because no new sewerage lines have been laid in these years (refer table 53). The total number of existing sewer connections in the Tarn Taran is of the order of 7465.

Sewerage Treatment and Disposal System:

The total quantity of daily sewage generated in the Tarn Taran M.CI is of the order of 9.8 MLD. The method of disposal of night soil adopted is underground sewerage and septic tank latrines. In the absence of any sewage treatment plant, the sullage is directly pumped into nearby water bodies/drains i.e. Kasur Nallah and Muradpur drain which leads to water and land pollution due to leaching effect and causes foul smell.

Projects Ongoing and Proposed:

There is a proposal of construction of Sewage treatment plant under Sutlej Action Plan.

Key Issues:

- 30% of the area and population is devoid of sewerage system.
- The people have to resort to unhygienic methods like open pits privies, septic tanks and conservancy system leading to unhealthy living environment.
- Absence of sewage treatment plant in LPA
- Disposal of untreated sewage into the natural drains i.e Kasur nallah and Muradpur drain leads to pollution of land and water and causes foul smell.
- There is only one large size-intercepting sewer, which is used to collect and convey the entire sewage. Due to this reason, it is over loaded and often leads to overflowing, foul smell and unhygienic living conditions.
- Absence of recycling and reuse of waste water techniques.
- Large scale usage of soak pits, septic tanks and open drains for sullage disposal.

**Fig no.36: Open drain along road****5.1.3 STORM WATER DRAINAGE**

Major part of the city lacks provision of proper storm water drainage system, hence during heavy rains water logging is common. The area around Gurudwara and other parts of core city area are low lying facing severe flooding problems because of poor storm water drainage network. There is no proposal to solve the existing problems of the town.

Key Issue

Storm water drainage is a matter of concern for Tarn Taran town. The water logging problem, blockage of drain demands strong storm water network within the town.

5.1.4 SOLID WASTE MANAGEMENT

There is no provision of Solid waste Management in Tarn Taran LPA other than M.Cl. area. The solid waste management system in the town of Tarn Taran is the responsibility of Municipal Council Tarn Taran. The sanitary inspector of the council has been vested with the overall responsibility for management of solid waste. There are sanitary inspectors in the Council who organizes the collection and transportation of the solid waste through its own conservancy workers and a fleet of vehicles deployed. Municipal council sanitary branch workers are engaged in house to house collection of solid waste on day-to-day basis. There are Mohalla Sudhar Committees constituted at Mohalla level, which support the system through household contribution. Open dumping method for solid waste disposal results in

environmental pollution of surrounding area, causing land degradation, nuisance and attracts insects, rodents etc. thus leading to the spreading of diseases.

Generation

The total generation of solid waste in Tarn Taran M.Cl. is estimated to be of the order of 33.63 tonnes per day in 2009 calculated @ 250 grams per capita per day. This large amount of solid waste generated is disposed off on the landfill site located on the Sachkhand road.

Composition

Solid waste comprises of waste generated from different sources. Major sources of generation are individuals, households, industries, trade and commerce, hotels and restaurants, health care institutions including dispensaries, hospital, 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 to this large amount of waste is also generated by number of hospitals, dispensaries and other Health Care institutions that are operational in the town. The current addition is E-Waste generated from electronic products whose quantity is increasing in the town.

COLLECTION AND SEGREGATION

The present system of waste collection, segregation, storage and transportation practiced in Tarn Taran is primitive age old type. They are not in compliance with Municipal Solid Waste Rules 2000.



Fig no. 37: Garbage scattered outside bins

The waste in the Tarn Taran M.Cl is collected once in two days. At the household level, door-to-door collection of waste is practiced in some wards. The waste is collected through 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 in open trolleys which attracts mosquitoes and flies and give rise to foul smell. The table below (table no. 54) gives details of the collection points in different zones in Tarn Taran town.

Table 54: Details of Collection Points in Different Zones in Tarn Taran Town

Zones	Total Sites	Paved (Pucca)	Containerized Site	No. of Containers Places
Zone-A	10	10	4	4
Zone-B	09	05	4	4
Zone-C	10	06	4	4
Zone-D	07	04	3	3
Total	36	25	15	15

Source: Municipal Council, Tarn Taran, 2009

For the purpose of collection of solid waste, the municipal council area of Tarn Taran has been divided into four zones i.e. Zone A to Zone D. There are total of 36 collection points/sites identified in four zones in Tarn Taran M.Cl. out of which 25 sites are paved sites and remaining 11 are unpaved. Only 41.66% of the collection sites are containerized sites. The table given below indicates location of solid waste containers in different wards.

Table 55: Location of Municipal Solid Waste Containers in Tarn Taran Town

Ward No.	Location
1	Baath road, near DC Office
1,2	Shri Guru Harkrishan School (Bohri chowk to Bus stand)
3,2	Near Water Supply tubewell, Muradpura Abadi
3,4	Near Godown
4	Master colony backside Gurudwara
3	Near Sikander Singh Ex Sarpanch Haveli
4	Near Gurudwara Madhi Sahib on Goindal road
4	Gill resorts
4	Sirhali road near Sakija palace
17	Near park Sachkhand road
4 (also covering 18, 19, 12)	2 containers near SDM office on Sirhali road
17	Buhga road near drain bridge
15	Takkachatri mohalla
15, 13	Jhabal road near Khalsa school
13	Kusht Ashram
13, 14	Amritsar side, Darbar Sahib Sarai, Sukha Singh School
5, 6, 7, 8	Mata Ganga College
8, 9	Near the backside of civil hospital
11, 10, 9	Near hospital, Amritsar road
13	Near electricity office
8, 11, 10	Janta palace
10	Fateh Chak
11	Culvert on the Asr Road
4	Water tank in front of M.Cl.
5	Railway Road
4	Old Mandi

Source: Municipal Council, 2009

Segregation:

Most of the inhabitants of town are habituated to salvage re-saleable material from waste such as newspaper, glass bottles, empty tins, plastic bags, old clothes etc. 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. There is no segregation process carried out at the source as such.

There is no system of waste segregation as all degradable, non-degradable, recyclable and non recyclable refuse is being collected and dumped directly without any recycling on open land demarcated 1.5 kms away from the town centre. The town has a civil hospital and various nursing homes, which leads to the generation of biomedical waste.

Transportation

For the transportation of the solid waste from the collection centre to the disposal site, Tarn Taran M.CI has deployed number of vehicles, details of which is shown in the table below (refer table 56).

Table 56: Details of Fleet Deployed For Waste Collection in Tarn Taran town

Type of Vehicle	Scheduled Vehicles	Available Vehicles	No. of Shifts	Waste Collection in MT
Machinery	Tractor+ Trolleys (2 no.s)	1	4	2.00
Machinery	Dump Placer	1	8	2.00
Manual	Wheel Barrows	35	1	0.50
	Rickshaw	10		

Source: Municipal Council, Tarn Taran, 2006

From the table above, it has been analyzed that machine-operated vehicles collect 4.0 MT of waste, while 0.5 MT of waste is collected manually. These vehicles are used for primary collection of waste from the community bins and its transportation to designated landfill site. The table below gives detail of the manpower deployed for solid waste management in the Tarn Taran M.CI.

Table 57: Existing Manpower Deployed for Solid Waste Management in Tarn Taran Town

S. No.	Name of the Official	Number
1	Sanitary Inspector	1
2	Sanitary Supervisor	2
3	Sewadars	1
4	Safai Sewak (Full Time)	66
5	Safai Sewak (Contract)	4
6	Safai Sewak (Daily wages)	1
7	Driver	2
Total		77

Source: Municipal Council, Tarn Taran, 2009

Nearly 77 employees of various designations have been assigned the work of solid waste management in the town (refer table 57). It includes Sanitary Inspector who inspects and directs the collection and disposal of the solid waste in the town.

Disposal

Tarn Taran Municipal Council practices open disposal of waste without undertaking any pre-treatment of the waste at a landfill site i.e. an open land near Sachkhand road. The open dumping of waste results in environmental deterioration of the surrounding areas due to bad odour and breeding of mosquitoes and flies. The details of landfill sites for disposal of solid waste in Tarn Taran M.CI is given in the table below:

Table 58: Location of Landfill Sites in Tarn Taran town

S. No.	Site	Size (ha)	Distance (km) from city centre	Average Depth (in ft)
1	Near Sachkhand Road	0.20	1.5	8

Source: M.Cl. Tarn Taran, 2009

In this landfill site, garbage needs to be compacted and covered by layers of earth but it is not done frequently. As a result, this site which was initially a low lying area has been rapidly filled up. Since layers of earth do not cover the garbage, leaching occurs during rains. The rainwater washes away garbage into drains causing land and water pollution. If the landfill method is properly and scientifically carried out then this land can be reclaimed and developed.



Fig no. 38: Open Garbage Dumping near Nallah

For this purpose, two sanitary supervisors are involved to manage the landfill site located near Sachkhand Road. They work for a period of eight hours per day and primarily assist in tipping the solid waste from the vehicles at an appropriate location and then getting the waste spread to avoid large heaps on site etc. In the town due to lack of adequate solid waste management and awareness amongst the citizens, big heaps of garbage can be seen at various places especially along the drains and roads such as railway road.

Ongoing and Proposed Projects

A landfill site of area 1.75 hectares has been earmarked by M.Cl. and it is in the process of getting approved.

Key Issues

- 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.
- Inadequate and out dated collection and storage infrastructure in use by M.Cl.
- Unhygienic condition of dumping sites and absence of scientific system of landfill management.
- Lower level of collection of solid waste generated on daily basis.
- There is no arrangement for segregation of degradable, non-degradable, recyclable and non-recyclable refuse.

5.1.5 POWER AND ELECTRICITY

Area & Population Coverage

The entire urban and rural settlements falling in the Tarn Taran LPA is served by electricity network. Tarn Taran town has recorded considerable increase in the demand of electricity and no. of electric connections.

Distribution Network:

At present, hydroelectric power from Bhakra Nangal Project is being utilized for feeding Tarn Taran town and other rural settlements. The town is connected to the state grid of electricity, served by both hydroelectric and thermal power. The state grid is further connected to National Power Grid. The distribution of power is managed by Punjab State Electricity Board and office is located at the local level.

There are 35 electric substations of capacity 66 KV and 3 electric substations of capacity 220 KV in the Tarn Taran jurisdiction of PSEB, serving the Tarn Taran LPA. The Industrial Focal point has its own 66 KV Electric substation of approx. area of 3.3 acres. However, the demand is outstripping supply, leading to number of power cuts in the residential and industrial segments causing inconvenience and considerable loss of productivity. The detail of electric sub stations in Tarn Taran LPA is shown in the table below (refer table 59):

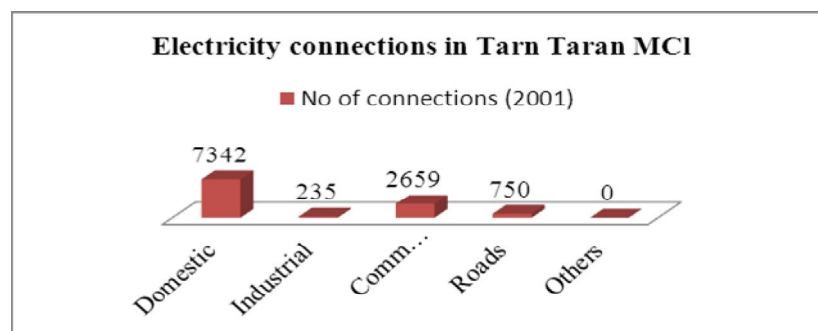
Table 59: Details of Electric Substation in Tarn Taran LPA

Sr. No.	Location of Electric Substation	Capacity of Electric Substation
1	Tarn Taran M.Cl.	132 KV
2	Bala Chak village	400 KV
3	Industrial Focal Point	66KV
4	Gohalwar village	66 KV
5	Sheron	11kv
6	Pandorigola village	11KV

Source: PSEB, Tarn Taran

Over the years, Tarn Taran has recorded considerable increase in the demand of electricity and number of electricity connections. As per census 2001, the number of electric connections is highest for domestic use i.e. 7342 connections followed by 2659 connections for commercial use. The existing number of connections for different uses is depicted as under.

Fig no. 39: ELECTRICITY CONNECTIONS IN TARN TARAN M.Cl.



Source: Town & Village Directory and District Census Handbook, Tarn Taran, 2001

Projects Ongoing and Proposed

There is a proposal of setting up 8 electric substations of capacity 66 KV and one substation of capacity 220 KV at various locations in Tarn Taran jurisdiction of PSEB. However, out of these, one electric substation of capacity 220 KV will be within suburban zone of Tarn Taran LPA.

Key Issues

- There is a huge gap between demand and supply in Tarn Taran LPA
- There is large number of illegal electricity connections in the town.

5.2 SOCIAL INFRASTRUCTURE

Social infrastructure refers to facilities in respect of education, 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 widens that deteriorates the quality of life in urban areas, hence it is an important component of planning.

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.

5.2.1 EDUCATIONAL FACILITIES

Educational facilities are vital for any settlement to grow in terms of literacy, skill up gradation and improving the 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 has been found to be major determinant and promoter of growth and development of any settlement and nation. Accordingly, providing appropriate level of education facilities is extremely important.

Institutional Network

The figure below gives details of number and type of educational facilities present in Tarn Taran LPA.

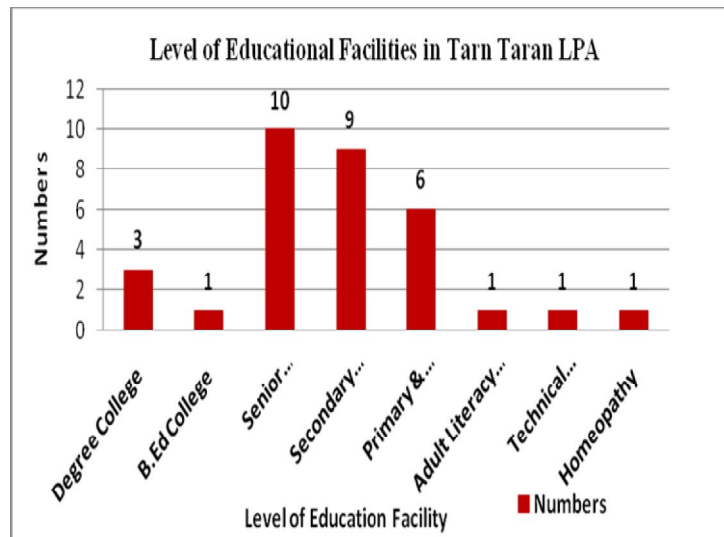


Fig No. 40: Educational Facilities in LPA

The Tarn Taran LPA and M.Cl. overall is well served by fair number of secondary and higher secondary educational institutions but it lacks facilities for higher education. The town has three degree colleges; one for Arts, Commerce and science, one B. Ed. College and one homeopathy college which serves the higher educational needs of the population in Tarn Taran LPA . There also exists one technical institution in Kadgill village in Tarn Taran LPA.

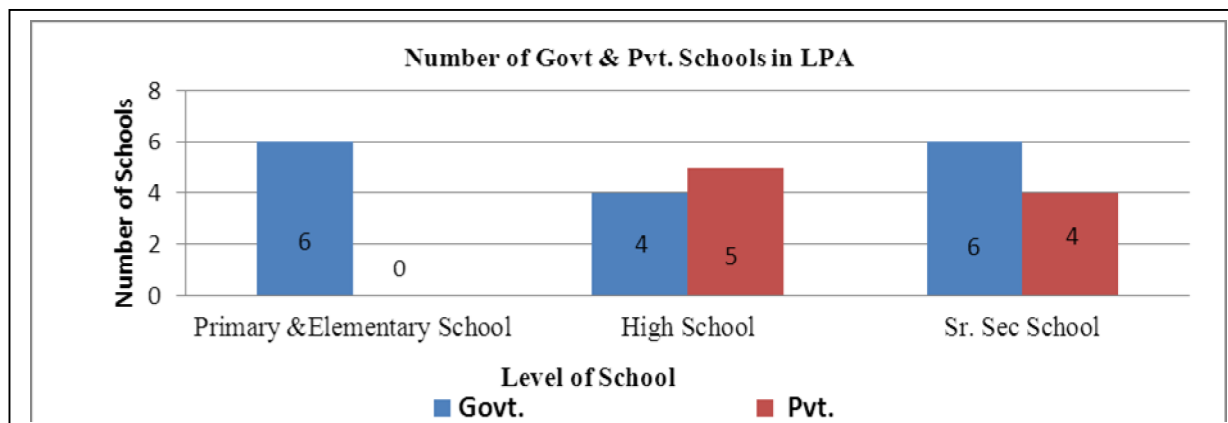


Fig No. 41: Government & Private Educational Facilities in Tarn Taran LPA

Table 60: Location of Educational Facilities in LPA Villages

	Primary Schools	Sec. Schools		Sr. Sec. schools	
		Govt.	Private	Govt.	Private
Number	6	4	2	4	Nil
Name of villages	Daburji, MughalChak, Kadgill, Bohga, Chatala Rasulpur	Gohalwar, Rataul, Palasaur, Sheron	Pandori Ran singh, Pididi	Thathi, Pandori Ran singh, Pandorigola, Allahdinpur	Nil

Source: District Education Office, Tarn Taran

Tarn Taran Municipal Council has following educational facilities:

Sr. Sec. Schools	6 (2 are Govt. and 4 are Pvt.)
Secondary schools (Pvt.)	3
Degree Colleges	3
B. Ed College	1
Homeopathy	1

The new educational facilities should be proposed in light of distribution of existing educational facilities. Most of these educational institutions are located within old city on narrow streets surrounded by mixed land uses. During peak hours the colleges/ schools creates traffic congestion on roads, because of non-availability of required parking spaces.

Spatial Distribution:

The facilities in terms of education are unevenly distributed. The schools are located on narrow streets surrounded by mixed land uses. At peak hours the location of the institutes especially schools are the root cause of traffic congestion on roads because of its locations. Some of these schools do not have proper playgrounds and other infrastructure. Even the condition of the building/rooms is not good.

Key issues

- Distribution of educational facilities in the town needs to be considered.
- Traffic congestion is caused by few educational institutions, which are sited in congested areas.
- Owing to unavailability of higher technical education facilities, students have to travel to Amritsar for technical education.

5.2.2 HEALTH FACILITIES

Provision of adequate medical facilities will definitely improve the quality of life of inhabitants of the town. The residents should have easy access to adequate medical facilities as shown in table below.

Table 61: Medical Facilities in LPA villages

Mini Primary Health Centre		Health Centre			
No.	Villages	No.	Villages		
2	Pandori Ran Singh, Rataul	10	Gohalwar, Behla, Bohga, Pandori Ran singh, Rataul, Kadgill, Pandorigola, Muradpura, Nallagarh, Palasaur		

Source: Town & Village directory, Tarn Taran, 2001

Institutional Network:

Tarn Taran LPA and town has significant number of medical facilities (refer table 62). In the town, Civil hospital is the main government hospital. This is located on National Highway covering an area of 3.57 Ha adjoining nallah. Although, this hospital caters to the



Fig no. 42: Civil Hospital

requirement of the residents of the town as well as the surrounding villages; the number of beds is inadequate.

Table 62: Medical Facilities in Tarn Taran Town

Medical Facility				
Govt. Hospital	Private Hospitals	Dispensaries	Family Welfare Center	Nursing Home
4 (210 beds)	21	2	1	1(5 beds)

Source: CMO Office and District Census Handbook, Tarn Taran, 2001

The health scenario of the Tarn Taran town depicts that the town is having 4 government hospitals and 21 private hospitals. The Civil Hospital Tarn Taran is the main health institution catering to the needs of the residents. There are 2 dispensaries, 1 family welfare centre and 1 nursing home. As per municipal council, there are 20 Nursing homes to cater to the requirements of local residents. In villages of Tarn Taran LPA, there is no hospital and have to depend on the town. There are 2 Primary Health centres in town. For specialized higher level health facilities, Tarn Taran is depending on Amritsar.

Civil Hospital is centrally located in Tarn Taran town with accessibility from NH 15. It is the main medical facility in the town with 60 beds. There is existing parking facility but it is insufficient. The segregated waste of hospital is disposed off by the private agency every day. The hospital presently serves at the district level but is not sufficient. There is a need of increasing the capacity or providing the new hospital for the town since it is serving 30 settlements of the total LPA as well. The villages falling within lower portion of LPA lacks medical facilities.

Spatial distribution:

There is uneven distribution of health related facilities that are mostly located in the central part of the town. In addition, private sector should be encouraged to provide for Super Specialty Services in order to facilitate the provisions of health services at local level. Existing health services in the government sector requires considerable up gradation for improving their capacity to provide desired level of services to the people.

Key Issues

- Medical facilities are not distributed adequately within LPA and fringe areas of the town lack medical infrastructure.
- Government facilities are not significant. Govt. is having 1 % share in comparison to private health facilities. This trend will lead to widening of gap regarding provision of facilities between rich and poor. Therefore, it is preferable that facilities must have adequate government share so that population from all segments of society will have easy access.

5.2.3 PUBLIC SPACES /RECREATIONAL SPACES

Tarn Taran LPA lacks in the provision of planned public spaces/recreational spaces. There are only two major parks, one stadium and one town level ground existing in the town. As per the primary survey conducted of these major parks, stadiums and grounds the situation is as follows:

a. City Level Parks: The town lacks in the presence of city/town level recreational and open spaces which deteriorates the quality of life in town. There is only one public park in town i.e. Gandhi Park, the other town level park which was proposed under IDSMT scheme is not being utilized presently.

1. **Gandhi Park:** The town has very few parks of which Gandhi Park is one, which is situated almost centrally in the town behind Old Anaj Mandi. It covers an area of 1.6 Ha. It lacks in the provision of public facilities such as parking, public toilets and drinking water. The park is not maintained properly.



Fig no. 43: Town Park

2. **Town Park:** this park was made under IDSMT Scheme on the southern end of town. The location of the park is not appropriate as it is located next to garbage dumping and cremation ground, hence people do not prefer to come here and it remains under utilized .

b. City Ground: There is only one city level ground, which is being used for various city level functions in the town i.e. Dusshera Ground. It is located at the back side of Gandhi Park. This ground is used for melas also.

c. Stadium: There is a stadium near Cattle Fair Ground on National Highway towards Amritsar and it is being used at regional level.

Spatial distribution

In terms of recreational spaces, the existing facilities are highly inadequate and not well configured within the distributed areas.

Key issues:

- Limited availability of open spaces in town
- Uneven distribution of open spaces
- Lack of open spaces in the old/core areas
- Town lacks enough community halls or venue hires and thereby school spaces in the town are used for functions.

