# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# LIST OF ANNEXURES

# 1. BRIEF SUMMARY

## Introduction

1.1. Abohar with its population of 1, 24,399 is the largest and only one lac plus city of Ferozepur District. In order to develope Abohar city and its surroundings in orderly manner and recognizing the need for regulating the development of the entire influence area of Abohar City, Government of Punjab declared the Abohar Local Planning Area (LPA, Abohar) in December 2008. The Local Planning Area, Abohar includes area within municipal limits and 50 villages including Abohar rural. The Government also designated the Department of Town and Country Planning, Punjab as the Planning Agency to prepare the Master Plan of LPA, Abohar.

1.2. The total area of LPA, Abohar is 804.24 sq.km (As per revenue record) of which 23.07 sq.km is Urban area and 781.17 sq.km lies under rural area. According to Census 2001, the total population of LPA, Abohar was 3, 09,000 out of which 1, 24, 339 was urban.

## Regional Setting

1.3. LPA, Abohar is located in Malwa Region of South Western Punjab. Its hinterland is fertile and rich in agriculture. Abohar city is located at a distance of about 325 kilometers towards southwest from Chandigarh and about 77 kms towards west of Bathinda. Abohar is well connected by roads with the cities/towns like Chandigarh, Amritsar, Ludhiana, Fazilka, Ferozepur, Muktsar, Bathinda, Sri Ganganagar and Hanumangarh. Two national highways i.e. N.H. 10 and N.H. 15 and one state highway pass through the city. Abohar city is also connected with Sri Ganganagar, Bathinda and Delhi by broad gauge railway line.

## Historical Background

1.4. Abohar is an ancient town mentioned by Ibn Batuta, a traveler from Egypt about 1341 AD. The history of Abohar goes around that the ancient beautiful city was destroyed by the curse of PanjPeer (a fair is held in July –august every year at the Tomb of PanjPeer) who were annoyed by the daughter of King Hari Chand of Abohar. It is said that someone told her that she can save her father (who was suffering from leprosy) with the blood of horses of PanjPeer. She snatched the horses of PanjPeer and never

returned the horses to them in spite of their request for these. So they cursed her and the inhabitants of the town which is said to have been destroyed by divine powers.

In the beginning of the 19th century, Abohar was uninhabited and the whole tract around it was desert. In 1838, the tract came under the British rule. Abohar was part of district Sirsa till 1884 when it was attached to district Ferozepur. During this period, the physical growth of the town took place in a grid iron pattern. It was notified as Area Committee in 1908 and became Class II town in 1922 and administrated by Municipal Council. Besides the growth of trade and commerce, the industrial sector also started concentrating and contributing towards the growth of the town. The establishment of D.A.V High School and College in 1960, D.A.V College for Education in 1968 and Gopi Chand Arya Mahila College in 1972 were the educational institutions which played a dominant role in the region

**Legal Framework**

1.5. The Punjab Regional and Town Planning and Development Act, (Amended) 2006, provides the legal framework for preparation of Master Plan.The four stage process involves decalaration of Local Planning Area, designation of Planning Agency, preparation of present land use map and preparation and approval of Master Plan. The contents of the Master Plan as laid down by the Act are;

(a) Broad indication of the manner in which the land in the area should be used.
(b) Allocation of areas or zones of land for use for different purposes.
(c) Indication, definition and provision of the existing and proposed highways, roads, major streets and other lines of communication.
(d) Indication of areas covered under heritage site and the manner in which protection, preservation and conservation of such site including its regulation and control of development, which is either affecting the heritage site or its vicinity, shall be carried out.
(e) Regulations to regulate within each zone the location, height, number of storeys and size of buildings and other structures, open spaces and the use of buildings and structures

The Act also provides for “Control of Develpoment and Use of Land in Area where Master Plan is in Operation”

**Population growth**

1.6. The population of LPA, Abohar has been recorded 309000 persons as per census data (2001) with a decadal growth rate of about 18.48% during the year 1991-2001. The details are summarized in table below.

| | POPULATION | | | GROWTH RATE IN % | |
|---|---|---|---|---|---|
| | 1981 | 1991 | 2001 | 1981-91 | 1991-2001 |
| **PUNJAB STATE *** | | | | | |
| TOTAL | 16.79 | 20.28 | 24.36 | 20.79 | 20.12 |
| URBAN | 4.65 | 5.99 | 8.25 | 28.82 | 37.73 |
| RURAL | 12.14 | 14.29 | 16.11 | 17.71 | 12.74 |
| * POPULATION IN MILLLIONS | | | | | |
| **LPA, Abohar** | | | | | |
| TOTAL | 207998 | 260799 | 309000 | 25.39 | 18.48 |
| URBAN | 86334 | 107163 | 124339 | 24.13 | 16.03 |
| RURAL | 121664 | 153636 | 184661 | 26.27 | 20.19 |

*Source: Census of India, Punjab 1981, 1991, 2001,*

1.7. The average gross population density of Abohar City is 54.73 persons per hectare. However ward wise densities vary considerably. The highest and the lowest are being 565 persons per hectare in ward no. 27 and 13.30 persons per hectare in ward No. 8 respectively.

**Housing**

1.8. According to Census 2001, about 87% of the census houses are of permanent nature, 6 % are semi-permanent and only 1% non-serviceable temporary houses. In terms of availability of rooms only 24.66% of the households live in one-room dwelling units. As regards access to service, 71% have tap water, 95.2% have electricity, 53% have water closets and 18% have pit latrines. According to Census 2001 about 34.45% of Abohar City's population was slum dwellers. There are 16 slums in the city, except one all are located on private land.