5.2.4 SOCIO-CULTURAL FACILITIES

Places of recreation, specialized institutes, and clubs will provide new avenues for the residents to spend their leisure time for productive purposes enhancing their capabilities as well as for specific occasions. The table below gives detail of various socio-cultural facilities present in Tarn Taran LPA as well as in Tarn Taran M.Cl.

Table 63: Socio Cultural Facilities in Tarn Taran LPA and M.Cl

Sr. No.	Facilities	Number		
		M.Cl.	LPA	Total
1	Community Halls	1	0	1
2	Recreational and Cultural Facilities	3	53	56
3	Cinema hall	1	0	1
4	Reading Rooms	1	0	1
5	Public Library	1	0	1
6	Banks	12	50	62
7	Non Agricultural Credit Societies	22	1	23
8	Agricultural Credit Societies	0	19	19

Source: Town & Village Directory, Tarn Taran, 2001

The socio-cultural facilities present in LPA include 50 banks spread across all the villages in LPA, out of which 4 are commercial banks and 4 are co-operative banks.

There is also presence of both Agricultural Credit Societies and Non Agricultural Credit Societies in the Tarn Taran town and LPA. The presence of these societies ensures easy availability of finance for the farmers for agricultural and non-agricultural use.

It is evident that very few socio-cultural facilities exist in town in terms of community halls, playgrounds, reading rooms and cinema halls etc. The existing facilities in town are listed below:

- Government Library near Gandhi Park located on a minor road.
- Cinema Hall - Pratap Cinema located on NH 15 with a seating capacity of 700 people.

There are total of 14 banks (2006) in Tarn Taran municipal council area, which includes three branches of Punjab and Sindh Bank, one Central Bank of India, one cooperative Bank, SBI, State Bank of Patiala, PNB and other commercial Banks.

Spatial Distribution:

The Tarn Tarn LPA lacks in the provision of adequate and quality socio-cultural facilities and whatever is present in the town is unevenly distributed. Hence, development of more community rooms/halls, recreational clubs, meditation halls, spiritual center, drama and dance center is required on priority basis.

Key Issues

- Inadequate distribution of socio cultural activities.
- Children are lacking in intellectual growth because of the socio-cultural deprivation.

- The town lacks in recreational facilities such as cinema halls, playgrounds etc.

5.2.5 CIVIC AMENITIES/SERVICES

The other amenities in the town include Post Offices, Fire Stations, Cremation Grounds etc. Each urban area must have these amenities to serve its growing population. As the town expands, and its function increases and so do the requirement for such amenities. Civic amenities existing in the town are described below:

POSTAL AND COMMUNICATION FACILITY

Post Office:

There are 10 branch offices in different villages of Tarn Taran LPA .The Tarn Taran town has one head post office, one sub post office (refer table 64). There is no telegraph office in town and about 18 letter boxes.

Table 64: Post Offices in Tarn Taran LPA

Sr.No.	Name of facility	Existing No.	Location
1	Head Post office	1	Tarn Taran M.Cl.
2	Sub post office	1	Tarn Taran M.Cl.
3	Branch post office	10	Pandori Ran Singh, Gohalwar, Rataul, Behla, Kadgill, Pandorigola, Palasaur, Chautala, Rasulpur and Sheron.

Source: HPO, Tarn Taran

Telephone Facility:

There are about 271 PCOs and no. of telephone connections are 7840 in town.

CREMATION AND BURIAL GROUND

The Tarn Taran town has 1 Burial ground on Sachkhand road and 3 cremation grounds in the south of town near Gurudwara Sri Tarn Taran Sahib (refer table 65). These grounds serve the entire town as well as local planning area of Tarn Taran.

Table 65: Cremation and Burial Grounds in Tarn Taran Town

Facility	No.
Cremation Ground	3
Burial Ground	1

Source: Town & Village Directory, Tarn Taran, 2001

Apart from various religious structures existing in the town, few important ones include Darbar Sahib, Guru Ka Khuh, Madan Mohan Temple, Shani Mandir, Church. There are also various deras and Satsang Bhavans in the town like Radha Swami Satsang Bhavan, Dera Baba Jiwan Singh Gurudwara, Dera Satkartar Singh, etc.

Table 66: Religious Facilities in the Tarn Taran Town

No.	Temples	Gurudwaras	Chruches	Makbaras
	3	4	1	-

Source: Primary Survey, SAI team, August 2009

FIRE STATION

Tarn Taran town lacks fire fighting facility. This need is served by the nearest metropolitan town of Amritsar, which is at the distance of 25 kms from the Tarn Taran town. There is no fire station in the town. The fire hydrants are located at three locations in town

- Char Khamba Chowk
- Mahi Chowk
- Nange Paran Wala Chowk

Location of stand post for Fire Brigade:

- Gandhi Park -3
- Tubewell – Kazikot Road

POLICE STATION

There is only one police station existing in the Tarn Taran, which is located on NH 15 near M.Cl.

Key Issues

- Shortage of civic amenities in the town.
- Irrational distribution.
- Absence of any new proposal.
- 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 core city area in case of fire in buildings.

CHAPTER 6

ENVIRONMENTAL STATUS

Environmental problems faced by the inhabitants of Punjab, its causes and pressures can easily be traced back directly or indirectly to the pattern of development of the 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 they are positioned.

In a very broad sense, the urban environment consists of resources, human and other processes in the town that convert these resources into various other useable products and services and effects of these processes, which may be negative or positive. With the inevitable danger of overlap and generalization, following three dimensions have been identified in urban environments i.e., Natural Environment, Built Environment, and Socio-economic Environment.

6.1 POLLUTION: GENERATION AND CONSEQUENCES

Air Pollution:

Tarn Taran LPA consists of industries. As far as wind direction is concerned various small, medium and large-scale industrial units such as leather, rice shellers, and saw mills are located in the windward direction and near to the residential area. These industries release its intensive air pollutants directly in the air in the windward direction that adversely effects the population and living environment residing in 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.

At town level, one of the major areas of environmental concern is air pollution. It is caused due to various anthropogenic activities such as narrow streets carrying huge volume of traffic leading to frequent jams, large number of vehicles on road in the absence of public transport, use of kerosene as the fuel etc. The major areas having the problem of vehicular pollution in the town are Central Chowk, Bohri Wala Chowk, Char Khamba Chowk, Amritsar Chowk, Jhabal Chowk etc. Vehicular pollution along the stretches is maximum upto a distance of 100 meter from major corridors.

Surface Water Resources & Water Pollution:-

There are two distributaries (Asal and Daburji), one branch (Sabhraon Branch), one minor (Jodhpur), one drain (Muradpur drain), one nallah (Kasur Nallah and a Sarovar existing within the Tarn Taran LPA. Among these, Kasur Nallah and Muradpur drain carries the

maximum quantity of untreated sewage and industrial effluents generated within the town and LPA. The level of pollution in these Nallah and drain is extremely high. Due to unhygienic condition and poor sanitation activities in Nallah and drain, it favours vigorous spread of mosquitoes and water borne diseases.

Surface Water Resources

Sabhraon Branch: - In the Southern part of Tarn Taran LPA, Sabhraon Branch flows from North East to West. Within the LPA, it crosses the villages namely Sange, Allahdinpur, Rasulpur, Pididi etc. During rainy season, channel of branch both in upstream and downstream side within the LPA carries its maximum capacity of water.



Fig No.44:- Upstream of Sabhraon Branch near Sange village



Fig No. 45:- Downstream of Sabhraon Branch

Asal Distributory: - This distributory originates from Sabhraon Branch at Allahdinpur village within the LPA. It serves the villages such as Allahdinpur, Chatala and others within the LPA. During rainy season, channel of distributory within the LPA carries sufficient quantity of water.



Fig No. 46:-Asal Distributory

Jodhpur Minor: - Jodhpur Minor originates from Asal Distributory at Allahdinpur village within the LPA. It serves the villages such as Jodhpur and Bugha. During rainy season, the minor carries sufficient quantity of water.



Fig No. 47:-Jodhpur Minor

Daburji Distributory:- This distributory originates within the LPA and serves the villages of Mughal Chak, Kakka Karyala, Kazikot, Kaironwal etc. During rainy season, channel of distributory carries sufficient quantity of water.



Fig No. 48:- Daburji distributory

Surface Water Pollution: - Rapidly increasing urbanization and industrialization of Tarn Taran has not only adversely affected the quality of ambient air in the town but also has affected the town's water resources. Kasur Nallah and Muradpur drain within the town and its LPA are the major recipient of town's untreated sewage and industrial effluents. Further, dumping of solid waste, ash from burnt rice husk etc. cause contamination of underground water, unhygienic conditions, foul smell and dampness. The level of pollution in this nallah and drain is extremely high.

Kasur Nallah: - Kasur Nallah flows from North East to West. Within the LPA, it crosses many villages namely Behla, Mughal Chak, Malia, Kakka Karyala, Palasaur etc. This Nallah carries untreated sewage and industrial effluents and storm water during rainy season. Kasur Nallah is full of weeds, shrubs, polythene bags, plastics, other domestic refuse, untreated sewage and industrial effluents, hazardous waste, biomedical waste and contains heavy silts, mud, cow dung etc.



Fig. No. 49:- Upstream of Kasur Nallah



Fig. No. 50:- Downstream of Kasur Nallah

Along the downstream of nallah, residential areas face objectionable odour and nuisance. Upstream of the Nallah (rural areas) within LPA is less polluted in comparison to downstream of the Nallah that passes through urban areas. Further, it has also been observed that the ground water characteristics of private hand pump have deteriorated largely in the residential areas/colonies located 100 mts away from the Nallah within LPA.

The colour, odour, taste and presence of fine suspended particles are the cause of objection for their potable use. The colour of water is yellowish, odour is objectionable and suspended particles can be visualized by naked eye. Residents are using overhead reservoir water (Municipality) for their drinking water requirements.

Muradpur Drain: - Muradpur drain flows from South East to North West direction within the LPA. It enters into the LPA boundary from South East region of the Tarn Taran and after flowing upto a certain distance, it merges into Kasur Nallah near Kazikot village. Within the LPA, it crosses many villages namely Sange, Pandori Gola, Bachre, Bohga, Palasaur etc.

The drain is carrying untreated sewage, industrial effluents and waste materials, containing weeds, shrubs, silts and mud. The flow of drain is relatively high in its downstream side and causes strong odour and nuisance along its course.

Further, the ground water characteristics of private hand pump have been observed to be deteriorated in the residential areas/colonies located 100 mts away from the Nallah in the LPA.



Fig.No. 51: Downstream of Muradpur Drain



Fig. No. 52: Upstream of Muradpur Drain.

The colour, odour, taste and presence of fine suspended particles are the cause of objection for their potable use. The colour of water is yellowish, odour is objectionable and suspended particles can be visualized by naked eyes.

Affected Zone:- On the basis of broad primary survey various affected zones such as health affected zone, odour zone and mosquito zone have been calculated for Kasur Nallah and Muradpur drain is flowing within the Tarn Taran town and LPA. This further is supported by the focus group discussion (FGD) held in the affected villages. Various affected zones for the Nallah and drain in terms of their percentage of area and population affected within the LPA is summarized in the table no. 67 and 68.

Table 67:- Health Affected Zone, Odour Affected Zone & Mosquito Zone of Kasur Nallah

Health Affected Zones			
Health Affected Zones	Distance from the Source	% of Area Affected	% of Population Affected
High effected zone	Upto 1000 meters	17.61	17.61
Odour Affected Zones			
Odour Zones	Distance from the Source	% of Area Affected	% of Population Affected
High odour	75 meter	1.16	1.17
Moderate odour	76 to 280 meter	3.19	3.19
Low odour	281 to 350 meter	1.07	1.08
Mosquito Zones			
Mosquito Zones	Distance from the Source	% of Area Affected	% of Population Affected
High affected	Upto 150 meters	2.63	2.63
Moderate affected	151-500 meters	6.14	6.14
Low affected	501-1000 meters	8.77	8.78

Source: Primary Survey, SAI team, August 2009

Note: Percentage of area and population is based on the total area and population of the LPA. Odour zone is calculated only for those areas, which are affected by Nallah (downstream of the LPA).

Accordingly, based on above calculation and observations there is requirement of regular cleaning and desiltation of Kasur Nallah and Muradpur Drain and further policy decisions to relocate the industrial zones on the right path. Besides, buffer zones/green areas is required to be provided all along the drains.

Table 68: Health Affected Zone, Odour Affected Zone & Mosquito Zone of Muradpur Drain

Health Affected Zones			
Health Affected Zones	Distance from the Source	% of Area Affected	% of Population Affected
High Effected Zone	Upto 1000 meters	14.36	14.36
Odour Affected Zones			
Odour Zones	Distance from the Source	% of Area Affected	% of Population
High Odour	60 meters	0.66	0.66
Moderate Odour	61 to 260 meters	2.17	2.17
Low Odour	261 to 325meters	0.70	0.70
Mosquito Zones			
Mosquito Zones	Distance from the Source	% of Area Affected	% of Population Affected
High Affected	Upto 150 meters	2.14	2.14
Moderate Affected	151-500 meters	5.00	5.00
Low Affected	501-1000 meters	7.16	7.16

Source: Primary Survey, SAI team, August 2009

Note: Percentage of area and population is based on the total area and population of the LPA. Odour zone is calculated only for those areas, which are affected by drain (downstream of the LPA).

GROUND WATER POLLUTION:

The degradation of the ground water have been caused due to pollution of Kasur Nallah and Muradpur drain. The seepage of polluted water from these nallahs/drains and the industrial waste has led to the pollution of the ground water sources. 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 Kasur Nallah and Muradpur drain and other adjoining villages are found exposed to water borne diseases due to polluted ground water.
- ii) Considerable level of ground water pollution exists upto a depth of 100 ft. along the 1000 meters belt on either side of Kasur Nallah and Muradpur Drain. The characteristic of water is found to be unsuitable for supporting aquatic life.
- iii) Hand pumps and shallow tube wells drawing water from first aquifer are found susceptible to ground water pollution in areas close to industrial units and Kasur Nallah and Muradpur Drain.
- 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 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.

Noise Pollution:- Increasing urbanization, overcrowding, industrialization and high density of traffic and transportation comprising pedestrians, market goers, concentration of two wheelers, three wheelers, cars, buses, trucks etc in Tarn Taran town has resulted in increased noise levels in the environment leading to noise pollution. Construction work also plays an important role in causing noise pollution.

The noise pollution is not limited to the traffic only but use of loud speakers by the religious institutions and during the marriage/festivals has also added to the quantum of pollution. The use of generators by the residential, commercial and industrial establishments has also added to the pollution level in the town. Vehicle horn is one of the major causes of noise pollution in the residential areas. Jandiala road is the second most noise-polluted road. Another source of noise pollution is the presence of industries on road to Sarhali and focal point.

Key Issues for Management of Pollution: - Following are the main issues for pollution control:

- Insufficiencies in periodic monitoring and assessment of ambient air quality, ambient noise level, surface and ground water quality at various points of industrial, residential and sensitive areas.
- Excessive exhaust from fuel-fired construction equipments and DG sets.
- Excessive vehicular exhausts from traffic and transportation.
- Fugitive dust generated due to shifting of construction materials (cement, sand, bricks and gravel) and from concrete preparation unit while material charging.
- Long term excess withdrawal of ground water causes depletion of ground water table and local hydro geological impacts.
- Higher mineralization due to long-term withdrawal of ground water.
- Minor importance on maintenance of traffic units, industrial units and construction equipments causing noise level above the permissible limits.

6.2 FLORA-FAUNA & VEGETATION COVER

Flora: - The native and other flora species in Tarn Taran LPA includes trees and shrubs, grasses, riverine forest etc.

List of Trees Recommended by the Chief Town Planner vide letter no. 4473-91 CTP (PB)/SP-479 dated 5/6/2009

It was recommended to plant various types of trees along the major roads, railway lines, canals, distributories and other vacant government lands etc. The list is given as Annexure (III).

Trees and Shrubs: - The flora of the Tarn Taran LPA is of varied character and is typical of a tract well suited for the growth of vegetation. Details of more common naturally occurring trees and shrubs in this area are as:- *Dalbergia sissoo* (Shisham), *Acacia arabica* (Kikar), *Ficus religiosa* (Pipal), *Ficus bengalensis* (Borh), *Melia azadirachta* (Dhrek), *Albizia lebbek* (Siris), *Acacia farnesiana* (Vilyati kikar), *Bombax malabaricum* (Simbal), *Terminalia arjuna* (Arjan), *Terminalia belerica* (Bahera), *Pongamia glabra* (Sukhchain), *Mimusop elengi* (Maulsari), *Cassia fistula* (Amaltas)

The important trees grown for economic benefits within LPA are:- *Eugenia jambolana* (Jaman), *Mangifera indica* (Mango), *Morus alba* (Shahtut), *Morus Idevigata* (Tut), *Zizyphus jujuba* (Ber), *Moringa ptergyosperma* (Sohanjana), *Bauhinia variegata* (Kachnar), *Cordia muxa* (Lasura), *Cedrela toona* (Toon), *Rosa damascena* (Sucha gulab), *Litchi chinensis*

(Litchi), *Jasminum sambac* (Motia), *Jasminum grandiflorum* (Chambeli), *Salix capera* (Bed mushak), *Pyrus communis* (Nashpati), *Prunus persica* (Aru), *Prunus communis* (Alucha), *Citrus aurantium var sinensis* (Malta), *Citrus surantium* (Sangtra), *Citrus medica* (Lemon), *Musa sapientum* (Banana), *Grewia asiatica* (Falsa), *Eryobotrya japonica* (Loquat)

Weeds: - The weeds in this area are Ak or Milk-plant (*Calotropis procera*), Arind (*Ricinus communis*), Dhatura (*Datura fastuosa*), Thor (*Opuntia dillenii*), Pohli (*Carthamus oxyacantha*), Bhukar or Piazi (*Asphodelus fistulosus*), Shial Kanta (*Argemone mexicana*), Bhakhra (*Tribulus terrestris*), Kandyari (*Solanum xanthocarpum*) and Dhang (*Cannabis sativa*) etc.

Hydrophytes: - These are Sanghara or Water-nut (*Trapa dispinosa*), Kanwal or Bhen (*Nelumbium speciosum*), Khundar or Bater (*Typha angustata*) etc.

Fauna

There are no wildlife sanctuaries or fragile ecosystems near or around the LPA area. The diversity and density of fauna species within the LPA area is very low. The native other fauna species studied for Tarn Taran LPA includes Avi fauna, Mammals, Reptiles, Fisheries and domestic animals.

Avi Fauna: - Birds commonly observed included Crane, Black Curlew, Jack Curlew, Quail, Green Pigeons, Blue Rock Pigeon and Cliffs.

Mammals:- Mammals commonly observed included Nilgai, Chinkara, Barani (black bucks), Wild hogs, Hares, Geese, Ducks, Black partridges, Grey partridges, Snipe, Sandgrouse, Sand ridge, Jackals etc.

Reptiles: - Reptiles commonly observed included Cobra, the Karait, the Russell's viper, and the Small keel-scaled, Viper (*Echis carinata*), Echis.

Fisheries: - Fish species that are cultured in ponds in Tarn Taran are *Catla catla*, *Labeo rohita*, Common carp, Grass carp and Silver carp. Fish is cultured in rural areas of Tarn Taran in an area of 278.2 hectares. The fish market is located at Harike with an annual fish production of 1150 tones.

Domestic Animals: - Domestic animals like cows, buffaloes, goats, donkeys, dogs, mules are found.

Key Issues for Flora, Fauna and Vegetation Cover

- Industrial area is moderate in floral species, including agricultural crops and commercial plantations.
- The diversity and density of faunal species within the town area is very low. There are no wildlife sanctuaries or fragile ecosystems near or around the town area.

- Dust generation during operation of industrial units cause negative impact on these species in immediate vicinity, which also cause secondary impacts on terrestrial and avi-fauna.
- As per guidelines of MoEF, 33 % of total area should be covered with green area. Against this, the Tarn Taran town does not fulfill the required green belt area.

6.3 RAIN WATER HARVESTING

The concept of Groundwater Recharge Technology has not been adopted in the new private building constructions to raise the level of declined water table. As per official discussion with concerned authorities of Improvement Trust, they quoted that the few Government buildings in the town area have adopted the Groundwater Recharge Technology but still this technology is not adopted frequently in the new building codes till date. It should be made mandatory in large buildings to adopt this technology. It should be made a part of Building Bye Laws and Development Control Regulations.

Key Issues: - Following are the key issues for water body conservation for the town of Tarn Taran.

- Discharge of untreated industrial and domestic effluents into Nallah, drains, and low lying area.
- Leaching of decomposed liquid from dumps of municipal solid waste to water table.
- Unplanned and mismanaged installation of industrial system of water supply.
- Lack of awareness among the residents regarding water conservation.
- Lack of watershed structures for ground water recharge.
- Lack of aeration facility in ponds, foundations and other water holding places.
- Falling/encroachment of village ponds.
- Lack of rainwater harvesting & recharge technology.

6.4 DISASTER MITIGATION AND MANAGEMENT ISSUES

EXISTING STATUS: - Despite the fact that Tarn Taran LPA and whole of the district lies in Seismic Zone IV, there are no considerations as such taken while making new buildings in the town area. The narrow streets and along with adjacent buildings made without taking in to consideration seismic character of the area will lead to disastrous situation any time within the town.

Key Issues

Earthquake: - Tarn Taran LPA falls in seismic zone IV as per seismic zone map of Indian Standard IS: 1893. Therefore, at the time of designing and construction of buildings, the design parameters shall be considered in compliance with IS 1893 with taking due consideration of prevailing housing constructions and development guidelines and National Building Code.

Flood: - No care has been taken in designing storm water drains so as to prevent flooding at the time of heavy rain. Rainwater harvesting should be done throughout the town, which would further reduce the risk of local flooding.

High Winds: - As far as the wind hazard is concerned, design wind in the entire region is 47 m/s (169 km/h) as per IS 875 (part 3), which attains this value occasionally. Building in this region should be designed keeping in mind the above wind speed.

Fire Hazard: - Urban areas are threatened by fire hazards, due to the following main 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

CHAPTER 7

FINANCIAL STATUS

7.1 MUNICIPAL COUNCIL

The finances of the Municipal Council 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 Council has grown to a level of Rs. 554.83 lakhs in FY 2007-08 from Rs 284.86 lakhs during FY 2003-04, registering a CAGR of 18.14 %, while revenue expenditure increased at a CAGR of 14.09 % (refer table 69). It projects a moderate financial condition of Municipal Council.

Municipal Council has consistently maintained a revenue surplus of an average 59.82 % of its revenue income. 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 Council.

Table 69: Financial Status of Tarn Taran M.C.I at a Glance

Item	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR
Rs in Lakhs						
Revenue Account						
Opening balance	14.58	8.32	2.2	1.47	1.9	
Income	284.86	272.57	355.13	372.53	554.83	18.14
Expenditure	181.93	196.87	224.38	244.85	308.28	14.09
Surplus	117.5	84.02	133	129.15	248.45	20.5
% of Revenue Income	41	31	37.45	35	45	2.3
Capital Account						
Income	22.7	0	47.63	251	31.27	8.3
Expenditure	76.78	70.76	142.07	105.84	100.96	7.0
Surplus/Deficit	-54.08	-70.76	-94.44	-145.16	-69.69	6.5

Source: Municipal Council, Tarn Taran

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

The following sections provide an in-depth review of the revenue account, in order to assess the Municipal fiscal status and to provide a base for determining the potential of each of the sources and the ability of Municipal Council to sustain the extent of investments, which shall be planned under Master Plan.

7.1.1 REVENUE ACCOUNT

The revenue account comprises of 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

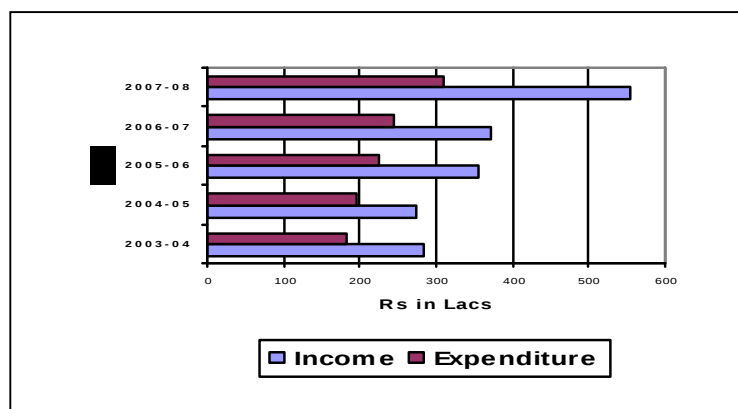
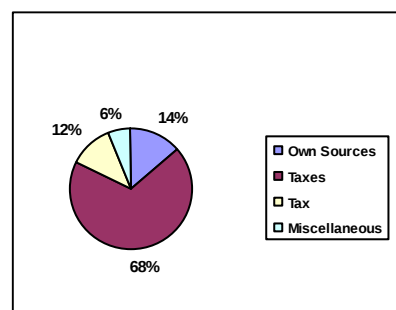


Fig No 53: Revenue Account

Government. Revenue expenditure comprises expenditure incurred on salaries; operation & maintenance cost; contributions and donations; and debt servicing.

Fig No. 54: Revenue Income



REVENUE INCOME

The revenue sources of Municipal council, can be broadly categorized into own sources, Taxes, Water & Sewerage Service charges etc. The source wise income generated is shown in Table 70.

Table 70: Source-Wise Revenue Income of M.C.I., Tarn Taran

Financial year	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR	%Share
Own sources	24.47	18.74	1.17	38.6	188.71	66.6	14
Taxes	187.7	191.24	290.83	291.05	289.03	11.4	68
Water supply & sewerage	47.21	46.35	46.27	28.15	46.82	[0.2]	12
Miscellaneous &Unclassified	25.48	16.24	16.86	14.73	30.27	4.4	6
Total	284.86	272.57	355.13	372.53	554.83	18.1	

Source: Municipal Council, Tarn Taran

1. Own Sources: Income under this category includes income from Revenue fees (slaughter house fees, copying fees etc), service account, income from renewal charges of lessee shops etc. Income from own sources is 14% of the revenue income, which shows that sources are not sufficient to cover the expenses of council, so it depends highly on external resources for its operations.

2. Taxes: The major source of income for M.C.I. is taxes. It contributes about 68% of total revenue income increases at a rate of 11.4%.

Table 71: Income of M.C.I, Tarn Taran from Taxes

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR
House Tax	36.06	22.84	29.16	27.28	43.28	4.6
Octroi	140.05	154.05	175.06	87.26	17.54	(40.51)
Excise Duty	0.00	4.46	76.33	70.49	23	0
Octroi on Electricity	11.24	9.42	9.69	8.33	11.74	1.09
Entertainment Tax	0.09	0.05	0.08	0.03	0.05	(13.66)
Show Tax	0.20	0.15	0.22	0.09	0.21	1.22
Advertisement Tax	0.06	0.27	0.29	0.30	1.75	132

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	CAGR
VAT	0.00	0.00	0.00	97.27	191.46	0
Total	187.7	191.24	290.83	291.05	289.03	11.39

Source: Municipal Council, Tarn Taran

House Tax: In year 2003-2004 the income from house tax was Rs. 36.06 lakhs which increased to Rs 43.28 lakhs in 2007-2008 registering a CAGR of 4.6 %

Octroi: Another source of income for Municipal Council is Octroi. It has registered a decreasing CAGR of 40.51%. The reason being the Punjab govt. has abolished Octroi on all the goods except on petrol, diesel and electricity. This income mainly comes from petrol, diesel and electricity now, and in lieu of that government is compensating Corporation by giving Grants against loss of Octroi. The compensation is provided on the basis of collection of Octroi of last five years.

3. Water Supply and Sewerage services

It is observed that taxes from water supply and sewerage services, contributes 12 % of total revenue income, during review period.

4. Non Tax Revenue (Miscellaneous & Unclassified)

Non-tax sources include all non-tax revenues such as fees and charges levied. These sources include income from building license fee, development charges, trade license fee, births and death certificate, income from municipal properties and other fees and fines. The non-tax income of Municipal Council accounts for about 6 percent of its revenue income and has registered a CAGR of 4.4 %.

REVENUE EXPENDITURE

The revenue expenditure of Municipal Council has been analyzed based on expenditure heads. These have been broadly classified into two categories one is Establishment and another is contingency. The application of funds

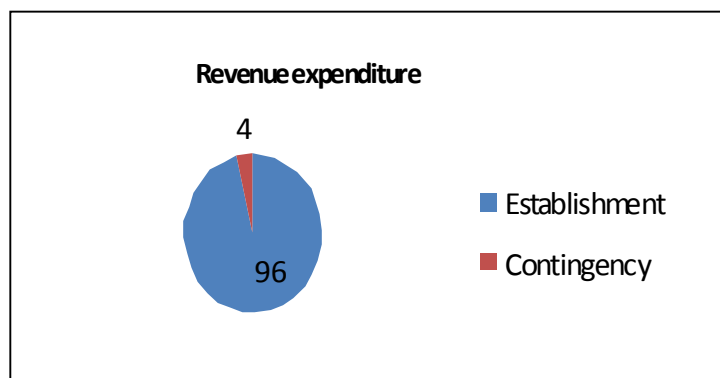


Fig no. 55: Revenue expenditure

by account head is presented in table no. 72, which indicates that the overall revenue expenditure registered a CAGR of 14.1 % against the CAGR of revenue income 18.1%

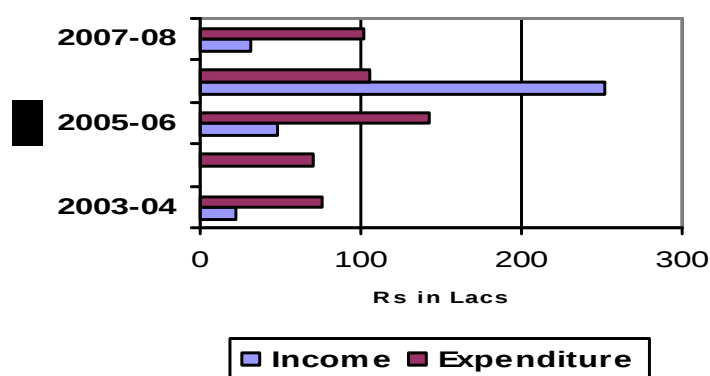
Table 72: Application of funds by head of account of M.Cl., Tarn Taran

Financial Year	2003-04	2004-05	2005-06	2006-07	2007-08	% share	CAGR
Rupees In Lakhs							
a) Establishment	177.86	184.33	211.92	231.17	300.74	96%	14.0
b) Contingency	4.07	12.54	12.46	13.68	7.54	4%	16.7
Total	181.93	196.87	224.38	244.85	308.28		14.1

Source: Municipal Council, Tarn Taran

7.1.2 CAPITAL ACCOUNT

In general, the capital income of Municipal council comprises of loans, grants and contributions and transfers from revenue surplus. Capital income contributed 100 % of the capital receipts during the review period

Fig no. 56: Capital Account**Table 73: Details of Capital Account of M.Cl., Tarn Taran**

Item	2003-04	2004-05	2005-06	2006-07	2007-08	% Share	CAGR
Rs in Lakhs							
Capital Income							
Capital Grants	22.70	0.00	47.63	251.00	31.27		
Loans	0.00	0.00	0.00	0.00	0.00		8.3
Total	22.70	0.00	47.63	251.00	31.27		8.3
Capital Expenditure							
WSAS Department	6.08	0.00	5.46	5.86	4.09	4.32	-9.43
Development of roads	0.47	2.11	1.77	0.53	0.18	1	-21.3
New streets/Drains	18.41	17.92	23.78	40.92	26.72	26	10
Water supply & sewerage bills	37.24	29.24	36.85	37.86	43.50	37	4
Payment of municipal Loans	3.50	0.00	56.57	8.05	0.00	14	-100
Slum Improvement	0.00	5.50	0.68	0.00	0.00	1.24	0
Street light	10.91	14.99	16.66	12.62	16.47	14.4	11
Others	0.17	1.00	0.32	0.00	0.00	0.3	-100
Total	76.78	70.76	142.07	105.84	100.96		7.08

Source: Municipal Council, Tarn Taran

The figure presented in table 73 indicates that about 71% of Municipal Councils' 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 period, the majority of capital expenditure has been directed towards public works. Apart from these, other major investments have been in the water supply sector which accounted for 37 % of the total investment

CHAPTER 8

VISUALIZING THE FUTURE

The study part of Tarn Taran Local Planning Area has been detailed out in the previous pages to assess the current as well as past situation of the planning area. Based upon this one can make assessments and build a platform to visualize the future and formulate proposals and policies for the Proposed Landuse to come up in the Tarn Taran LPA till 2031. The first step towards this will be projecting the population for various settlements for the planning period, and accordingly project the physical and social infrastructure required for that much population. The meetings held with various officials and stakeholders also come handy in this process. Finally, SWOT Analysis to figure out the strengths, weaknesses, opportunities and threats of the planning area, and thus Vision Statements for different sectors of the urban and regional planning of the LPA provide a base to plan out proposals. All these things have been dealt in detail in the following pages:

8.1 POPULATION PROJECTION

It is important to project the future population, as it would provide the base for working out the landuse and infrastructure requirements. The population is the prime factor of the judgment for the master plan, since it defines the quantum of the existing extents for the development and future requirement by the needed projections. The past population trends and the future growth pattern of the population defines the need and the extent of the infrastructure development and development of the habitat.

For projecting the future population of the Tarn Taran Local Planning Area, previous decadal trend has been taken in to account. The population projections for LPA have been done by 4 methods both for M.Cl. and LPA villages separately. The methods used for projecting population are:

1. Arithmetic Progression Method.
2. Geometric Progression Method.
3. Incremental Increase Method.
4. Exponential Method.

The population projection is done based upon the existing population of 2001 and the previous populations of 1991, 1981 and 1971. The population is projected for census year 2011, 2021 and 2031, respectively.

Table 74: Population Projections for Tarn Taran M. Cl. (2001-2031)

S. No.	Method	2001	2011	2021	2031	Average CAGR (2001-2031)
1	Arithmetic Progression Method	55587	63455	71323	79190	1.19
2	Geometric Progression Method	55587	77883	109123	152893	3.43
3	Incremental Increase Method	55587	61878	66594	69732	0.76
4	Exponential Method	55587	77261	107385	149256	3.35

After calculating the projection figures for all four methods, Compound Annual Growth Rate (CAGR) of the decadal increase in population registered in all four methods has been calculated, and lastly an average is taken out. The logic behind taking CAGR of a decadal population is to determine the annualized population growth rate in that decade, which gives the growth rate at which the population is considered to be have been grown consistently. Thus, the average CAGRs came for all four methods have been compared with the average of the CAGR for the population increase registered in the previous decades of 1971 to 2001 for the town.

While comparing both past and future CAGRs, it was found that the average CAGR of Exponential Method (3.35) for the period 2001-2031 comes nearer to the average CAGR for the period 1971-2001 (2.5) in comparison to that of the other projection methods. So it is taken for Tarn Taran M. Cl.

For villages of Tarn Taran LPA, Exponential Method has been taken as its average CAGR is closest to that of the previous decades. Moreover, the villages have more potential to grow in size as well as population because of their untapped resources.

Thus, the final projected values for population of Tarn Taran Municipal Council and villages of LPA for 2031 are given below:

Table 75: Population Projections for Tarn Taran LPA

Level of settlements	2001	2011	2021	2031
Tarn Taran (M.Cl.)	55587	77261	107385	149256
Villages (LPA)	60349	71677	85131	101110
Projected Population for LPA	116136	148938	192516	250366

Based upon the projected future population for Tarn Taran Local Planning Area, the existing condition in all sectors like housing, social infrastructure, physical infrastructure, traffic and transportation has been studied, and accordingly analyzed. Ultimately, the future sector wise requirements for the Tarn Taran LPA have been worked out.

8.2 HOUSING REQUIREMENTS

The housing requirements of the town have been calculated for the coming census year 2011 up to 2031, on the basis of their respective projected populations. Average family size has been assumed to be of 5.7 persons, which is also the existing household size of the town.

Table 76: Requirements of Housing units in Tarn Taran M.Cl.

Year	Projected Population 2031	No. of Houses Required
2011	77261	13555
2021	107385	18840
2031	149256	26185

As per census 2001, the existing no. of occupied residential houses were 9778 units. As the above table shows that 2,61,85 houses in total would be required for the projected population of 1,49,256 by 2031, approximately additional 16407 residential houses will required to be constructed.

8.3 PHYSICAL INFRASTRUCTURE REQUIREMENTS

8.3.1 WATER SUPPLY

The future demand and requirements have been calculated based on existing scenario along with standards assigned as per UDPFI. The same is described below category wise:

a. Water Supply: As the total water supply is 4.23 MLD, the per capita water supply of 2009 is 58 lpcd. Accordingly, the demand comes out to be 10.4 MLD for 2011 and 20.1 MLD for 2031, thus indicating a requirement of 6.2 MLD and 5.7 MLD, respectively.

Table 77: Projections and Requirements for Water Supply in Tarn Taran M.Cl.

Service Head		Existing/Desired level			Service Levels, Demand and Gaps							
		Indicator	Current level	Desired level	Unit	Existing (2009)	By Year 2011		By Year 2021		By Year 2031	
							Demand	Requirement	Demand	Requirement	Demand	Requirement
1	Daily Supply	Per-capita supply (lpcd)	58	135.00	MLD	4.23	10.4	6.2	14.5	4.1	20.1	5.7
2	Treatment	Treatment capacity against supply (%)	0.00	100.00	MLD	0.0	10.4	10.4	14.5	4.1	20.1	5.7
3	Distribution Network	Distribution Network length against road length (%)	100.00	85.00	Kms.	65.0	63.0	-	87.6	22.6	121.8	56.8
4	Elevated Storage capacity	Elevated Storage capacity w.r.t Supply (%)	57	33.00	MLD	2.41	3.4	-	4.8	-	6.6	-
5	Metering System/ Installation of water meters				Nos	0.0	15452	15452	21477	6025	29851	8374

b. Treatment: There is no water treatment plant in the town. Therefore, the total amount of water supplied needs treatment and thus the amount of water to be treated is considered same as that of the water to be supplied for all projected years.

c. Distribution Network: While comparing the existing length of water supply lines with that of the road length, the network complies with the desired standards i.e. 100% in comparison to the desired standard of 85%. By 2031, 121.8 Kms. length of water supply distribution system will be required.

d. Elevated Storage Capacity: The demand in case of overhead supply reservoir (OHSR) is of 6.6 MLD for 2031, whereas current level is 2.41 MLD.

e. Metering System: No meters have been installed till 2009, while 29851 meters in total will be required for the population of 2031.

8.3.2 SEWERAGE

The projected requirement for sewerage sector has been given below:

Table 78: Projections and Requirements for Sewerage System in Tarn Taran M.C.I.

Service Head		Existing/ desired level			Service Levels, Demand and Gaps							
					Unit	Existing (2009)	By Year 2011		By Year 2021		By Year 2031	
		Indicator	Current level	Desired level			Demand	Requirement	Demand	Requirement	Demand	Requirement
1	System Coverage/ Collection System	Collection Length against Road Length (%)	100.00	100	KM	68.0	74	-	103.09	35.09	143.29	40.20
2	Treatment	Treatment Capacity against Supply (%)	0.00	100	MLD	0.00	8.34	8.34	11.60	3.25	16.12	4.52
3	Intermediate Pumping Stations, Pumping Machinery & Transmission Mains					Nil						

a. Collection System: The existing length of sewerage system is 68 Kms in town. Thus existing collection length against road length is 100% in town, which is as per standards. By 2031, 143.30 Km. length of sewerage system will be required.

b. Treatment: There is no Sewage Treatment Plant (STP) in the town. Since by 2031, 16.12 MLD of sewerage water has to be treated, which is calculated as 80% of the water supply. Thus, any STP to be installed has to be of higher than 16 MLD capacity.

8.3.3 SOLID WASTE MANAGEMENT

Projections for solid waste management considering all aspects like waste collection, number of vehicles used etc. is given below:

Table 79: Projections and Requirements for Solid Waste Management System in M.C.I.

Service head	Existing/ desired level			Service Levels, Demand and Gaps							
				Unit	Existing (2009)	By Year 2011		By Year 2021		By Year 2031	
	Indicator	Current level	As per std.			Demand	Gap	Demand	Gap	Demand	Gap
Waste generation	Per-capita waste generation (gpcd)		500.00	MT	36.19	38.63	2.44	53.69	15.06	74.63	20.94
Waste Collection	Collection performance (%)	13.38	100.00		4.50	38.63	34.13	53.69	15.06	74.63	20.94
Vehicle Utilisation	Trips per Vehicle per day		2.50								
Primary collection	Nos. of Hand carts/Wheel Borrowes (including rickshaw rehri)			Nos	45	91	46	126	35	176	49
Secondary collection	Container Bins			Nos	15	64	49	89	25	124	35
	Dual loaded dumper placers			Nos	1	8	7	11	3	16	4
Waste transportation	No of Transport Vehicle (including tractor/trolley)			Nos	1	5	4	7	2	10	3
Disposal	Composting yard			Acre	4.32	4.97	0.64	6.90	1.94	9.59	2.69
Slums/ Sanitation/ Public conveniences	Slum pop. per seat of Public convenience		90	Seat	0	374	374	519	146	722	202

a. Waste Generation: For 2031 the generation is projected as 74.63 metric tonnes taking a standard of 500 gms./capita/day of solid waste generation.

b. Collection Performance: Existing collection performance is only 13.38% against desired collection efficiency of 100%.

c. Vehicle Utilisation: In terms of vehicles used for primary waste collection, by 2031, 176 vehicles shall be required against existing 45. For secondary collection, at present the containers are only 15 and there would be demand for 124 in 2031. Sixteen dual loaded dumper placers will be needed by 2031 whereas presently there is only one.

d. Waste Transportation and Disposal: No. of transport vehicles required shall be 10 in 2031. The area for landfill site is 4.32 acres (inclusive of existing and proposed landfill site) whereas in 2011 additional area of 6 acres (approx.) will be required.

8.3.4 STORM WATER DRAINAGE NETWORK

The town is not having any storm water drainage system. The total length of drain required by 2031 comes out to be 143.29 km, which is proposed as closed pucca drains. The details have been shown in the following table:

Table 80: Projections and Requirements for Storm water Drainage System in M.Cl.

Service head		Existing/ desired level			Service Levels, Demand and Gaps							
					Unit	Existing (2009)	By Year 2011		By Year 2021		By Year 2031	
		Indicator	Current level	Desired level			Demand	Gap	Demand	Gap	Demand	Gap
1	Network reach	Road length covered with drains (%)	0.00	100.00	KM	0.00	74.17	74.17	103.09	28.92	143.29	40.20
2	Network – type	Kutcha open (%)	0.00	0.00								
		Pucca open (%)	0.00	0.00								
		Pucca closed (%)	0.00	100.00	KM		74.17	74.17	103.09	28.92	143.29	40.20
		Total network length			KM	0	74.17		103.09		143.29	
3	New Formation	New Pucca closed drains			KM			74.17		28.92		40.20

8.3.5 TRAFFIC AND TRANSPORTATION

Projections are carried out for following categories:

a. Degree of Connectivity: In the town, total municipal road length is 40.5Kms.with per capita road length availability of 0.56 mts against the standard of 0.96 mts. The demand of road length according to the standards is projected as 143 kms. for the year 2031.

b. Road Width: The existing average road width in town is 7mts. which complies with the required road width in terms of road surface

c. Road Surface: In terms of surface, the roads in town can be categorized into four categories. Presently in 2009, bituminous roads form the major share i.e. 75 % of total road length. Other three categories are concrete roads (2.03 km) and WBM roads (7.29 km) and earthen roads (0.81 km). As per standards, bituminous roads should have 85% share of total roads and concrete should contribute the rest 15%. Accordingly, in 2031, out of the total desired road length of 143 Kms, 121.79 km of roads should be bituminous and 21.49 km should be concrete.

d. Street Lights: Presently the average spacing between two lamp poles is 35mts, which has been calculated by dividing the total length of roads by the total no. of street lights i.e. 1157. By 2031, 4776 street lights will be required which has been worked out on the basis of desired spacing of 30 mts.between lampposts. Considering the share under different types of lights, tubelights contribute about 75% of the total lights with 25% as high power lamps. Rather as per standards, 70% should be high power lamps and 0.1% as high mast lamps.

By 2031, there is a need for 3339 high power lamps, with the replacement of tube lights with high power lamps by 2011. Hence, the new installations for 2031 will be only of high power lamps and high mast lamps.

Table 81: Projections and Requirements for Traffic and Transportation in M.C.I.

Service head	Existing/ desired level			Service Levels, Demand and Gaps							
	Indicator	Current level	Desired level	Unit	Existing (2009)	By 2011		By 2021		By 2031	
						Demand	Gap	Demand	Gap	Demand	Gap
Degree of Connectivity	Per-capita road length (mt)	0.56	0.96	KM	40.50	74	33.5	103	29	143	40
Road width	Average road width (mt)	7.00	7.00								
Road surface	Concrete (%)	5.00	15.00	KM	2.03	11.13	9.10	15.46	4.34	21.49	6.03
	Bituminous (%)	75.00	85.00	KM	30.38	63.04	32.67	87.63	24.58	121.79	34.17
	WBM (%)	18.00	0.00	KM	7.29						
	Earthen (%)	2.00	0.00	KM	0.81						
Total municipal road length				KM	40.50						
Up-gradation	WBM to CC			KM			4.05				
	WBM to BT			KM			3.24				
	Earthen to BT			KM			0.81				
New formation	CC			KM			5.05		4.34		6.03
	BT			KM			28.62		24.58		34.17
	ROBs/ Flyovers			LS		3	3	7	7	0	0
Street lighting	Spacing between lamp poles (mt)	35	30	Nos	1157	2472	1315	3436	2279	4776	1340
	Tube lights (%)	75	30	Nos	868	742	0	1031	0	1433	565
	High power lamps (%)	25	70	Nos	289	1728	1439	2402	674	3339	937
	High mast lamps (%)	0	0.10	Nos		2	2	3	1	5	1
Replacements	Tube lights with high power lamps			Nos			126				
New installations	Tube lights			Nos			0		0		565
	High Power Lamps			Nos			1313		674		937
	High mast lamps			Nos			2		1		1
Traffic Mgmt	Junction improvements			Nos		1	1	2	1		

8.4 SOCIAL INFRASTRUCTURE REQUIREMENTS

8.4.1 EDUCATIONAL

The existing senior secondary schools in town are 9 in view of which there would be a deficit of 11 in 2031 against demand of 20. In case of villages in LPA there are 10 senior secondary

schools there would be demand of 16 by 2031. The total requirement for LPA till 2031 will be of 17 senior secondary schools besides required primary schools. This shall be well distributed in the town and shall be placed at strategic locations in villages of LPA. At higher level, there is a requirement of 3 colleges in LPA.

8.4.2 HEALTH CARE FACILITIES

There are four government hospitals in town with capacity of 210 beds, and based upon projected population there is demand for four hospitals and ten dispensaries in M.Cl. and 2 hospitals, one polyclinic, 3 nursing homes, eight dispensaries and 48 PHCs in the villages of LPA.

8.4.3 SOCIO-CULTURAL FACILITIES

There are 11 community rooms in town whereas the demand as per the UDPFI standards is of 30 community rooms as per the projected population of 2031. Therefore, there would be a gap of 19 community rooms in the town. Whole of Tarn Taran LPA requires 31 community rooms till 2031.

8.4.4 UTILITY SERVICES

Police Station

Presently there is one police station in town and one in LPA whereas there would be provision as per demand projected for 2031.

Fire Fighting Facilities

There are no fire stations in the town. There is a requirement of 1 fire station as per the UDPFI standards for the projected population of 2031. This shall be reflected in the process of preparation of zonal plan of Tarn Taran town.

8.5 PARTICIPATORY APPROACH

8.5.1 CONSULTATIVE MEETINGS

Though various data have been collected from different departments, to develop an in depth understanding of the planning and development of Tarn Taran town, meetings with different experts and stakeholders have been conducted. Meetings with different experts were conducted individually. Think Tank Committees, which have already been established under the Chairmanship of Deputy commissioner, having representatives from different departments also became an important part for understanding the problems and potentials of the Tarn Taran town. Details of various meetings are given below:

1. MEETING IN THE OFFICE OF DEPUTY COMMISSIONER: The meeting was held at Tarn Taran on January 19, 2009. The various participants of the meeting were:

- Deputy Commissioner Tarn Taran
- Officials of different departments
- Representatives of SAI Consulting Engineers Pvt. Ltd.

Worthy Deputy Commissioner constituted a sub-group with members namely DTP Amritsar, Sh. Ashwani Luthra (HOD, Guru Ramdas School of Planning, GNDU Amritsar), Sh. R.S. Sandhu (Professor, Sociology Dept., GNDU Amritsar) and S.D.O., Sewerage Board along with the members from SAI consultants. The sub-group was formulated to finalize the data formats prepared for collection of data from various departments regarding preparation of Master plan. The data formats were finalized within the Sub-group on 23-01-09 in the office of DTP Amritsar. The same has been supplied to different departments before 31-01-09.

2. THINK TANK MEETING:

Meeting held on January 1, 2009 at Tarn Taran, under the chairmanship of Mr Khushi Ram, IAS, and Deputy Commissioner. Following this meeting another meeting was held on January 8, 2009 and the important points of discussion have been incorporated in the Concept Plan.

8.6 S.W.O.T. ANALYSIS

From a central location in North West India, Punjab became a border state and Tarn Taran district emerged as a border settlement. Based on analytical study, a SWOT analysis has been carried out for the town of Tarn Taran, illustrating its inherent strengths and weaknesses, opportunities offered and threats faced both from within and outside, which has been used as a framework for redefining future growth and development of the town.

Strengths

The strengths of Tarn Taran can be defined in terms of:

- One of the important urban centers of the state having historical significance.
- Rail and road connectivity with major urban settlements of the state and country, for flow of goods and passenger traffic.
- Nearness to rail, road and air accessibility with all major destinations of the country.
- Religious center of the state- having Gurudwara Sri Darbar Sahib
- Emerging Administrative centre of the Tarn Taran district.
- The town acts as a tourist destination for both national and international visitors.
- Hosts traditional fairs and festivals, which signify the rich Punjabi culture.

- Specialized market for agricultural inputs, located along the new grain market provides accessibility and convenience to the farmers. Also, the grain market is located on the periphery of the town, which does not obstruct the surrounding population and is easily accessible from all the sides of the town.
- Small scale industries such as rice mills, brick kilns, CI castings etc. are major generator of employment in the LPA and industrial growth is largely based on local skills and entrepreneurship.
- Civil Hospital in the town acts as a higher medical facility, which serves the entire district.

Weaknesses

The town has number of weaknesses, which can be enumerated in terms of:

- Being a border district, it has always been under perpetual threat from hostile neighbor.
- The town has received low level of investments both by parastatal agencies and private sector in basic infrastructure.
- Town growth is largely marked by haphazard, unplanned and unauthorized growth leading to uneconomical use of land with remarkable loss of fertile land.
- Emergence of non-conforming land uses due to haphazard and unplanned industrial development along major road network.
- Unplanned commercial development along the major road network including conversion of residential areas into shops for trade and commerce, without provision of adequate parking.
- Large scale encroachment on road network and public spaces by informal sector.
- Acute shortage of space in wholesale/food grain markets, leading to congestion in larger parts of the town.
- Narrow roads and inadequate area under road network leading to major traffic bottlenecks within the city.
- Acute shortage of housing both qualitatively and quantitatively leading to poor quality of life.
- Large number of traffic problems caused by railway line passing through the city.
- Inadequate open and recreational spaces at the neighborhood and town level.
- Quantitative and qualitative shortage of community facilities and their irrational spatial distribution.
- Absence of an administrative complex.

- Absence of water supply, sewerage network, storm water drainage and poor solid waste management in the town.
- Absence of tourism related quality infrastructure.
- Mushrooming of unplanned, unauthorized colonies and large number of slums.
- High degree of air, noise and water pollution.

Opportunities

With the softening and improved relationship with Pakistan, the town offers enormous opportunities in terms of:

- Attracting large investment and generating considerable employment.
- Emerging as major tourist destination with increased flow of tourists, both from within and outside India.
- Emerging growth of value added industries and hub of agro based food processing industries catering to demand of neighbouring countries as well.
- Rapid physical growth and expansion on the outskirts of city in radial directions particularly along the G.T. Road, Jandiala Road, Ferozepur Road, Patti Road and Goindwal Road.
- Major demand for growth of quality infrastructure in terms of education, health, tourism, trade & commerce, entertainment, housing etc.

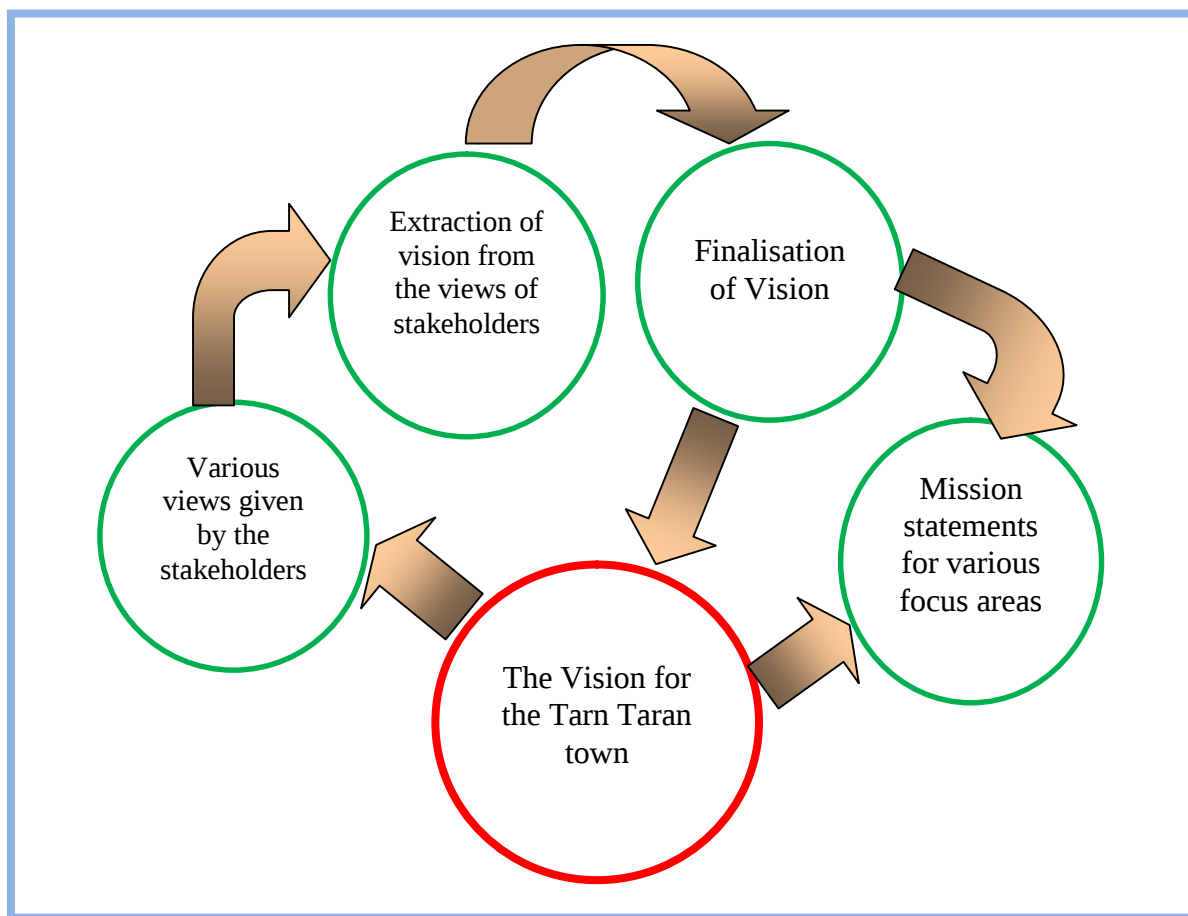
Threats

Despite the inherent strength, 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.
- Absence of enabling environment for leveraging the involvement of private sector.
- 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 town.
- Non-rationalization of inter and intra-city traffic and improving transportation network.
- Delay in creating appropriate infrastructure related to tourism, trade & commerce.
- Delay in bridging the existing gaps in basic infrastructure and services in and around the town.
- Delay in addressing issues on priority related to slums and environment.

8.7 VISION- 2031

Vision and Mission



Vision has been framed on the basis of the discussions held with various stakeholders, intellectuals, non-government organizations, community based organizations, professionals, elected members and officials of the urban local body, professionals from the town and country planning department, detailed study and analysis made of the existing and historical growth and development mechanism. Tarn Taran has a potential to develop as a multifunctional town.

Tarn Taran has high degree of potential to emerge as an administrative and religious tourist centre provided required level of support systems, quality infrastructure, policy options, State-of-art developmental and institutional mechanisms are put in place. In order to make Tarn Taran grow and emerge as humane, productive, sustainable, eco-friendly pollution free and vibrant urban centre, the future of the town is envisioned as:

VISION:

- Tarn Taran to be developed as a tourist hub, administrative centre and an industrial town to promote employment and quality living to all of its existing and future

residents, irrespective of the caste, creed, gender, economical and social status including poorest of poor.

- The quality living in the town to be achieved through
 - o Ensured higher order of better urban governance
 - o High degree of operational efficiency
 - o Higher order of economic productivity
 - o Ensured environmental sustainability
 - o Reduced vehicular and industrial pollution
 - o Rationalized land use pattern
 - o Decongested core areas
 - o Assured quality of higher order of infrastructure and services
 - o Improved traffic and transportation
 - o Assured safety of residents and communities
- Tarn Taran to be culturally, socially and economically vibrant where
 - o Every individual has gainful employment
 - o Where each family has access to all basic amenities of life and
 - o Where each community is self-contained and self-sustained

MISSION STATEMENT FOR FOCUSED AREAS:

In order to achieve the objectives and goals enshrined in the vision statement, mission statements for various focused areas has been detailed 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.
- To rationalize the periurban development
- To minimize haphazard, unplanned and sub standard growth
- Making effective plan implementation and enforcement as integral part of city planning and development process.
- Conserving the cultural fabric.
- Making growth management process more participatory.
- Review of development plan 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.

b) Urban Environment

- Urban environment to be made integral and essential part of city development process.
- Environment to be made integral part of planning and decision making process.
- Effective treatment of all sewage generated within the city.
- Improving solid waste management.
- Creating / developing new and improving existing gardens, parks and open spaces.
- Promoting better water management.
- Making city free from air, water, land and noise pollution.
- Promoting optimum use of natural resources.
- Minimizing growth of slums / shanty towns and improving existing slums.

c) Urban Services:**i) Water Supply**

- To ensure safe, equitable, reliable, adequate and quality water supply.
- To ensure 100% coverage of the town.
- To improve operational efficiency of water supply system by minimizing wastage and leakage.
- Remove illegal water connection and public stand posts.
- To minimize the ground water consumption by promoting water conservation.
- To promote rain water harvesting and recycling of water.

ii) Sewerage and Drainage

- Total coverage of the town with sewerage and drainage system including slums.
- To promote eco-friendly decentralized treatment system.
- To minimize sewerage generation through water saving appliances
- To promote recycling of sewage
- To promote protection of natural water bodies
- To promote optimum use of storm water as an alternate source of water supply.

iii) Solid Waste Management

- To improve the solid waste management in the town using best practices.
- To use PPP model for solid waste management.
- To promote “Recycling” of solid waste.
- To make solid waste management people centric
- To integrate solid waste disposal and rag pickers for efficient solid waste management and resource/employment generation for poor.

- To create awareness for minimizing solid waste generation.

iv) Storm Water Disposal

- Revive the storm water disposal system of the town
- To improve the capacity of the existing water bodies.
- To make optimum use of storm water for reducing the demand of fresh water
- To improve the natural water drainage channels by de silting and stopping the sewage water from entering the channels.
- Construction of storm water disposal channels and integrating each and every house into the system
- Integrating the storm water channels into development using land suitability analysis

v) Traffic and Transportation

- To improve safety, mobility and efficiency of inter and intra city traffic.
- To segregate and rationalize the inter and intra city traffic
- To improve road geometry and road capacity of existing network
- To use planning as a mechanism for rationalizing and minimizing traffic
- To minimize pollution caused by traffic and transportation and improve environment.
- To create new road network and to improve the existing network to promote operational efficiency of traffic.
- To review the existing activity pattern to rationalize the traffic.
- To provide adequate parking spaces to remove traffic bottlenecks.

vi) Urban Poor

- Making urban poor integral part of the planning, growth and development process.
- Improving accessibility to basic services
- Providing better living environment and option.
- Creating enough employment opportunities for improving financial status.
- Providing adequate opportunities for creating affordable shelter duly supported by basic services.
- Empowering poor to be integral part of development process.
- Poverty alleviation programme to be made more focused and poor centric.

vii) Social Infrastructure

- To provide adequate sites based on norms, for various social infrastructures.
- To involve private and corporate sectors for providing / developing and maintenance of social infrastructure.

- To make optimum use of mechanism of planned development for developing adequate and quality infrastructure.
- To promote community participation in maintenance and upkeep of social infrastructure.

viii) Urban Governance

- To make urban local body a role model for good governance.
- To create appropriate and effective mechanism for grievance redressal
- To improve and strengthen the urban local body in terms of structure and quality manpower and resources.
- To create appropriate mechanism for promoting higher interface between ULB and communities on regular basis at ward and ULB levels.
- Making urban governance citizen centric.
- Adopting best practices and systems for improving, transparency, grievance redressal and accountability.
- To improve service delivery at minimum cost.
- To effectively involve NGOs/CBOs.

CHAPTER 9

MASTER PLAN

9.1 COMPONENTS OF THE MASTER PLAN

The scope of a Master Plan is limited to the broad proposals and allocation of land for various uses such as residential, industrial, commercial, recreational, public and semi-public etc. It proposes and defines a network of roads and pattern of streets and traffic circulation systems for the present and the future. It identifies areas required to be preserved and conserved and development of areas of natural scenery and landscape together with preservation of features, structures or places of historical, architectural interest and environmental value. It also includes zoning regulations for regulating development within each zone. Therefore, the Master Plan is an important instrument for guiding and regulating development of a city over a period of time and contributing to planned development both conceptually and operationally. In this context, Master Plan of Tarn Taran Local Planning Area has been prepared for a period of 2010-2031. It comprises of five major components that include:

- Existing Landuse Plan.
- Proposed Landuse Plan
- Proposed Traffic and Transportation Plan
- Report containing detailed study and analysis of existing status and future development strategies for the town and Local Planning Area
- Development Control Regulations

9.2 MASTER PLAN OBJECTIVES

The long-term vision and the mission statements would require spatial land use planning, infrastructure planning, financing and implementation, effective management and operation of infrastructure services, and regulating/enforcing plan proposals. The objective of the Master Plan is to create an enabling spatial and landuse planning framework to achieve the Vision of Tarn Taran LPA. More specifically following are the objectives:

- To make Tarn Taran town as the most vibrant economic centre and to promote the balanced regional growth.
- To make land allocation within the Local Planning Area in an environmentally sustainable manner

- 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 landuse.
- To make adequate developed land available for urban purposes.
- To minimize travel within the town by creating self-contained and self sufficient communities
- 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 all the residents of the town.
- To identify man-made and natural heritage and to make heritage conservation as integral part of the city planning and development process.

9.3 BASIC CONSIDERATIONS FOR PROPOSAL

While preparing the Proposed Landuse Plan, a detailed study and critical analysis has been made of the notified Tarn Taran 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 landuse besides the study of the existing problems and future growth potential of the area. Accordingly, basic considerations for formulating the Master Plan for the Tarn Taran LPA revolve around:

- Enhancing the ambience of Gurudwara Tarn Taran Sahib in terms of regulating development around this site and providing a well-defined approach road with elements of urban design.
- Rationalizing and redefining existing land use and development pattern of the town.
- Leveraging the potential of available regional roads and rail linkages/ networks with Amritsar, Khemkaran, Goindwal, Jandiala, Khadur Sahib, Patti and Jhabal.
- Leveraging on the administrative status of the town as a District Head Quarter
- Rationalizing the growth and development along NH 15 and roads leading to Jandiala, Khadur Sahib, Goindwal and Jhabal.
- Minimizing haphazard and unplanned growth through a well-defined land use pattern with zoning regulations and development controls.
- Promoting equitable distribution of public amenities and services in the entire LPA through well-defined norms and strategies.

- Minimizing the impact of its close proximity to international borders.
- Leveraging the existing industrial development in the eastern direction along existing bye pass.
- Minimizing conflict by rationalizing the inter and intra city traffic.
- Promoting compact development to minimize cost of infrastructure and optimizing usage of available land resource.
- Integrating urban and rural development in order to minimize migration to urban areas and to promote the economic and physical development of the rural settlements.
- Adopting well defined and stratified density pattern for residential areas.
- Integrating the growth and development of Tarn Taran with Amritsar Master Plan.
- Rationalizing the landuse pattern in order to promote better relationship between living, working and leisure.
- Promoting self contained communities based on prescribed infrastructure norm for better social interaction and minimizing traffic
- Preserving valuable agricultural land by promoting compact development.
- Providing adequate land for different urban uses including residential, commercial, industrial, public/semi public etc for projected population to be housed.
- Creating state-of-art socio economic infrastructure for promoting quality of life.
- Promoting agro-based industrialization for rapid economic growth and development.
- Leveraging tourism and administrative status for making Tarn Taran as the regional hub.

9.4 PROPOSALS

9.4.1 PROPOSED LAND USE PLAN (2010-2031)

The Proposed Landuse Plan for Tarn Taran LPA, as defined in Drawing No. D.T.P (A) 15/2010 dated 03-09-2010 has been prepared based on basic considerations defined in the para 9.3.

Based on the above broad parameters, Proposed Landuse Plan 2031 of Tarn Taran LPA has been prepared on computation of land requirements worked out for different uses as per UDPFI norms and existing & proposed growth pattern envisioned for the town and its LPA.

For working out land requirements for LPA, the proposed Gross Developed Area Density of 100 Persons Per Hectare for M.Cl. area and 25 Persons Per Hectare for the remaining LPA for the target year of 2031 has been considered. Accordingly, the required area works out to be 1500 Ha for M.Cl. and 4044 ha for the remaining LPA (refer table 82).

Table 82: Projected population and density in Tarn Taran LPA

Area	Projected Population for 2031	Proposed Density (PPH)	Land Requirement for 2031 (Ha)	Remarks
M.Cl.	149256	100	1500	Additional area required for urbanization is 931.3 ha.
LPA (Excluding M.Cl.)	101110	25	4044	No additional area required for other than M.Cl. area, villages will grow as per their natural rate of growth with growth restricted to a defined belt around these villages.

Although, the future urbanisable area required by 2031 has been calculated assuming gross developed area density but considering the need and importance of integration of Tarn Taran LPA and Amritsar Master Plan due to their close proximity and high degree of dependence, the area actually defined in the proposed landuse plan of Tarn Taran has been kept on the higher side. This has been done considering the importance of taking into account the immense growth potential of the neighbouring Amritsar city and the existing trend of growth and development of the Tarn Taran town itself. Accordingly, the area earmarked in the Proposed Landuse Plan is more than the area calculated as per requirements which is of the order of 7150 hectares and which works out to be 77.6 % of the total Tarn Taran LPA.

Further, the total area and additional area required for year 2031 for meeting the basic needs of residential, commercial, industrial and other landuses has been worked out based on future population growth and norms defined for different uses and are given below (refer table 83):

Table 83: Proposed Landuse Distribution for Tarn Taran LPA (2010-2031)

Sr. No.	Landuse	Proposed Landuse (%)	Proposed Area, 2031 (Ha)	Existing Area (ha)	Additional Area required, 2031(ha)
1	Residential*	40	600	350	250
2	Commercial*	5	75	46	29
3	Industrial*	15	225	28	197
4	Recreational	16	240	32	208
5	Traffic & Transportation*	14	210	49	161
6	Utilities & Services	10	150	63.7	86.3
7	Government Land				
8	Public & Semi Public*				
Total Urbanisable Area		100	1500	568.7	931.30

* **Note:** The proposed area under residential, commercial, industrial, traffic & transportation and public/semi public uses in case of Tarn Taran LPA has been made higher as compared to the actual area worked out above, in order to meet the land requirement emerging from the close proximity of Tarn Taran with Amritsar metropolis and high degree of prevailing interaction between the two cities. The provision of large area in the Proposed Landuse Plan of Tarn Taran LPA is also necessitated because northern boundary of Tarn Taran LPA touches the LPA boundary of Amritsar and the Outer Ring Road proposed in Amritsar LPA, also passes through the Tarn Taran LPA. Accordingly, the growth and development taking place in Amritsar is bound to have a high degree of impact on the development of Tarn Taran with number of activities shifting from Amritsar to Tarn Taran due to low land values and easy availability of different modes of transportation during day and night.

*For planning and designing of residential areas proposed in the Master Plan, density norms as defined in the Residential Zone under the Landuse Categories detailed below shall be followed.

DESCRIPTION OF PROPOSAL: As per the notification issued by the State Government, the Tarn Taran LPA extends up to an area of 11380 hectare, which includes 29 settlements. The LPA includes urban area of Municipal Council, which extends to 838 hectare. As per the projected population, the total area required for urbanization purpose for target year 2031 has been worked out to be 1500 hectares. The existing developed area has been calculated to be 568.7 hectares. Accordingly, additional area required to accommodate the projected population of 149256 and the physical growth has been worked out to be 931.3 hectares by 2031. The physical context and the spatial distribution of the urbanizable area has been delineated taking into consideration the existing and future pattern of growth and major transport corridors available and proposed in the Master Plan.

LANDUSE CATEGORIES:

A. RESIDENTIAL ZONE:

Total residential area proposed in the Landuse Plan to accommodate the projected population of 149256 as per UDPFI norms has been worked out to be 600 hectares. The area available at present under residential zone is of the order of 350 hectares. Accordingly, additional residential area to the tune of 250 hectares would be required to accommodate the total population. However, as explained above, the actual area provided under the residential category in the Master Plan has been kept on higher side considering the existing/ proposed pattern of growth, compatibility of land uses and compactness of development besides meeting the demand of unforeseen development due to its location in close proximity to Amritsar.

In the Proposed Landuse Plan, care has been taken to accommodate already existing residential area within the Tarn Taran LPA. However, residential area has been rationalized keeping in view the existing distribution of population in the town and the density pattern to be achieved in the Master Plan. It has been proposed to adopt a two-tier structure for the LPA based on the density pattern detailed below:

Table 84: Net Residential Density Categories

Sr. No.	Zone	Net Density
1	Residential area falling within existing municipal limits	300 persons per acre
2	Residential area falling between existing municipal limits and urbanisable limits within the LPA	200 persons per acre

The entire residential component in the LPA is proposed to be developed on two distinct density patterns i.e. residential area falling within the existing municipal limits, and the residential area falling between existing municipal limits and urbanisable limits within the LPA. The residential area within the existing municipal limits shall have a density of 300 persons per acre, whereas residential area falling outside existing municipal limits but within

the urbanisable limits of the LPA shall have a density of 200 persons per acre. Residential component outside the urbanisable limits shall be restricted to the area around the existing rural settlements and up to a distance of 50-100 metres around the village *phirnis* in order to accommodate the natural growth of population in the rural settlements.

Considering the acute shortage of agricultural land in the state of Punjab and to preserve the valuable agricultural land, a uniform density of 300 and 200 persons per acre has been adopted for the residential component depending upon their location. However, in order to achieve this density, different strategies have been proposed in the Master Plan. The town core area, which is highly congested and has high population density, is proposed to be decongested. This decongestion is proposed to be achieved by providing different affordable options of housing the population shifted out of the core area. In addition, core area will be decongested by shifting trade and commerce of the higher order taking place within the residential area. The area available shall be used for widening the road network and for creating open spaces.

The area presently developed as low density area shall be upgraded to achieve the defined density pattern of 200 Persons Per Acre outside the municipal limits but within the urbanisable limits. All the residential areas shall be provided with socio-economic and physical infrastructure based on the norms defined in the Master Plan. All these areas shall also have basic amenities and adequate open spaces to ensure appropriate quality of life. The areas that are deficient in terms of infrastructure and services shall be upgraded to the desired level by framing development schemes and undertaking detailed planned development of the areas.

In order to encourage flatted 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.

However, in order to preserve the basic rural character of the area outside urbanizable limits, it is proposed to have a gross residential density of 25 persons per hectare. The residential component outside the urbanizable limits shall be permitted in the 50-100 meter belt defined outside the village *phirni* in order to meet the land requirement of housing of the population going to be added in next two decades in these rural settlements. However, the rural settlements included within the urbanisable limits namely Doburji, Kakka Karyala, Mughal Chak, Malia, Bachre, Sanghe, Pandori Gola, Allahdinpur, Jodhpur and Kazikot will be developed on the density pattern of the layer defined for urbanisable area.

While achieving the target of affordable housing for all, the housing needs for all income groups have been assessed. Further, the existing spatial distribution of housing areas and the housing profile has also been critically looked into. Since the town has been growing horizontally, most of residential development shall be in the category of plotted development. In order to protect the valuable agricultural land, it is proposed to promote compact development in the shape of flatted development. The housing strategy worked out to provide affordable housing to all include the active participation of public, private and cooperative sectors. For development of new residential areas, it is proposed to actively involve private and cooperative sector in the residential activities by granting liberal permissions and by adopting single window clearing system. In order to provide affordable shelter to economically weaker section of the society, it is suggested to increase the quantum of reservations already existing in the PAPRA. The reservation for EWS housing should be available in all residential development undertaken/permitted by the state government.

Looking at the pattern of residential development, it has been observed that most of the development is haphazard and unplanned. The area available under roads is minimal with no open spaces available in such development. Even the sites for basic amenities are missing. This has resulted in high degree of congestion and absence of basic amenities in the residential zones. In order to rationalize the growth and minimizing the mushrooming of unauthorized colonies in the LPA, care will have to be taken to provide sufficient land at affordable cost to all categories of present and future residents of the town. The existing unauthorized colonies need to be reviewed based on a well defined policy, which should consider provision of basic essentials to the residents and ensuring adequate quality of life. Further all the residential colonies shall be developed on the principle of self contained and self sufficiency in basic day to day needs of the residents with provision of all basic amenities, services, infrastructure etc on the prescribed norms.

Housing for Economically Weaker Section (EWS):

Considering the fact that more than 90% of the existing housing shortage falls in the category of LIG and EWS housing, accordingly while proposing new residential area, housing for EWS should be the area focus and must be included as an essential ingredient of Master Plan. It will be critical to provide adequate land at most affordable price for providing shelter for this category. In addition to making available adequate land under this category, it will also be essential that certain percentage of land/plots/flats are provided for LIG/EWS housing in all housing projects sanctioned by the State Government. In addition, slums existing in the town should also be subjected to detailed study and analysis for evolving appropriate

strategies for up gradation, relocation or redevelopment. The strategies for ensuring adequate supply of land has been detailed out in the Master Plan.

B. COMMERCIAL:

Commercial use is proposed to be provided as integral part of planning of residential areas proposed in the Master Plan of Tarn Taran. The use shall be provided on the norms and standards specified in the Master Plan in order to ensure its equitable distribution and making various residential sectors self contained and self sufficient in these basic needs. Location of commercial area and its development is subject to detailed development control regulations provided in the Master Plan, including parking etc.

C. MIXED LANDUSE

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 unregulated growth in the shape of ribbon development. This pattern of development has been observed both within the M.C.I. 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 applicable within as well as outside the municipal limits as shown in the Proposed Landuse Plan and as detailed below:

1. **Outer Ring Road, Amritsar (R1):** A 500 mts deep mixed landuse zone has been proposed on either side and along the portion of the proposed Outer Ring Road, Amritsar falling in the Tarn Taran LPA on the pattern followed in the Master Plan of Amritsar.
2. **NH 15 (Scheduled Road) (R2):** A 300 mts deep mixed landuse zone has been proposed along the entire length of NH 15 on its either side both within as well as outside the municipal limits passing through the LPA on the pattern followed in the Master Plan of Amritsar.
3. **Ring Road, Tarn Taran and Other Roads (R3):** A 300 mts deep mixed landuse zone on one side i.e outside the urbanizable limit of the ring road has been proposed.

The position of mixed landuse zones defined above has been indicated on the Proposed Landuse Plan of Tarn Taran Master Plan bearing Drawing No. D.T.P (A) 15/2010, dated 03-09-2010. The development along this road shall be governed by the Development Control Regulations/ Detailed Schemes prepared for the zone.

However, the mixed landuse belt defined above includes the No Building Zone required to be provided along the roads proposed to have No Building Zone mentioned in the table 85 of Proposed Road Hierarchy. 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 Council limits. In the area zoned for mixed landuse, all kinds of landuses, which are compatible, shall be permitted. However, the uses, which are not compatible, shall not be permitted in this area. Orange and red category industries will not be permitted in this zone. The existing obnoxious, hazardous, inflammable, non-compatible and polluting industries shall have to move out to the designated industrial zone within a period of ten years from the publication of notification of the Master Plan. 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.

D. INDUSTRIAL ZONE:

Tarn Taran town primarily has majority of industries falling in the categories of small/medium scale industries. Most of these industries include brick kilns and rice shellers, which do not follow any specific development pattern and are scattered in the entire town as well as Local Planning Area especially along NH15, Jandiala Road, Khadur Sahib Road and Goindwal Road. The town has an Industrial Focal Point set up by the industries department. In the absence of Master Plan industries have been found to be located in a haphazard and unplanned manner. In number of cases, residential units have been located in the residential area or within the residential houses. In the absence of rational pattern of development, these industrial units suffer from basic infrastructure and cause numerous problems to the city and its residents including environment.

Considering close proximity of Tarn Taran with the Amritsar metropolis and the Master Plan proposals of Amritsar master Plan, industrial area has been proposed in the northern part of

the city in continuation of the industrial zone provided in the Amritsar LPA. This will ensure integrated development of residential component of Amritsar and Tarn Taran avoiding duplication etc. extent of the industrial area has been limited to the outer ring road provided in the Amritsar master Plan and passing through the Tarn Taran LPA. Since NH15 and Amritsar- Tarn Taran railway line passes through this area, accordingly traffic and transportation and raw material/ finished goods demand and supply shall be appropriately taken care of.

In addition, an industrial zone has also been provided along Tarn Taran-Jandiala Road near village Malia and Kadgill where large agro-based industries have been found to exist. This zone will accommodate all the existing industrial units.

Another industrial area is proposed on the southern side of the town to accommodate existing units, which is located at a distance of about 3 kms from Industrial Focal Point, which will also include truck terminal and bulk material market. In selection of this site, prevailing wind direction (NE to SW) has also been considered. The proposed site has the advantage of high degree of accessibility due to its location on existing bye-pass, the railway line and the proposed ring road and road leading to Goindwal Sahib. Industrial units of small and medium scale can be developed in this direction. The proposed industrial component in the Master Plan, based on norms, has been worked out as 225 hectares, but the area provided in the proposed landuse plan is higher due to the factors explained earlier.

Number of godowns are existing within and outside the town owing to the presence of numerous rice shellers. Accordingly, all these godowns and rice shellers are proposed to be shifted outside the residential area to be accommodated in the industrial zone located on the northern side, on eastern side on Jandiala road and in the southern direction. The shifting of warehousing (godowns) and rice shellers outside the residential area will help in decongesting it, besides minimizing number of problems caused by the location of such activities. The core of the town will primarily be made residential supported by basic infrastructure and services required for residential activities.

E.TRAFFIC AND TRANSPORTATION

The Traffic and Transportation proposals revolve around defining a hierarchy ranging from R1 to R8 of road pattern catering to various needs and landuses of the Master Plan. The existing pattern of road development has been found to be radial in Tarn Taran. The future pattern proposed is based on the strengthening of the existing radial pattern by widening the existing roads. This pattern is further supplemented with a pattern of Circular Roads in order to rationalize the traffic movement on the radial roads. Accordingly, 5 radial roads have been

superimposed by 2 ring roads. This includes existing Bypass and the new Ring Road. The Ring Road has a length of 22.5 kms and is proposed to have width of 45 mt.

In addition to the ring and radial pattern, Local Planning Area is also served by the outer ring road proposed for the Amritsar LPA, which passes through the northern part of the Tarn Taran LPA. The Outer Ring Road of Amritsar passing through Tarn Taran LPA will have a width of 80 mts and will be a high-speed road on the pattern defined in the Amritsar Master Plan. It will also have a mixed landuse zone of 500 mts on its either side in order to ensure orderly growth and development of the road. The Outer Ring Road, when finally realized, will help in providing direct connectivity of Tarn Taran with the GT Road (NH1), besides providing direct connectivity with the other four major urban settlements of Majitha, Raja Sansi, Jandiala and Rayya located in the Amritsar LPA. In the similar manner, the Inner Ring Road of Amritsar passing through the northern most direction of Tarn Taran LPA will have a width of 60 mts.

The entire Traffic and Transportation of Tarn Taran revolves around NH 15 (Pathankot to Ferozepur), which passes through the center of the town. The proposed Traffic and Transportation Plan provides adequate widening and expansion of this road in order to enable it to serve the major transportation needs of the town. The existing NH 15 falling in the LPA limits has been proposed to be widened to 60 mts, considering the importance of road and the pattern followed in the case of Amritsar Master Plan. Few other important roads in LPA have also been proposed to be widened in order to improve connectivity between Tarn Taran town and the other rural settlements as detailed below in Table 85.

In order to ensure smooth and uninterrupted flow of inter and intra city traffic, six Railway Over Bridges (ROBs) have been proposed over the Amritsar-Khemkaran Line and Tarn Taran-Goindwal Sahib Railway Line, which are under construction. In addition, two underpasses are proposed on the crossing where construction of ROBs is not possible. In order to rationalize the traffic on road junction, junction improvements have been proposed at 2 junctions within TarnTaran LPA. The detailed aspect of Traffic and Transportation with phasing of ROBs has been discussed in Proposed Traffic and Transportation Plan in para 9.4.2 below.

F. PUBLIC/SEMI-PUBLIC USE:

Public/ Semi public use i.e. educational and health related facilities are to be provided as integral part of planning of residential areas proposed in the Master Plan of Tarn Taran. These facilities shall be provided on the norms and standards specified in the Master Plan in

order to ensure their equitable distribution and making various residential sectors self-contained and self-sufficient in these basic needs.

G. RECREATIONAL

The Kasur Nallah and Muradpur Drain, which are covering the major part of the length and breadth of the town and have high degree of pollutants, are proposed to be developed as the **leisure valleys** of Tarn Taran. 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 town. 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 rainwater of the town in order to minimize the problem of water logging in the city. The development of *nallahs* is to be taken up in the shape of project for the area kept as green along the Kasur Nallah and Muradpur Drain. It is proposed to earmark a green belt of 30 m on either side of these drains, which shall be developed as the leisure valleys providing for landscaping and walkways as explained above. The existing drains and distributaries other than Kasur Nallah and Muradpur Drain falling within TarnTaran LPA will be having green buffer of 10 mt.

H. AGRICULTURE/GREEN BUFFER

To preserve the valuable agricultural land, to meet the basic requirement of residents of this LPA and to preserve the basic rural character, area falling under villages Pandori Ran Singh, Kotli, Behla, Kaironwal, Bugha, Chatala, Pidli and Sheron has been earmarked as agricultural. The rural character of these villages will be retained as such.

In order to improve the quality of environment and to promote the percentage of green cover, it is proposed to plant trees along all major roads. The existing Bypass and the proposed ring road will have thick tree plantation.

9.4.2 PROPOSED TRAFFIC AND TRANSPORTATION PLAN (2010-2031)

Effective integration of various landuses through a well-planned road network with an efficient transport network system is the basic need of a realistic Master Plan. The traffic and transportation proposals need to be framed in a manner that it leads to rational growth and development of town. Various proposals of traffic and transportation described in the chapter and indicated on the Proposed Traffic and Transportation for Tarn Taran LPA Drawing No. D.T.P (A) 16/2010 dated 03-09-2010, aims at rationalizing the existing road network, creating a well defined hierarchy of roads, redesigning critical areas including road junctions, creating over-bridges, rationalizing the inter and intra city traffic, creating adequate parking spaces, developing well defined interface between different landuses, minimizing delays etc.

This would lead to overall improvement of operational efficiency minimizing vehicular pollution.

It is important to plan and rationalize traffic and transportation system within any town to minimize the number of vehicles coming on the roads through well defined short and long term policies. The policy option shall primarily include development of an effective public transport system. The proposals for rationalising the traffic and transportation within Tarn Taran LPA are described below:

A. Upgradation (Improvement and Strengthening) of Existing Roads

It is important not only to improve the existing roads but also to provide missing links within the existing network in order to have better connectivity between Tarn Taran town and rural settlements falling within LPA.

Keeping in view the future growth of inter and intra city traffic, the existing NH 15 in the portion passing through the LPA outside the municipal limits has been proposed to be strengthened and widened to 60 mt considering the importance of road, as it is the major artery carrying the maximum volume of both inter and intra city traffic. Few other important roads in LPA, have also been proposed to be widened outside the municipal limits in order to improve connectivity between Tarn Taran and the other rural settlements. The proposed road hierarchy to be followed in Tarn Taran LPA has been indicated in the proposed traffic and transportation plan and Table 85.

Table 85: Proposed Road Hierarchy in Tarn Taran LPA**

Category of Road	Description	Right of Way (Meters)	Remarks
R1	Outer Ring Road (as provided in the Amritsar Master Plan)	80	• 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	NH15- Pathankot- Amritsar- Tarn Taran (as provided in the Amritsar Master Plan) (Scheduled road), Inner Ring Road (as provided in the Amritsar Master Plan) and existing bypass	60* (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 • 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

Category of Road	Description	Right of Way (Meters)	Remarks
R3(A)	- Outer ring road, Tarn Taran - Tarn Taran – Patti road - Tarn Taran – Jandiala	45*	- 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.
R3 (B)	- Tarn Taran – Goindwal sahib - Tarn Taran – Gandiwind - Tarn Taran – Khadur Sahib - Tarn Taran- Shahbazpur	30	- Road will carry both inter and intra city traffic - Cycle Lanes and Footpaths - Provision of adequate parking where road frontage used for urbanization
R4	Major roads within the urban limits other than the roads defined as R3	25	- Road will carry both inter and intra-city traffic - Footpaths. - Provision of adequate parking where road frontage used for urbanization.
R5	Roads other than R4 carrying/distributing city traffic within the residential areas	18	Distributor roads carrying intra city traffic provided with footpaths
R6	Roads providing access to individual houses	12	Providing accessibility at the local level
R7	Cycle Tracks	2-5	Specially catering to cyclists
R8	Pavement/ Footpath for Pedestrian Movement	1.5-2.5	Exclusive for pedestrain movement

*Subject to the provisions of road width specified above and the DCR, no road in the LPA will have a width less than 12 mts.

** No Building Zone along the Scheduled Roads/Bypasses, defined above shall be subjected to the gazette notification issued by the state govt. under the PRTFDA-1995 (amended 2006).

Upgradation of the Approach Road to Gurudwara Tarn Taran Sahib

Gurudwara Tarn Taran Sahib is the main religious landmark of the town having a regional importance and lakhs of pilgrims visiting the Gurudwara on Masya days (as already discussed in the Heritage and Tourism chapter of the report). The approach roads towards the Gurudwara originating from NH 15 are very narrow, which restricts the entry of vehicles and creates traffic congestion on the NH 15. Moreover, the residential area surrounding it has narrow roads with mix use development. For this purpose, the approach roads are proposed to be upgraded by removing all the encroachments and implementing pedestrianization by restricting the flow of vehicles on the approach roads. The approach road to Gurudwara Tarn Taran Sahib is proposed to be developed on the lines of Approach Roads to Golden Temple by implementing urban design principles and pedestrianization.

Strengthening and improvement of NH 15: In order to improve its capacity and efficiency of NH 15 (Pathankot-Amritsar-Ferozepur-Mumbai), it is proposed to upgrade the road from the entry to exit point in the town. The proposed up-gradation of NH 15 includes removing

encroachment, widening the ROW, improving the existing road condition by metalling, providing signages and street furniture and provision of streetlights. It also provides for creating a service lane on either side of the road in order to rationalize the traffic movement on NH 15. The proposed cross section details out the up-gradation of the road in terms of carriageway, service lane, parking and landscaping.

B. New Roads:

i. Proposed new Ring Road, Tarn Taran: In view of projected transportation scenario in the next twenty years, a Ring Road circumferencing the entire town has been proposed next to the existing bypass. This ring road has a length of 22.5 kms. and width of 45 mt. The existing bye pass along with the proposed ring road on all sides shall provide a ring radial pattern of development to the town and check the problem of regional level through traffic.

ii. Proposed links: Town being an important regional centre needs arrangements for traffic generated towards Gurudwara Tarn Taran Sahib, especially during mela days. Hence new links have been proposed from Gurudwara Tarn Taran Sahib to the existing bypass and proposed outer ring road. This will be helpful in regulating regional traffic entering the town. A stretch of 1.8 kms. of Jhabal road from existing bye pass up to development within town(as shown in proposed traffic and transportation plan) is proposed to be widened. Beyond this length, the road shall be pedestranized upto the Gurudwara.

C. Proposed Overbridges/ underpasses: In Tarn Taran, the railway line between Khemkaran and Amritsar runs almost centrally through the entire LPA. The railway line has been identified as a major bottleneck in traffic movement within and outside the town. NH 15, which carries large volume of traffic and roads leading to Jandiala, Khadoor Sahib, Goindwal and bye pass are being intersected by Tarn Taran-Amritsar railway line. Hence, frequently massive traffic blockages have been observed on these roads. In order to ensure smooth and uninterrupted flow of inter and intra city traffic, over bridges have been proposed over the Amritsar-Khemkaran line and over the railway line towards Goindwal, which is under construction. 2 underpasses are proposed on the crossing where construction of ROB is not possible.

Since construction of ROB involves high capital expenditure, construction of 6 over bridges and 2 under passes has been phased out considering importance and volume of the traffic.

As per the priority, first over bridge will be constructed on crossing of railway line and NH15 near Gurudwara Takkar Sahib, which is the most critical crossing as it has maximum

problem of traffic jams. Next in Phase II will be 2 ROBs over Jandiala road and crossing near FCI. The phasing for construction of railway over-bridges has been indicated below:

Table 86: Priority of ROBs in Tarn Taran LPA

Sr. No.	Proposed ROB	Priority
1	On NH 15 near Gurudwara Takkar Sahib	I
2	At junction of railway line and existing bypass in the north direction	II
3	At junction of railway line and proposed ring road in the north direction near Village Kakka Kadiyala	III
4	At junction of railway line and proposed ring in the south west direction near village Jodhpur.	IV
5	At junction of railway line towards Goindwal and existing bypass in the south	V
6	At junction of railway line towards Goindwal and proposed ring road in the southern direction	VI

Table 87: Priority of Uunderpasses in Tarn Taran LPA

Sr. No.	Proposed Uunderpasses	Priority
1	At junction of railway line and Jandiala Road	VII
2	At crossing near FCI	

The location of all the aforementioned over bridges and underpasses, has been shown on Proposed Traffic and Transportation plan, Local Planning Area, Tarn Taran 2031.

D. Junction Improvement: In addition to inadequacy of road network in town, it has also been observed that many road junctions are not properly designed and constructed. This has led to creation of traffic bottlenecks at major junctions of the town, which causes delays and inconvenience. Delay in movement leads to creation of considerable pollution due to emissions, which has adverse impact on the quality of life in the town. Congestion at few junctions has also led to large number of accidents. In order to rationalize the flow of traffic and minimize conflicts at junctions carrying large volume of traffic, it is proposed to improve the road geometry at two junctions that have high rate of traffic problems. These junctions are located on the existing bye pass on the northern and north- western direction of town. The junctions proposed for immediate improvement include,

1. Junction between Bypass and NH 15 at the entry point of town
2. Junction between Bypass and Jhabal road

Subsequently, road junctions on NH 15 within the town area namely Bohriwala Chowk, Char Khamba Chowk, Jandiala Chowk, Khadur Sahib Chowk and Goindwal Sahib Chowk will also required to undergo improvement (refer Proposed Traffic and Transportation Plan 2009-2031).

E. Proposed Transport Nagar: Provision of efficient goods transportation facility is important to promote trade and commerce, and in turn economy of the town. Since town has an agro based economy, there is a lot of goods movement between the town and surrounding villages/region. In the absence of regulated space for parking and a truck stand, at present the trucks are parked here and there in the town on major roads. To provide them a permanent

and formal parking space, a Transport Nagar/Truck Terminal has been proposed as an integral part of the industrial zone on the ring road of Tarn Taran. The location of the proposed Transport Nagar shall be as decided the Site Selection Committee constituted by the State Government. The Transport Nagar suggested will have parking lots for trucks, rest rooms for drivers, repair shops, etc.

F. Improvement of Existing Railway Station:

Since existing Tarn Taran railway station lacks facilities related to passengers and vehicles, accordingly it needs to be upgraded in terms of provision of facilities especially to cater to the requirement of large number of visitors coming to the town during the various festivals/melas for which the town is known in the state of Punjab. Adjoining railway land shall be utilized for upgrading and provisions of the basic facilities.

Creating Direct Rail Link between Amritsar/Tarn Taran-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 Tarn Taran. 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 have distinct advantages in terms of connecting Amritsar and Tarn Taran with Mumbai through Ferozepur and Rajasthan. The link has the additional advantage because it will reduce the distance between the Tarn Taran and Mumbai by minimum 240 kms. It will not only lower down the transportation cost, but will also considerably reduce the pressure on the trunk route of Amritsar-Mumbai via Delhi. Further, this will also provide direct rail connectivity between Tarn Taran and Ferozepur 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 LPA. 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.

G. Proposed Parking Lot: Due to rapid growth of the town from rural to an urban settlement, most of the core areas of the town have narrow roads, which are unable to accommodate any movement of vehicles. Increased vehicle ownership has led to congestion on roads due to absence of well defined and adequate parking spaces. In absence of such spaces, most of the vehicles are parked on the roads leading to traffic congestion and

vehicular movement. Hence, it is critical to provide adequate parking spaces in town through the system of development control regulations which defines parking norms for each category of land use.

9.5 SPACE NORMS AND STANDARDS

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 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:

Table 88: Planning Norms for Educational Institutions

Sr. No.	Category	Population	Units	Strength of student	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 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+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.
vi	Integrated School with hostel facility (class 1-12)	90,000-1,00,000	1	1000	0.70	2.50+ parking area of 0.30	3.50	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 residen tial/ho stel	1.80 + Parkin g 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	10,00,00	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	250	-	-	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 so designed in order to ensure that they are also made available to the community as play area in 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 tree cover.
- Adequate arrangement for parking and buses, vehicles of students/staff shall be made.

- Unless specified in the zoning plan and building bye-laws, the ground coverage, FAR, height and various categories of buildings shall be as under.

Table 89: Building Byelaws for the Schools

Category	Maximum Ground Coverage	Maximum permissible height	FAR
Nursery School	40%	8 mts.	0.75
Primary School	40%	8 mts.	0.75
Higher Sec. School	33%	15 mts.	1.00
Colleges	33%	15 mts	1.00
Uni/Tech/Prof. Inst.	25%	20 mts.	1.00

Basement should be allowed under the builtup 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 under academics shall not exceed 45%, residential 25%, sports and cultural activities 15% and parks and landscape 15%.

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 activity area including commercial, industrial, institutional etc. well defined hierarchy will be essential to meet both the basic and specialized needs of the health care. Adequate arrangements 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 facility of various grades to be provided in the town/city shall be based on the following norms:

Table 90: Planning Norms for Health Facilities

Sr.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 0.06 ii)for residential 0.04	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 specialized needs of healthcare.
- All medical colleges shall also include provision of medical hospital of 500 beds as an 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 byelaws, zoning plans and development control regulations.

I NORMS FOR FIRE STATION**Table 91: Planning Norms for Fire Station**

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 in 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 storeyed buildings.

II NORMS FOR SECURITY - POLICE, CIVIL DEFENCE AND HOME GUARD**Table 92: Planning Norms for Security**

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Police Station	90,000	1.50 Hectare.	* In 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 = 0.80 for Battalion = 4.00 Ha.)	
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	

III SOCIAL CULTURAL FACILITIES**Table 93: Planning Norms for Socio Cultural Facilities**

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Community Room	5,000	1000 sqm (0.1 Hct)	
2	Community Centre	15,000	2500 sqm (0.25 Hect).	
3	Re-creational Club	1,00,000	10000 sqm. (1.0 Hct)	
4	Music Dance, Drama Centre	1,00,000	1500 sqm. (0.15 Hct)	
5	Meditation & Spiritual Centre	1,00,000	5000 sqm. (0.5 Hct)	
6	Socio Cultural Centre	10,00,000	150000 sqm. (15.00 Hct)	
7	Religious Sites (Mandir, Gurudwaras & Churches)	15,000 (3 sites provided in each sector)	1000 sqm. (0.10 Hct)	

IV SPORTS ACTIVITIES**Table 94: Standards for Sports Facilities**

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Residential unit play area	5,000	0.5 Hct	
2	Neighbourhood play area	15,000	1.50 Hects.	
3	District sport centre	1,00,000	.8.0 Hcts	
4	Divisional sports centre/City sports centre	10,00,000	20.00 Hcts.	

V POSTAL FACILITIES**Table 95: Planning Standards for Postal Facilities**

S. No.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Post office counter without delivery	15,000	85 sqm.	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.	

VI TELEPHOENE & TELEGRAPHS**Table 96: Planning Standards for Telephone and Telegraph**

S.N.	CATEGORY	POPULATION PER UNIT	MINIMUM AREA	REMARKS
1	Telephone Exchange for 40,000 lines	4,00,000	4.00 Htcs.	
2	Telegraph Booking Counter	1,00,000	200 sqm.	To be provided as part of the commercial area
3	Telegraph Booking & Delivery Office	5,00,000	1700 sqm.	To be provided as part of the commercial area

NORMS FOR THE COMMERCIAL AREAS**Table 97: 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	300

					Persons	
Community Centre	1,00,000	1	50,000	475	1 for 200 Persons	500
District Centre	5,00,000	1	75,000	1,620 (Both formal & Informal)	1 for 300 Persons	880
Local Wholesale Market	10,00,000	1	1,00,000	--	--	--
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.

9.6 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 Delhi, Chandigarh or 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 in the master plan 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 town scale is recognized, e.g. solid waste disposal site or a slaughterhouse. However, they are locally undesirable and invoke “Not in My Backyard” response.)

No single alternative needs to be used throughout the town. It may vary for example, in core areas v/s outlying areas. Similarly, different alternatives may be suitable for different types of public purposes. The possible alternatives for obtaining 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 as below:

9.6.1 THROUGH O.U.V.G.L. SCHEME:

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, 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.

Rationalising 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 town are common examples. But, this requires public land at other location, make specific designations on the master plan and then proceed with compulsory acquisition of land. Impracticability of this is too well known to be recounted here. However, this may be unavoidable in certain cases – particularly 'A' category public purpose.

9.6.2 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 be 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 receive TDRs in lieu of compensation. Weight related to price differentials in originating and receiving zones could be considered as an incentive.

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 allowed to fully use his development rights provided that he offers the built up space required for the public purpose.

9.6.3 THROUGH PAPRA , 1995

Layout and Sub-division Regulations: These regulations depending upon the total area of layout can provide for some reservation for general public purpose in addition to local requirements. This is currently being used under the colonisation rules operated under the PAPRA, 1995.

9.6.4 THROUGH LAND POOLING OR TOWN PLANNING (DEVELOPMENT) SCHEMES:

As per the provisions of section 91 (Chapter XII) of Punjab Regional and Town Planning & Development (Amendment) Act, 2006, the concerned authority may for the purpose of implementation of the provisions 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 a wide menu. Described below is a possible menu. Admittedly all items on the menu may not be available for every city.

Table 98: 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 2006 and	Land Pooling	Govt / Panchayat / Waqf Board lands

			Development Schemes under PTI Act, 1922		
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 of 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		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 area for colony is set at 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
Alternative	Land Acquisition through 1894 Act	TDR	Development of land through PAPR Act 1995, TDS under PRTPD Act 2006 and Development Schemes under PTI Act, 1922	Land Pooling	Govt / Panchayat / Waqf Board lands

Limitations	Iniquitous distribution of costs and benefits. Cost borne by those who lose land and benefits enjoyed by surrounding landowners	Iniquitous distribution of costs and benefits. Cost borne by those who lose land and benefits enjoyed by surrounding landowners		Time consuming and complicated process	Source of revenue for Panchayat Bodies / Waqf Board gets depleted.
		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.

CHAPTER 10

DEVELOPMENT CONTROL & ZONING REGULATIONS

10.1 SECTION – I: ZONING REGULATIONS

The zoning regulations proposed under this Master Plan are primarily concerned with the control of land use. The Proposed Land Use Plan includes following land use zones:

- Residential
- Commercial
- Mixed Land Use
- Industrial
- Recreational
- Agriculture and water bodies

In addition, specific designated uses have been shown in respect of Traffic & Transportation, Utilities & Services, Governmental and Public & Semi-Public facilities.

The sub-division of land, design and construction of buildings falling within the different land uses shall be controlled through Building Byelaws applicable to the area and the zoning regulations defined in this chapter and those framed by the competent authority from time to time. The zoning regulations under the Master Plan are seen as the guiding parameters for these agencies to ensure that the development permitted by them is in conformity with the Master Plan.

10.1.1 USE AND DEVELOPMENT OF LAND TO BE IN CONFORMITY WITH MASTER PLAN

Section 79 of the Punjab Regional and Town Planning and Development (Amendment) Act 2006 provides:

After coming into operation of this Master Plan, no person shall use or permit to use any land or carry out any development in any area otherwise than in conformity with such Master Plan, provided that the Competent Authority may allow the continuance of any use of any land, for a period not exceeding ten years, upon such terms and conditions as may be provided by Regulations made in this behalf for the purpose and to the extent, for and to which it was being used on the date on which such a Master Plan came into operation.

To give incentive and to encourage users to move from non-conforming land use zone to a land use zone where the use is in conformity with master plan, Change in Land use Charges and External Development Charges will be waived of.

Chief Town Planner, Punjab being the Planning Agency designated under Section 57 of the Punjab Regional and Town Planning and Development (Amendment) Act, 2006 for the Local Planning Area declared under Section 56 of the said Act, following the requirement under clause (d) of sub section 1 of Section 70 of the Punjab Regional and Town Planning and Development (Amendment) Act, 2006 hereby makes following Zoning Regulations as a part of the Master Plan prepared for the Tarn Taran Local Planning Area.

10.1.2 SHORT TITLE, SCOPE, EXTENT COMMENCEMENT

1. Title

These regulations shall be called the Zoning Regulations for Tarn Taran Local Planning Area (herein after referred to as “Regulations”).

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, Rules/Byelaws and Regulations promulgated by Government from time to time. Competent Authorities under such regulations shall ensure that the development permitted by them is in conformity with these Regulations.

3. Jurisdiction

These Regulations shall apply to all “development” in the Tarn Taran Local Planning Area, declared under section 56 of the Punjab Regional and Town Planning and Development Act 1995 vide notification no. 12/54/2006 – 4 HGI/9846 dated 17-12-2007.

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 and the 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 (Amendment) Act, 2006.

10.1.3 DEFINITIONS

For the purpose of these Zoning Regulations, the following definitions, unless the context otherwise requires, shall apply:

- a. **“Act”** means the Punjab Regional and Town Planning and Development (Amendment) Act, 2006 (Punjab Act No. 11 of 1995) as amended from time to time.
- b. **“Atta Chakki”**: Atta Chakki, a service industry where:
Grinding of food grains is carried out through the process of crushing under the load and rotational movement of two plates or blocks with maximum electric load not exceeding 20 KW with limited retail /sale of flour permitted.
- c. **“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.

- d. **“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 Tarn Taran Local Planning Area and as indicated on Drawing No. D.T.P. (A) 07/09, Dated: 11-11-09.
- e. **“Farm House”** Farm house means a building allowed on a holding of agricultural land for residential and agricultural related activity of the land holder.
- f. **“General Industry”** shall include all categories of industries (small scale, Medium / large scale) except special industries (highly obnoxious, hazardous, inflammable non compatible and polluting industries as defined by Punjab Pollution Control Board).
- g. **“Government”** Means the Government of the State of Punjab.
- h. **“House Hold Industry”** House Hold Industry means occupation/activity, which is permitted to be conducted in the dwelling unit with or without power and which is non-polluting/non hazardous subject to the terms and condition specified by the Competent Authority.
- i. **“Knowledge Park”**: An area having all such uses and activities which are confirming and do not include such uses/activities which are polluting, hazardous and creating environmental problems. The activities/uses to be permitted shall be free from noise& vibrations, having no polluting effects on air and water and causing no public nuisance whatsoever. The uses in such park shall be as determined by Chief Town Planner, Punjab from time to time.
- j. **“Logistic Park”** an integrated facility to serve as a business hub for storage, insurance and distribution purposes for the trading of manufactured products.
- k. **“Local Planning Area”** means the Local Planning Area Declared under section 56 (1) of the Punjab Regional and Town Planning and Development (Amendment) Act, 2006 (Punjab Act No. 11 of 1995) vide notification no. 12/54/2006 – 4 HGI/9846 dated 17-12-2007
- l. **“Mixed Land Use”** means the multiple confirming use of land (except orange & red category industry) which is allowed on a plot of land subject to fulfillment of planning norms and environmental safeguards.
- m. **“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 in the Master Plan.
- n. **“Planning Agency ”** means the Chief Town Planner, Punjab designated as such under Section 57 of the Punjab Regional and Town Planning and Development (Amendment)

Act, 2006 (Punjab Act No. 11 of 1995) as amended from time to time for Tarn Taran Local Planning Area.

- o. **“Proposed Landuse Plan”** means the plan showing the proposed/admissible uses of different areas and Land use zones covered in the Tarn Taran Local Planning Area and as indicated on the Drawing No. D.T.P (A) 15/2010 dated 03-09-2010.
- p. **Public and Semi Public Activities:** Public and semi public activities means governmental/ semi governmental offices, educational/cultural, religious and medical/health institutions, community centers etc.
- q. **“Sector Plan” (Zonal Plan)** means the detailed plan of a sector/zone, as indicated in the Master Plan and approved by the Chief Town Planner, Punjab showing all or any of the following:-
 - Major road network, location of main utilities/sites, green belts/buffers, water bodies or other restrictions imposed on the development.
 - Area temporarily or permanently prohibited for the building operation. Permissible land uses
 - Any other detail provided in the Lay-out Plan
- r. **“Special Industry”** shall include industries, which are highly obnoxious, hazardous, inflammable, non compatible polluting industries as defined by Punjab Pollution Control Board from time to time.
- s. **“Zoning Plan”** means the plan of an area or part thereof or supplementary layout plan approved by the Chief Town Planner, Punjab 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 respect of each plot, permitted land use, building, land, height, coverage and restrictions with regard to the use and development of each plot in addition to such other condition as laid down in these Regulations here in after.

Terms used, but not defined in these Regulations, shall have the same meaning as assigned to them in the Act/Rules.

10.1.4 LANDUSE ZONES

The Proposed Land use Plan of Tarn Taran LPA includes the following land use Zones:

- | | |
|---------------|--------------------------|
| • Residential | • Mixed Landuse |
| • Commercial | • Recreational |
| • Industrial | • Rural and Agricultural |

10.1.5 LANDUSE CLASSES

For the purposes of these Regulations, the above landuses have been grouped into various landuse classes. Each class of landuse has been given a specific code. The Landuse Classes and Landuse Codes are detailed below:

Landuse Classes with Class Codes

Sr. No.	Landuse 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	Healthcare Facilities	G
8	Recreational, Entertainment, Cultural and Religious Activities	H
9	Public Utilities and Services	I
10	Agriculture, Forestry and Fishing	J

10.1.6 USE PROVISIONS IN LANDUSE ZONES

The following table describes the landuse classes and their sub-classes along with the uses permitted in various landuse zones. The shaded cells in the table indicate that the use is generally permissible. A number in the cell indicates the conditions, subject to which the use is permissible. The conditions have been listed at the end of the table.

LAND USE ZONES AND PERMISSIBLE LAND USES							
CLASS CODE/ SUB CODE	LAND USE CLASS/SUB CLASS	LAND USE ZONES					
		Residential	Commercial	Industrial	Mixed	Recreational	Rural and Agricultural
A	Housing						
A1	Residential houses in the form of plotted development, flatted development, group housing, farm houses for customary residence			1			2
A2	Old age homes, Orphanages, Hostels for students, working women etc., Boarding Houses						
A3	Service Apartments, Hotels including Star Hotels, Motels, Guest Houses, Dharamshalas, Lodging Houses			3			
A4	Jails, Asylums, Reformatories and the like						
A5	Residences for Watch and Ward Staff, residences for industrial workers/ management			1			
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, Rehri Market						
B2	Department stores, Malls including Super Market, 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						

LAND USE ZONES AND PERMISSIBLE LAND USES							
CLASS CODE/ SUB CODE	LAND USE CLASS/SUB CLASS	LAND USE ZONES					
		Residential	Commercial	Industrial	Mixed	Recreational	Rural and Agricultural
	Branches, ATM, Boutiques, Phone Booths, Pan Shop, Chemist Shop, Sweet Shop, Tea Stall, Electric & Electronic Shop with repair facilities, Photo Studio, Property Dealer Shop, Dairy Products, Cable TV, Readymade Garments, Cycle and Motorcycle Repair, Stationery Shop, etc.						
B4	Wholesale trade with storage of commodities	4		4			4
B5	Filling Station (Petrol Pump) *						
B6	Kerosene Storage/Gas Godown/Coal/Wood Storage	5	5	5	5		4
B7	Gas Distribution (without storage of cylinders)						
B8	Trade Fares, Exhibition and Convention Centres						
B9	Showroom of Mills/ Factory Retail Outlets, Auto Showrooms and Auto Workshops						
B10	Marriage Palaces**	4	4				4
B11	Trade not classified above						
C	Manufacturing (NIC-2008, Section C)***						
C1	Manufacture of Food Products (NIC Division 10)	6			7		
C2	Manufacture of Beverages (NIC Division 11)						
C3	Manufacture of Textiles (NIC Division 13)						
C4	Manufacture of Wearing Apparel (NIC Division 14)				7		
C5	Manufacture of leather and related products (NIC Division 15)						
C6	Manufacture of wood and products of wood and cork; Saw Mill; except Manufacture of Furniture (NIC Division 16)				7		
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)						
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 n.e.c.(NIC Division 28)						
C19	Manufacture of motor vehicles, trailers and semi-trailers (NIC Division 29)						

LAND USE ZONES AND PERMISSIBLE LAND USES							
CLASS CODE/ SUB CODE	LAND USE CLASS/SUB CLASS	LAND USE ZONES					
		Residential	Commercial	Industrial	Mixed	Recreational	Rural and Agricultural
C20	Manufacture of other transport equipment (NIC Division 30)						
C21	Manufacture of furniture (NIC Division 31) except Saw Mill	4					
C22	Other manufacturing (NIC 32)						
C23	Repair of Machinery and Equipment (NIC Division 33)	4					
C24	Milk Chilling (independent plot), Pastuerization plant, Cold Storage, ice factory		4		7		
C25	Rice Shellers, Processing of Farm Products, Brick Kilns, Lime/ Charcoal Kilns						8
C26	Cottage Industry, Repair of Household Articles, Cycles and scooters repair, Household Industry	4					
C27	I.T. Park, Knowledge Park	4					
C28	Cement, Sand and Concrete Mixing Plant(Batching plant), Bitumen, Sand, Concrete Mixing Plant(Hot Mix Plant)						
C29	Manufacture, Storage and Sale of Fire Works	9	9		9		
D	Transport, Storage and Warehousing						
D1	Warehousing and storage activities for transportation (NIC Division 52) and Loading & unloading yard						4
D2	Rail and Air Freight Terminals						4
D3	Truck Terminals						
D4	Bus Terminals, Auto-Rickshaw/ Taxi/Two Wheeler/Cycle Stand, Bus Shelters						
D5	Warehousing, Logistic Park, Storage & Godowns, Freight complex, Container Yards						4
E	Offices						
E1	Publishing of books, periodicals and other publishing activities (NIC Group 581) Software publishing (NIC Group 582)				7		
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)	10					
E4	Telecommunications (NIC Group 61), Govt/ Semi-Govt / Private Business offices	10					
E5	Computer programming, consultancy and related activities (NIC Division 62)	10					
E6	Information Service Activities (NIC Division 63)	10					
E7	Finance, Banking and insurance (NIC Section K)	10					4
E8	Real Estate Activities (NIC Section L)	4					
E9	Professional, Scientific and Technical Activities (NIC Section M)	4					
E10	Administrative and Support Services (NIC Section N)	4					
E11	Public Administration and Defence; compulsory social security (NIC Section O)	4					
E12	Professional Services like Lawyers, Chartered Accountants,	4					

LAND USE ZONES AND PERMISSIBLE LAND USES							
CLASS CODE/ SUB CODE	LAND USE CLASS/SUB CLASS	LAND USE ZONES					
		Residential	Commercial	Industrial	Mixed	Recreational	Rural and Agricultural
	Architects, Engineers, Doctors, etc.						
F	Educational, Training and Research Institutes						
F1	Pre-Primary Schools, Play schools Kinder Garten	4					11
F2	Primary Schools	4					11
F3	Secondary Schools, Colleges, Vocational Training Institutes,	4					11
F4	Research and Training Centers, Universities, Centres of Advanced Education and Training like IIM or IIT	4					11
F5	Educational, Training and Research Institutes not classified above	4					11
G	Healthcare Facilities						
G1	Medical and Dental Clinics, Dispensaries, Pathology Lab	12					11
G2	Hospitals (NIC Group 861) and Health Centre	12					11
G3	Nursing Care Facilities (NIC Group 871)	12					
G4	Residential care activities for mental retardation, mental health and substance abuse (NIC Group 872)	4					11
G5	Residential care activities for the elderly and disabled (NIC Group 873)	4					11
G6	Veterinary Services	4					11
G7	Health Care Facilities not classified above.	4					
H	Recreational, Entertainment, Cultural and Religious Activities						
H1	Creative, Arts and Entertainment Activities (NIC Division 90) and Multimedia	4					
H2	Libraries, archives, museums and other cultural activities (NIC Division 91)	4					
H3	Gambling and betting activities (NIC Division 92)e.g. Race Course	4					
H4	Sports activities and Amusement and Recreational activities (NIC Division 93), activities of membership organisations (clubs etc.) (NIC Division 94), tot-lots, playgrounds, stadia, golf courses etc.	4					11
H5	Places of worship	4					11
H6	Arts, entertainment and recreational activities not classified above including Convention Centre	4					
I	Public Utilities and Services						
I-1	Electricity, gas, steam and air conditioning supply (NIC Section D)	4					4
I-2	Water collection, treatment and supply (NIC Division 36)	4					4
I-3	Sewerage (NIC Division 37)	4					4
I-4	Waste collection, treatment and disposal activities; materials recovery (NIC Division 38) and Carcass Disposal Site	4, 13	13		13		
I-5	Postal and Courier Activities (NIC Division 53)	10					11
I-6	Police station	4					4
I-7	Fire Station	4					4
I-8	Cemeteries, Graveyards, Cremation grounds	4					4
I-9	Telecommunication Towers/Antenna	4					4

LAND USE ZONES AND PERMISSIBLE LAND USES							
CLASS CODE/ SUB CODE	LAND USE CLASS/SUB CLASS	LAND USE ZONES					
		Residential	Commercial	Industrial	Mixed	Recreational	Rural and Agricultural
I-10	Public Utilities and Services not classified above	4					4
J	Agriculture, Forestry and Fishing (NIC Section A)						
J1	Crop and animal production, hunting and related service activities (NIC Division 01)						4
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	4				4	

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 use permitted subject to the conditions prescribed
	Only Housing for the industrial workers/ essential staff
	Only Farm Houses permissible in the zone
	Only Star Hotels and Guest Houses
	Only within the area designated and/or under specific conditions defined by the Competent Authority from time to time.
	Only Kerosene, Coal and Wood Storage
	Only Bakery
	Only Green Industries
	Only Brick Kilns, Lime/Charcoal Kilns, etc.
	Only Retail Sale of Fire Works
	Only within the identified commercial areas
	Only under Govt. approved projects/schemes
	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
	Only Collection Centre
* The siting of petrol pumps shall be subject to instruction/guidelines of IRC/ MORTH/TCPO/Punjab govt. issued from time to time.	
** Marriage Palaces shall be permitted based on the conditions specified by the Competent Authority from time to time	
*** All types of industries permitted in the designated landuse zone are subject to the fulfillment of requirements of different departments	
C	Minimum area required for Educational and Health care facilities shall be as defined above or 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 involving "Assembly/Occupancy" shall be 18 m.
	Minimum width of the access road for the Atta Chakki shall be 18 m.
	Minimum width of access road for warehousing uses shall be 80 feet.
	The activities not mentioned in the table above but found compatible for particular landuse zone shall be permissible with the approval of Competent Authority.

Note:

In addition to the landuses permitted above, the following conditions shall be required to be completed:

- **Residential**

- 1) The location of following activities shall be permitted in the residential areas abutting roads of minimum R.O.W. 18 mts or above in approved residential colonies:
Primary/Sr. Secondary school (including nursery/Montessori school, creche), Nursing home, Clinic, dispensary, pathology lab and diagnostic centre, Bank, Fitness centre (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.
- 2) Retail/Convenient Shopping shall be allowed subject to the terms and conditions prescribed in the para 10.1.2. Minimum width of access road for warehousing uses shall be 80 feet.
- 3) a) Professional activities in residential area is permissible in plotted development and group housing involving services based on professional skills namely Doctor, Lawyer, Architect, Chartered Accountant, Company Secretary, Cost and Works Accountant, Engineer, Town Planner, Media Professionals and Documentary Filmmaker.
b) Professional activity shall be permitted on ground floor in case of plotted development, and in the case of flatted development having multiple ownership in the area of flat, subject to maximum of 25% of the permissible/sanctioned FAR/constructed area, whichever is less.

- **Mixed Landuse**

- 1) All landuses, which are compatible including industries, except the orange and red category industries, shall be permitted in the mixed landuse zone.
- 2) In case of the standalone projects having depth more than the prescribed depth of the mixed landuse in the Proposed Land Use Plan, such projects shall be considered for approval irrespective of the prescribed depth of the mixed landuse.

10.1.7 DESIGNATED AREAS

In addition to the landuses defined in para 10.1.4, following uses have also been specifically designated in the Proposed Land Use Plan.

- Traffic and Transportation
- Utilities
- Government
- Public and Semi Public

10.1.7.1 Use provisions in Designated Areas

Following uses are permissible in the Designated Areas mentioned above:

- **Traffic & Transportation: Uses Permissible**

Rail yards, Railway station & sidings, Transport Nagar (including Post & Telegraph offices & Telephone exchange, Dhabas, Labour 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: Uses Permissible**

Water supply, drainage, storm water, wastes processing and disposal, electricity, communication systems, Network and related installations, etc.

- **Government: Uses Permissible**

Governmental and Semi Governmental offices, Governmental Administrative Centres, Projects/Activities undertaken from time to time to meet the operational/administrative needs of the govt. etc.

The landuse of all central/state govt. lands shall be as determined by the respective governments from time to time.

In case of land belonging to the Development Authorities/Improvement Trusts/Local Bodies or any parastatal agencies, its use shall be as determined by such agencies subject to the prior approval of the Department of Housing and Urban Development and the State Government.

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 notwithstanding the provisions of these regulations.

In case of Defence Land, the uses permitted shall be as determined by the Ministry of Defence from time to time with prior consultation to the competent authority.

- **Public and Semi-Public: Uses Permissible**

Educational, Cultural and Religious institutions including Theatre, Auditorium etc. Medical Health Institutions, Community Center, Club, Orphanage, Old Age Home, Banks, Police Stations etc.

- **Prohibited Uses**

- Forest Areas: Uses Permissible**

The use of the land notified under the Indian Forest Act, 1927 and the Punjab Land Preservation Act, 1900 shall be subjected to the provisions of the said Acts as amended from time to time, irrespective of the landuse of such land shown on the Proposed Landuse Plan.

No construction/activity shall be permitted in this area unless expressly allowed by the Forest Department/State Govt.

ii) Defence Area: Uses Permissible

In case of Government (Defence) Land, the extent of Restricted Area (No Construction Zone) around such lands shall be as notified by the Central Government from time to time under the Works of Defence Act, 1903 depending upon the nature and use of the land. Irrespective of the landuse shown, if any, in the Proposed Landuse Plan, no construction shall be permitted in such zones without the permission of the Ministry of Defence, Govt. of India,. Use, if any, indicated on the Proposed Landuse Plan shall be governed by and subject to the provisions of the Works of Defence Act, 1903.

However, in case Army authorities issue prior permission to any building/premises, which falls under the No Construction Zone of the Master Plan, the department of Housing and Urban Development shall have no objection to that building/premises provided the land use should be compatible to the existing adjoining activities/land uses.

iii) Protected Monuments/Sites: Uses Permissible

In case of protected monument/heritage building or conservation site notified by the competent authority, i.e. (Archeological Survey of India/State Govt.), only the activities related to the promotion, preservation and conservation are allowed. All other uses are prohibited.

All Protected Monuments/Sites declared under The Ancient Monuments and Archeological Sites and Remains Act, 1958 shall have a 100m of Prohibited Area and another 200m as Regulated Area around the limits of Protected Monument/Site as declared vide notification no. S.O. 1764 dated 16th June 1992 of Department of Culture (Archeological Survey of India) for purposes of both mining and construction. Irrespective of the landuse shown, if any, in the Proposed Landuse Plan, no construction is allowed within the Prohibited Area of 100 m. The construction in the next 200 m shall only be permitted with the prior approval of the competent authority/ASI.

Note:

- In case of uses not listed above, the decision to allow/disallow them shall be vested with the competent authority, keeping in view the broad nature and requirement of the landuse.
- 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.

- The siting and location of major traffic nodes including Bus Terminus, Truck Stand, etc. and physical infrastructure including STP, Electric Grid Station, Solid Waste Dumping Site, Water Works, etc. shall be as decided by the Govt. from time to time.
- The siting of petrol pumps shall be subjected to instruction/guidelines of IRC/MORTH/TCPO/Punjab govt. issued from time to time.
- The Proposed Landuse Plan does not indicate in any manner the existing ownership pattern of land falling within the LPA. The Proposed Landuse Plan defines broadly the landuse pattern proposed for the land falling within the LPA.
- The Development Projects approved prior to coming into force of these Regulations shall be deemed to be in compliance with these Regulations.

10.1.8 RESIDENTIAL DENSITIES

The entire Residential zone for Tarn Taran LPA defined in the Proposed Land Use Plan drawing no. D.T.P (A) 15/2010 dated 03-09-2010 has been divided into 2 distinct sub zones. Zone 1 includes area falling within the existing municipal council limits and Zone 2 shall comprise of area falling outside existing municipal council limits but within urbanisable limit. The maximum permissible density in these zones shall be as shown below:

Sr. No.	Zone	Net Residential Density
1	Zone 1	300 persons per acre
2	Zone 2	200 persons per acre

To encourage flatted residential development and to preserve the valuable agricultural land, residential density @ 60 dwelling units per acre shall be permissible for standalone group housing projects, irrespective of the density of zone.

10.2 SECTION II: DEVELOPMENT CONTROL REGULATIONS

The purpose of the Development Control Regulations (DCR) is to assist all stakeholders including developers and end-users within the Tarn Taran Local Planning Area 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 shall come up within the Local Planning Area. The developers are required to comply with the provisions of Landuse Plans, Land use Zones, DCRs and Zoning Plans as defined in the Master Plan. However, Development Schemes/ Projects including CLU, which have already been approved by the Competent Authority before the coming into the operation these regulations, shall continue to be governed by the terms and conditions already 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:

10.2.1 RESIDENTIAL

10.2.1.1 Plotted Development

For Plotted Development, the requirement of land shall be as under or as may be notified by the State Govt. from time to time:

Category	High Potential Zone (I & II)	Medium Potential Zone (I & II)	Low Potential Zone (I & II)	Low Potential Zone III
Plotted	75 acres*	50 acres*	10 acres	10 acres
Notes: *1) However, in case of residential colonies falling in High Potential Zone (I & II) and Medium Potential Zone (I & II), the minimum area of such colony can be 25 acres provided i) such land forms integral part of the Zonal/Sector Plan approved by the State Govt., and ii) such land forms a compact and contiguous pocket of regular shape, having proper connectivity to civic amenities, both existing and proposed. 2) However, in case of left out residential pockets, i.e., where on all sides the residential development has already taken place, such pockets can be developed into residential colony irrespective of the area of such pockets. 3) In case of land falling in Low Potential Zone III within Municipal limits, any area of land can be developed as a colony				

Note:

- Maximum area under residential and commercial use in residential colony shall be as defined in the Punjab Apartment and Property Regulation Act, 1995.
- 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 for widening to comply with the minimum requirement of 40 feet (12mts). The number of storeys in the buildings on these roads shall not exceed three storeys (G+ 2 storeys).

- Size of the front gate on boundary wall and construction of front boundary wall is optional to meet the parking requirements.
- Provision of Floor Area Ratio, Height, Ground Coverage, Parking, Setbacks etc. for individual residential plots within the existing Municipal Council limits shall be governed by Municipal Building Byelaws. However, residential areas developed by any Development Authority falling within the municipal limits shall be governed by their respective building byelaws.
- In case of area falling outside Municipal limits, the Building Byelaws of respective Development Authority/PUDA shall apply.

10.2.1.2 Parking

Parking Requirements for Plotted Developments shall be as under:

Plot size	Parking requirements
85 sq m and less (100 sq yd and less)	2 scooter parking spaces
86 – 168 sq m (101 – 200 sq yd)	1.5 car parking spaces within plot area
169 – 425 sq m (201 – 500 sq yd)	2 car parking spaces within plot area
425 sq m and more (500 sq yd and more)	3 car parking spaces within plot area

Note:

1. Deviation up to 10% shall be allowed subject to the site conditions/constraints.

10.2.1.3 Group Housing- Outside Municipal Limits

Provision of Group Housing within the residential area provided in the Proposed Landuse Plan of the Tarn Taran Local Planning Area excluding existing municipal areas shall be subjected to following norms:

1	Minimum Plot size • For General Category • For EWS	5 acres 2.5 acres
2	Minimum Road Width	For group housing standalone projects, minimum width of approach road shall be 60 feet. However, the promoter is required to leave space from his own land for widening the road to 80 feet 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 feet.
3	Minimum Frontage	20 meters
4	Permissible FAR	1.75
5	Permissible Height	There shall be no restriction on the height of building subject to clearance from Air Force Authorities and fulfillment/compliance of other rules, including structural safety and fire safety requirements, setbacks, distance between buildings, etc. However, structural safety and fire safety requirements shall be mandatory and shall be as per the National Building Code
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.

10.2.1.4 Group Housing - Within Municipal Limits

Minimum area for a group housing project falling within the municipal limits shall be as notified by the State Government/Competent Authority from time to time.

Provision of Floor Area Ratio, Height, Ground Coverage, Parking, Setbacks etc. for individual residential plots within the existing Municipal limits shall be governed by Municipal Building Bye-laws applicable to the area. However, residential areas developed by any Development Authority falling within the municipal limits shall be governed by their respective building byelaws.

Note:

1. Construction of residential houses sold by promoters on floor basis shall also be considered as Group / Flatted housing developments and parking requirements shall be as per the norms applicable to the group housing.

10.2.1.5 Farm House

Provision of farm houses shall be governed by following area and coverage norms:

Minimum area	2.5 acres
FAR	0.04
Ground Coverage	2% or 200 sq mts, 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%

Note:

1. Farm House shall only be permitted to be used for personal residence and farm operations, and not for any commercial use whatsoever.

10.2.2 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 Council limits shall be as per the Municipal Building Byelaws/ Development Controls and Zoning Regulations as the case may be. The projects, schemes already approved and streets/ roads already declared/notified as commercial by the state govt., falling within the existing Municipal Council limits on the date of notification of the Master Plan shall continue to be regulated by the respective provisions, conditions, rules and regulations of approval of such projects, schemes and streets/roads.

In case of standalone commercial complexes with height greater than three storeys within/ outside Municipal limits, area, height, F.A.R. etc. of such buildings shall be governed by following norms:

Additional Criteria for Stand-alone Commercial Complexes Within/Outside Existing Municipal Council Limits (having more than three storeys)*

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 restriction on the height of building subject to clearance from Air Force Authorities and fulfillment/compliance of other rules, including structural safety and fire safety requirements, setbacks, distance between buildings, etc. However, structural safety and fire safety requirements shall be mandatory and shall be as per the National Building Code
5	Maximum Ground Coverage	40%
6	Parking	For projects without multiplexes, the parking shall be provided @ 2 ECS per 100 sq m of total covered area For projects with multiplexes/cinemas/theatres, the parking norms shall be: a) @ 3 ECS 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 ECS 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 Council limits shall be governed by the respective Municipal 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

10.2.2.1 Commercial at local level

Adequate provision shall be made for convenient shopping in the shape of small scale, single storied commercial facilities at the local level 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.

10.2.3 VEHICULAR ACCESS

No property located on National Highway, State Highway, Ring Road and Inter City Roads, designated as R1, R2 and R3 in the Proposed Landuse Plan, shall have a direct access from such roads. Vehicular access to all such properties (within and outside the Municipal Limits) that abut on these roads 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. However, these roads will have a No Construction Zone as defined by the notification by the State Govt. as per section 143(1) of the Punjab Regional and Town Planning and Development Amendment Act 2006 and as indicated in table 85 of para 9.6.2 of the Tarn Taran Master Plan.

10.2.4 INSTITUTIONAL

The development controls applicable to the institutional buildings shall be as follows:

Item	Permissible Norms / Standards
Plot size	Area and size shall be as per the affiliation authority norms.
Frontage	200 feet or as may defined by the Competent Authority/Affiliating Authority
FAR	1:1
Ground Coverage	40%
Road width	The minimum road in front of institutional developments should be 18 m.*
Parking provisions	1 ECS per 100 sq m of covered area

Note:

- *1. In case of Nursery/Primary Schools, the minimum roadwidth shall be as defined by the Competent Authority/Affiliating Authority.
2. Height, Set backs, Number of Storeys, etc. shall be governed by building byelaws applicable to the area and the approved zoning plan approved by the competent authority.
3. Public and semi public uses in residential zone, including all public places involving "Assembly /Occupancy" shall be located on independent plots with minimum access roads of 18 metres.

10.2.5 SPORTS AND RECREATIONAL USE

The sports and recreational facilities to be permitted in this zone shall include Sports Stadium, Indoor Stadium, Swimming Complex, Golf Course, Lifestyle Sports Hub, Amusement Park, Open Air Theatre, Theme Park, Other leisure and recreational spaces. The proposed development parameters for this zone are as below:

Item	Sports activities	Recreational Activities
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Minimum size	As per the specification of the concerned authority	As per the specification of the concerned authority
Maximum FAR	1:0.02	1:0.05
Maximum Ground Coverage	1%	3%
Maximum number of storeys	2*	2*
Maximum height	28 feet*	28 feet*
Maximum hard surface area	5%	10%

Note:

*1. The maximum height and number of storeys may be redefined/relaxed by the Competent Authority depending upon the nature and specific requirement of sports/recreational activities and built up area.

Ancillary commercial uses including ATM and other facilities may be allowed within this zone to cater to the needs of users. However, commercial component shall be limited to a maximum of 5% of the total Ground Floor Area. Commercial uses such as shopping malls, cinema halls, multiplexes etc. shall not be permitted in this zone.

10.2.6 INDUSTRIAL

Unless otherwise specified in the building byelaws, the norms for the site coverage, parking, FAR, height, etc. for the industrial sites falling outside municipal council limits and within the Tarn Taran LPA, shall be as under:

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
FAR	1:1.0
Parking	@ 1 ECS per 100 sq. mtr. of covered area*
Road width	The minimum road width for industrial unit shall be 12m
Height	There shall be no restriction on the height of building subject to clearance from Air Force Authorities and fulfillment/compliance of other rules, including structural safety and fire safety requirements, setbacks, distance between buildings, etc. However, structural safety and fire safety requirements shall be mandatory and shall be as per the National Building Code

* The area of 1 ECS shall be as defined in the Para 10.3 above.

Note:

1. The minimum road width for each land use shall be as specified in the Master Plan or by the Government policy / guidelines issued from time to time. However, in case the existing road width is less than the minimum specified width in the Master Plan / Government policy, and where the structures exist on both sides of the road, then the proportionate land on both sides shall be reserved for widening of the road to comply with the minimum requirement of ROW. In case, where habitation / settlement comes within the alignment and is on one side, in such a case the widening shall be made on other side of habitation / settlement.
2. In case the site of industrial project falls within municipal limits, then the building

byelaws of the concerned local body shall be applicable, provided the land use is in conformity to Master Plan.

In case the site of industrial project falls within approved industrial project by the State Govt., then the rules and regulations governing such approvals shall be applicable.

3. Residential component in the industrial plot/premises shall not exceed 5% of the permissible covered area and shall be counted towards such area. The area shall be used for housing, watch and ward and essential manpower required to safeguard the industrial unit. In no case, it shall be used for housing the other manpower.
4. In case of Industrial/IT Park, minimum area requirement for setting up of such park shall be 10 acres.

In case of IT Park, the FAR to be permitted shall be 2 (two).

In case of Industrial Park, FAR permitted shall be 1 (one).

In case of IT cum Industrial Park, the FAR permitted shall be as defined above on the component of IT and Industry.

In case of IT/Industrial Park, the width of approach road shall be 18 m or as specified by the Competent Authority/State Govt. from time to time, whichever is higher.

10.2.7 ENVIRONMENTAL CONSIDERATIONS

- All the textile / dying and electroplating units shall set up treatment plants individually or collectively to achieve zero liquid discharge.
- Minimum buffer of 15 meters green belt of broad leaf trees should be provided around the boundary of village abadies falling in industrial zone of Master Plan. A buffer strip of 15 meters of broad leaf trees shall also be provided between residential areas and red category industries falling in industrial zone of Master Plan, boundaries of which are located within 100 m from the boundary of such areas. It is clarified that
- 15 meter buffer shall be provided by the owner of the project who 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 the competent authority. 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 industry like Rice Sheller / sella plants, stone crushers, hot mix plants, brick kilns etc standards prescribed by PPCB or any other agency shall apply.

10.2.8 SPECIAL CONDITIONS

- i) All commercial/public/industrial or other buildings of public use shall be made friendly for the physically challenged persons as per the norms and standards specified by the Government/competent authority from time to time.
- ii) Provision for Rainwater Harvesting shall be made compulsory in all buildings subject to the guidelines issued by the Competent Authority from time to time.
- iii) All new buildings to be constructed shall be made energy efficient based on design and use of energy efficient electrical appliances. Retrofitting of all existing buildings to make them energy efficient shall be taken up on priority.
- iv) Trees shall be planted within and outside all residential areas and public/industrial buildings. Landscaping shall be made integral part of the building design.
- v) All buildings shall be made structurally safe in order to mitigate the damage caused by the natural and man made disasters, including earthquake, fire, etc. and shall conform to the guidelines and the stipulations made in the building byelaws and the NBC. It shall be duty and responsibility of the owner of the building to make the building safe against these disasters. Retrofitting of all existing buildings to make them safe against disasters shall be taken on priority.
- vi) 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.
- vii) Minimum 10 meters wide green strips on each side of minor drain shall be maintained and other major water bodies shall have minimum 30 meters green strips on each side. Realignment of water bodies shall be permissible wherever feasible, subject to the certification by the Drainage/Engineering Department to ensure free flow of storm water.

10.2.9 DEVELOPMENT CONTROLS AND GUIDELINES FOR VILLAGES

1. **Expansion of Village Abadies:** Contiguous expansion of village abadies falling in the industrial zones of Master Plan is permissible up to 100 m of the *abadi deh* of the villages. This will be in addition to 15 m green buffer, which will be left between the industries and the proposed expansion of the villages.
2. However, for the village abadies falling in residential zone of Master Plan no such limit has been earmarked as the area around them is already earmarked as residential.
3. The contiguous expansion of village abadies falling under agricultural zone of Local

Planning Area up to a distance of 100 m from the existing abadi deh, is permitted to accommodate the natural growth of villages.

4. **Regulation for village abadi:** Special building regulation shall be prepared for the development and regulation of an area falling within the *Lal Dora/phirni* and the area proposed for expansion of the villages falling in the Local Planning Area in order to regulate the rational growth and development of the villages.
5. 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.

10.2.10 EXCEPTIONS

1. Notwithstanding the above, the uses specifically provided in the Sector Zoning Plans shall be permissible or as may be allowed by the Chief Town Planner, Punjab.
2. Uses determined by the Chief Town Planner, Punjab as compatible with uses permissible shall be allowed in respective zones.
3. In case the area of a project falls partially under no construction zone along a water body, relaxation of maximum up to 5% on the total area of the project shall be allowed towards calculation of saleable area in lieu of the area falling under the no construction zone. In case, the area falling under no construction zone is less than 5% of the total area of the project then the relaxation shall be proportionately less.
4. The buildings / premises for which the existing (present) land use has been retained as such in the Master Plan may continue to operate without time limit. However, in case the present use of the buildings / premises is discontinued (partially or wholly) these buildings / premises or part thereof may be put to any compatible use (except industry) with the surrounding use zone in the Master Plan provided it fulfills the other development regulations / controls as laid down in the Master Plan or as prescribed by the Govt. / Local Body from time to time.

10.2.11 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 accordance and compliance with these Regulations.

- Landowners desirous of developing their land can obtain a list of permissible uses, by applying to the designated authority in writing and giving details of their land along with necessary maps.
- The landowners proposing development on their land shall obtain a certificate of “Compliance with Master Plan” from the designated authority.

CHAPTER 11

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 Tarn Taran town. This assessment has also led to identification of sector-specific strategies, implementation actions and associated reforms with specific inputs through consultations. The strategies have been adopted primarily in view of three dimensions - improving service delivery through adoption of efficient measures; improving service delivery by creating infrastructure assets; and improving the governance aspects of the Municipal Council. This chapter summarizes 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 town 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. based on the latest PPP models.

11.1 INVESTMENT PLAN

Investment Plan for a town is multi-year scheduling of identified and prioritized investments. The scheduling or phasing of the Plan is based on studies of fiscal resource 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 IP is needed for:

- Assessment 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 priorities considering limitation of available financial resources.

INSTITUTIONALISING THE CIP PROCESS

The City Investment Plan is an important element of Master Plan and is significant in terms of management and sustainability with regard to delivery of basic services. The IP prepared as a part of Master Plan, 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.

In Tarn Taran, Municipal Council is the primary agency responsible for delivering municipal services and hence the Master Plan proposals ought to be implemented by Nagarpalika/ Local Authorities. 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 2031 according to their infrastructure needs. The project identification has been done through a demand-gap analysis of the services and DPRs available with the Municipal Council. Further, project prioritization and strategizing 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 utilization 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 IP and the forecasted future needs for provision of capital facilities under each identified sector are presented below. These assets will help to universalize 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.

11.2 SECTOR WISE INVESTMENT NEED

11.2.1 WATER SUPPLY

A .Sectoral Strategies:

Sectoral 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 town
Expected Outcome	Assured ability to meet year 2031 demand
Total Investment Need	Rs 4810 lakhs

B. Long Term needs (2031): The total investment need for water sector by 2031 is estimated at Rs. 4810 lakhs. However, the above mentioned gaps in the system are proposed to be filled in phases in line with the quantum of population addition.

Water Supply

Infrastructure Components	Requirement	Units	Rate (Rs. lakhs)	Cost (Rs. lakhs)
Treatment Plant	20.15	MLD	25	503.74
Network Distribution	121.79	km	25	3044.81
OHT	6.65	MLD	55	365.71
Metering System	29851	Nos.	0.03	895.53
Total				4810

11.2.2 SEWERAGE**A.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	Synchronization with water supply capacity
Total Investment Need	Rs 6537 Lakhs

B.Long Term needs (2031): The total investment need for sewerage sector by 2031 is estimated at Rs. 6537 lakhs.

Sewerage (80% of Water Supply)

Infrastructure Components	Requirement	Units	Rate (Rs. lakhs)	Cost (Rs. lakhs)
Treatment Plant	16.12	MLD	50	805.98
Distribution Network	143.29	km	40	5731.41
Total				6537

11.2.3 TRAFFIC AND TRANSPORTATION**A.Sector Strategies & Investment Need**

Strategy Identified	Increase carrying capacity through widening and improve riding quality through strengthening of existing roads. New roads will cater missing links and developing areas roads.
Expected Outcome	Hassle-free travel on the roads, safe driving during nights
Total Investment Need	Rs. 58021 Lakhs

Long Term Needs (2031): 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, construction of ROBs at various critical intersections, etc. to achieve an efficient traffic management system. The total investment need for roads, transportation and traffic management sectors by 2031 is estimated at Rs 53521 lakhs.

Traffic and Transportation

Infrastructure Components	Numbers	Units	Rate (Rs lakhs)	Cost (Rs. lakhs)
Roads	143	km	250	35821.34
ROBs	6	Nos.	2500	15000.00
Under Pass	2	Nos.	3500	7000.00

Flyovers and Bridges	0	Nos.	1000	0.00
Junction Improvement	2	Nos.	100	200.00
Total				58021

11.2.4 STORM WATER DRAINAGE

A.Sector Strategies & Investment Need

Strategy Identified	Laying down of closed pucca drains throughout the town 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. 35821 Lakhs

B.Long-term needs (2031): 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. 35821 lakhs.

Storm Water Drainage

Infrastructure Components	Requirement	Units	Rate (Rs. lakhs)	Cost (Rs. lakhs)
Network	143.29	KM	250	35821.34
Total				35821

11.2.5 SOLID WASTE MANAGEMENT

A.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.1845 Lakhs

B.Long-term needs (2031): The total investment need for solid waste management sector by 2031 is estimated at Rs. 1845 lakhs.

Solid Waste (Door to Door Collection, Mechanical Sweeping, Collection through vehicles, landfill site development and incinerators, etc.)

Infrastructure Components	Requirement	Units	Rate (Rs.)	Cost (Rs. lakhs)
Collection, Transportation and Disposal	40997	KG	0.045	1844.865
Total				1845

11.2.6 ELECTRICITY

A.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. 6087 Lakhs

B.Long-term needs (2031): The total investment need for electricity sector by 2031 is estimated at Rs. 6087 lakhs.

Electricity

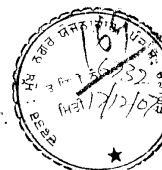
Infrastructure Components	Requirement	Units	Rate (Rs. lakhs)	Cost (Rs. lakhs)
Sub Station	6	Nos.	800	4800
Distribution Network	143	km	9	1287
Total				6087

11.2.7 Summary of Cost Estimation for different Sectors of Physical Infrastructure

Infrastructure Component	Total Expenditure (Rs. lakhs)
Roads	58021
Water Supply	4810
Sewerage	6537
Storm Water Drainage	35821
Solid Waste	1845
Electricity	6087
Grand Total	113121

The total investment for physical infrastructure is approximately **1131.21** crores.

57.23



Dated 17/12/07

North:- Starting clockwise from point 'A' which is the sarhadi of northern boundary of Pandori Ran Singh (H.B.No.51), village Jhabbal Mannan (H.B.No.43) & village Mandala (H.B.No.268), towards east along northern outer revenue boundaries village Pandori Ran Singh (H.B.No.51) & village Bala Chak (H.B.No.52) crossing Patti Amritsar road and railway line upto point 'B' which is meeting point of revenue boundary of village Chak Bala (H.B.No.52) and right edge Amritsar-Patti Railway line.

East:- Thence starting from point 'B' towards south along the outer revenue boundaries of village Bala Chak (H.B.No.52), village Kotli (H.B.No.54), village Behla (H.B.No.65), village Rataul (H.B.No.55), village Mughal Chak (H.B.No.64), village Kadgill (H.B.No.66), crossing road going towards Jandiala and then moving along revenue boundaries of village Kadgil (H.B. 66) village Tarn Taran (H.B.No.72), village Pandori Gola (H.B.No.79), crossing Kasur branch thence moving along outer revenue boundaries of village Pandori Gola (H.B. 79) village Muradpur (H.B. No.76) crossing again Kasur branch twice thence moving along revenue boundaries of village Sange (H.B. 78) crossing Gandiwind - Khadur Sahib road thence crossing along outer revenue boundaries of village Sanga (H.B. 78) village Rasulpur (H.B. 98) village Sheron (H.B. No. 266) upto point 'C' which is the meeting point of revenue boundaries of

Chief Town Planner
Punjab, Sector 18 A
Chandigarh

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village Sheron (H.B.No.266), village Rakh Shero (H.B.No.267) and village Usman (H.B.No.268).

South:-

Thence starting from point 'C' towards west along the outer southern revenue boundary of village Sheron (H.B.No. 266) crossing road coming from Nushehra Panuanna upto point 'D' which is the meeting point of village revenue boundaries of village Sheron (H.B.No.266) and common village boundary of village Naushehra Pannuan (H.B.No.269) and village Jatta (H.B.No.264).

West:-

Thence starting from point 'D' towards north along the western outer revenue boundaries of village Sheron (H.B.No.266), village Pidli (H.B.No.248) crossing Kasur branch and road crossing from Patti, Patti-Amritsar railway line thence moving along village boundaries of village Chatala (H.B.No. 247), village Bohga (H.B.No. 73), village Palasaur (H.B.No.71), village Kaironwal (H.B.No.62), village Thathi (H.B.No.57), village Khara (H.B.No. 58), village Kot Dasaundi Mal (H.B.No. 50) and village Pandori Ram Singh (H.B.No. 51) upto Point 'A' which is starting point.

The boundaries of Local Planning Area Tarn Taran are specifically shown on the Drawing No. DTP(Asr)444/2007, dated 6.11.2007. All the provisions laid down u/s 56(2) of "The Punjab Regional and Town Planning and Development Act 1995" (Amendment 2006) and all the concerned rules framed under this Act have been taken into consideration.

Place: CHANDIGARH.
Dated: 11-12-07.

Arun Goel, I.A.S.,
Secretary to Government of Punjab,
Housing and Urban Development Deptt.

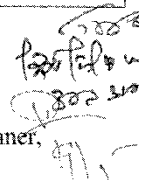
Chief Executive Officer,
Punjab Urban Development
Corporation

ANNEXURE II

List of villages falling in the Local Planning Area, Tarn Taran.

Sr.No	Name of Village/Town	H.B. No.	Area in Hectares	Population as per 2001 census.	Remarks.
1.	Tarn Taran (Municipal Council)	-	838	55587	Area of village Tarn Taran 262 Hectares and area of village Fateh Chak 128 hectares is included in Municipal Council.
2	Bala Chak	52	433	1815	-
3	Pandori Ran Singh	51	592	2987	-
4	Kot Dasaundi Mal	50	264	1097	-
5	Gohal War	53	435	2410	-
6	Kotli	54	246	892	-
7	Khara	58	301	2118	-
8	Daburji	56	346	2145	-
9	Rataul	55	492	3064	-
10	Behla	65	337	1489	-
11	Thathi	57	177	814	-
12	Kaironwal	62	241	1921	-
13	Kakka Karyala	63	415	3207	75 hectares area of the village is included in the M.C. Tarn Taran.
14.	Mughal Chak	64	185	886	-
15	Kad Gill	66	495	2881	-
16	Kazi Kot	70	105	1641	90 hectares area of the village is included in the M.C. Tarn Taran.
17	Malia	67	259	2395	10 hectares area of the village is included in the M.C. Tarn Taran.
18	Nallagarh	69	20	Inhabitant	60 hectares area of the village is included in the M.C. Tarn Taran.

19	Pandori Gola	79	628	3514	3 hectares area of the village is included in the M.C. Tarn Taran.
20	Palasaur	71	1310	5141	-
21	Muradpura	76	28	162	199 hectares area of the village is included in the M.C. Tarn Taran.
22	Bohga	73	356	2363	-
23	Jodhpur	74	185	1534	-
24	Bachre	77	150	834	-
25	Allahdinpur	75	306	2339	11 hectares area of the village is included in the M.C. Tarn Taran.
26	Sange	78	244	1798	-
27	Chatala	247	433	2360	-
28	Rasulpur	98	329	2335	-
29	Piddi	248	365	1473	-
30	Sheron	266	865	4734	-
			11379	115936	


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 Amritsar, m.k

ANNEXURE III

List of Trees recommended for Plantation on the Main Roads within Urban Limits/ Master Plan Areas

Sr. No.	Name of tree (Botanical/ common)	Description
1.	Alstonia scholaris (Chhatim)	Tall tree with columnar shape, Evergreen, very ornamental, bears greenish-white flowers in October- December.
2.	Barringtonia acuitangula (Smudar Phal)	Medium tree with spreading habits, deciduous from April to May. Ornamental foliage and flowers in pendulous branches. Bears crimson flowers in April and September.
3.	Bauhinia blackiana (Kachnar)	Small tree, evergreen with columnar form, highly attractive and ornamental. Propagated by layers and cuttings. Flowers deep pink from January to April and from September to November.
4.	Bauhinia purpurea (Kachnar)	Medium tree, with columnar form, evergreen, bears purple coloured flowers in November.
5.	Bauhinia variegata (Kachnar)	Medium tree with columnar form. Sheds leaves in January-February, profusely flowering tree, highly beautiful when in bloom, bears pink, white and purple coloured flowers in February, March, April
6.	Cassia fistula (Amaltas)	Tall columnar shaped tree, leafless in April-May. Very hardy tree, looks very ornamental when in bloom. Bright yellow flowers in April-May.
7.	Cassia grandis (Pink Mohur)	Medium in height, with spreading habit. Highly ornamental tree. Bears deep carmine flowers in November, December.
8.	Cassia javanica (Java-ki-Rani)	Medium in height, leafless in April-May. It is the most beautiful flowering tree. Bears clusters of pink flowers in May-June
9.	Cassia Marginata (Pink Mohur)	Medium in height, spreading and graceful tree, bears deep pink flowers in May and June.
10.	Cedrela tuna (Tun)	Tall columnar shaped tree, leafless in Dec.-January. fairly fast growing and hardy tree with creamy white flowers in March-April.
11.	Chakarassia Tabularis	Tall spreading tree, evergreen and hardy. Excellent for shade. Flowers are greenish, white in April-May.
12.	Chorisia speciosa (Maxican Silk Cotton Tree)	Medium in height, pyramidal in shape, leafless from October to January, fast growing, bottle shaped green trunk. Flowers are of pink and yellow colour in October-November.
13.	Delonix Regia (Gulmohar)	Tall tree, with spreading crown, leafless from Jan.-March. Fast growing, very ornamental creates mass colour effect with orange red flowers from April to June.
14.	Ficus religiosa (Pipal)	Tall columnar shaped tree, leafless in February-March, very hardy and fast growing, flowers pale green in April.

15.	Ficus infectoria(Pilkhan)	Tall spreading, fast growing and hardy tree, leafless in March, good for shade, need protection from cattle, green yellow flowers in Nov., Dec.
16.	Hetrophragma roxburghii (Marour Phaly)	Tall columnar tree, ever green, flowers are of pale, yellow brown colour in March.
17.	Jacrandia mimosaefolia (Jakaranada or Neely-Gulmohar)	Medium in height, leafless when in bloom, good for parks and houses, fern like bipinnate leaves, bears flowers of violet-blue colour in April-May.
18.	Kigelia pinnata(Jhar Phanoos)	Tall and spreading tree, evergreen hardy and fast growing flowers are of crimson, yellow and brown colour in April-May.
19.	Lagerstroemia fros-reginae (Queen's flower)	Medium sized tree, columnar shape, very pretty, leafless in winter (December-February). Purple and pinkish blooms in April-May and July-August.
20.	Lagerstroemia thorelli (Pride of India)	Medium in height, columnar in shape, beautiful tree, leafless from Dec-Feb, flowers of mauve colour from June to December
21.	Lagerstroemia rosea	Medium in height, columnar tree, very pretty. Leafless in winter (December-Feb.) with deep pink flowers from April to September
22.	Pongamia Glabra(Karanj)	Tall spreading and fast growing tree, leafless in March. Bears mauve coloured flowers in April, May.
23.	Pterospermum acerifolium (Kanak Champa)	Tall columnar tree, ever green, handsome, bears sweet scented flowers of creamy white colour in March-April.
24.	Putranjiva Roxburghii (Jiva Pota)	Medium in height, pyramidal shaped, ever green, handsome and very graceful tree, good for shade and beautiful form. Flowers are of pale yellowish colour in March-April.
25.	Saraca Indica(Sita Ashok)	Height medium, spreading tree, ever green, very hardy, foliage glossy and ornamental. Highly flow growing takes 30 years to become a good tree. Bears highly attractive scarlet coloured flowers in large compact clusters in Feb. – March.
26.	Schleichera Frijuga(Kusum)	Tall columnar shaped tree, evergreen, good for shade, leaves become red in March, April and again in July,-Sept. Flowers are of green colour in Feb-March.
27.	Sweitnia (Mahogany)	Evergreen, shady, attractive foliage, very hardy, tall tree with columnar shape, blooms in April, tree is slow growing and very good for avenues.
28.	Tabebuia Rosea	Small in height, columnar in shape, dedciduous from December to February, Scanty foliage, flower colour is purple pink in Februar-March.
29.	Terminalia Arjuna(Arjan)	Tall, columnar shaped tree, sheds leves in March. Very Hardy tree, flowers of pale-yellowish white colour appear in September-October.
30.	Terminalia Chebula(Bahera)	Tall, Columnar shaped tree, leafless in March, Pale-yellow flowers all the year round.

SOCIAL INFRASTRUCTURE

EDUCATIONAL FACILITIES

Details				UDPFI standards			Year 2031 (demand - supply gaps)							
	Details	Qt.	Unit	Std.	Per Pop.	Area in ha. Per Unit	Tarn Taran M.Cl.			Villages			Total LPA (Unit)	Total LPA (Area in Ha.)
	Year						2001	2031		2001	2031		2031	2031
	Population						55587	149255		60349	101110		250365	250365
	Details						Existing	Demand	Addl. Reqt.	Existing	Demand	Addl. Reqt.	Addl. Reqt.	Addl. Reqt.
School	Nursery school	1	School	2500	2500	0.8	0	60	60	0	40	40	100	80.12
	Primary school (I-V)	1	School	500 stud.	5000	0.4	30	30	0	6	20	0	0	0.00
	Senior secondary school (VI -XII)	1	School	1000 stud.	7500	1.6	9	20	11	10	13	3	14	23.01
	Integrated school with hostel facility (I-XII)	1	School	1000 stud.	100000	3.9	0	1	1	0	1	1	3	9.76
	Total Area												119	112.89
College	College	1	College	1000-1500 stud.	125000	4	4	1	0	0	1	1	1	3.24
	Technical centre	1	Centre		1000000	4	0	0	0	1	0	0	0	0.60
	University	1	University		0	60		1	1		0	0	1	60.00
	Professional education								0		0	0	0	0.00
	Engineering college	1	College	1500-1700 stud.	500000	60	0	0	1	0	0	0	1	72.13
	Medical college	1	College	1500-1700 stud.	1000000	15	1	0	0	0	0	0	0	1.52
	Adult Literacy Centre						1							
	Total Area												3	137.48

HEALTHCARE FACILITIES

Details				UDPFI standards			Year 2031 (demand - supply gaps)							
	Details	Qt.	Unit	Std.	Per Pop.	Area in ha. Per Unit	Tarn Taran M.Cl.			Villages			Total LPA (Unit)	Total LPA (Area in Ha.)
	Year						2001	2031		2001	2031		2031	2031
	Population						55587	149255		60349	101110		250365	250365
	Details						Existing	Demand	Addl. Reqt.	Existing	Demand	Addl. Reqt.	Addl. Reqt.	Addl. Reqt.
Health care facilities	General hospital (300 -500 beds)	1	Hospital	300-500 beds	250000	6	0	1	1	0	0	0	1	6.01
	Intermediate hospital (100-300 beds)	1	Hospital	100-300 beds	100000	2.7	4	1	0	0	1	1	1	2.73