**Employment**

1.9. The work force participation rate of LPA, Abohar is 36.55% and that of Abohar City is 31.86%. The main sectors providing employment in Abohar City are Manufacturing (14.09%), Wholesale and Retail Trade (29.13%), Public administration, Education and Health Care services etc (19.93%), Finance and business activities (6.08%)

**Existing Land Use and Transport Network**

1.10. Preparation of present land use map was undertaken with the help of Punjab Remote Sensing Centre (PRSC), Ludhiana. For the core built up area Quick Bird data of 0.6m resolution was used, where as for the outer areas Cartosat I data of 2.5 m resolution was used. The maps based on satellite imageries were updated by undertaking field surveys. Out of a total LPA, Abohar area of 80174 hectares (as calculated by PRSC) maximum proportion is occupied by 74711.84 hectares by agricultural use, 2755.82 hectare followed by residential, 107.73 hectares by industrial and 1551.80 hectares by transport. In case of Abohar City out of a total area of 2272 hectares (as calculated by PRSC) 415.31 hectares are occupied by residential use, 31.75 hectares by industrial use, 63.53 hectares by public & semi public use, 292.26 hectares by transport use and 1255.40 hectares by agriculture use.

1.11. The regional road network comprises of Abohar - Malout road (N.H - 15), Abohar – Fazilka road (N.H -10), Abohar – Sitto Gunno road, Abohar – Hanumangarh road, Abohar – Sri Ganganagar road (N.H – 15) and Abohar – Hindumalkote road and a bypass which interconnects all above roads. Other less important roads are Abohar – Kandhwala road, Abohar – Gobindgarh road, Abohar – Killanwali road. Although the Right of Way (ROW) of these roads outside the municipal area varies between 19mts to 46 mts, the effective carriageway varies between 4.8mts to 7.3 mts. Within the city limits some roads have wider and divided carriageways. Abohar – Bathinda and Abohar – Ganganagar railway line provide excellent connectivity to the city but it also leads to fragmentation of the city into two parts, necessitating number of ROB's and RUB's to provide accessibility.

**Physical Infrastructure**

1.12. Water for Abohar City is sourced from both ground water and canal water. Quality of ground water is not satisfactory so mainly canal water is supplied. The total supply is 34.09 MLD. For Present population it works out to be 228 lpcd. Allowing for distribution losses the net supply worked out 170 lpcd. However, the capacity of available capacity of the distributory is sufficient to meet the requirements of Projected Population. Nearly 92 % of the city is covered by piped water supply and is managed by PWSSB. The water supply to all the villages is handled by Public Health Department, Punjab.

As regards sewerage 76% of the population of Abohar has access to underground sewerage. However sewage collected is pumped without treatment in the open land

The low lying areas of the city are flood prone during monsoon due to absence of planned storm water drainage and further letting flood waters into sewers is environmentally undesirable.

Though collection and transportation of solid waste is managed by the Municipal Council, disposal is not in the form of sanitary land fill as required by the Municipal Solid Waste Rules of the Ministry of Environment and Forest. Similarly the disposal of Bio-Medical waste too is not in compliance with relevant rules.

**Traffic**

1.13. Recent surveys of traffic vlume on various roads indicate that most of the road network is not congested. Nearly most of the roads of Abohar are under utilization having V/C ratio ranging from 0.23 to 0.97 and less than 1. This means that there is no traffic problem on major roads leading to smooth flow of traffic. The maximum v/c ratio in Abohar city is on Bus stand road with 0.97 in morning peaks where as in evening this has 0.73 v/c ratio. There is acute shortage of parking particularly in the traditional bazaar areas of the city. In the absence of organized Truck Terminal, trucks are parked on the road for loading and servicing. Bus stand exists in the center of the city some times leads to congestion on city roads and the areas around it.

The number of vehicles increased from 2185 to 4810 during 2001 and 2006, thus registered a growth rate of 120% but which is not maintained as such in 2007 and 2008. However, keeping in view the growth of vehicles in future, the improvements in road network, transport terminals and parking will be of very high priority.

There is sufficient number of educational facilities in LPA, Abohar but health facilities are not up to the mark. The sports and recreational facilities are also not adequate as there is only one stadium and one park of city level; however the individual stadiums are available in some educational institutions. Three cinemas are providing entertainment in city but no club facility is available.

**Environment**

1.14. Due to absence of any comprehensive data collection regarding quality of air by Punjab Pollution and Control Board, can’t be reported about the quality of Air. In

terms of air quality, though the ambient concentration of SO2 and NO2 is well within the norms, SPM levels far exceed the norms. Ground water is unfit for human consumption on account of high contents of fluorides and chlorides. Surface water too gets contaminated on account of release of untreated sewerage waste water in open lands. Storage of waste water in dirty water ponds is a source of mosquito breeding and ground water pollution.

**Population and Employment forecast**

1.15. The population of LPA, Abohar is estimated to grow to 5.26 lacs of which the population of Abohar City along with that of the fringe villages is estimated to be 3.48 lacs by 2031.The employment in 2031of Abohar City is estimated to be 94602, of which major share will be that of wholesale and retail trade (27559), Manufacturing (13319), and Public administration and other services (18856).

**Infrastructure Requirements**

1.16. The infrastructure requirements of this growth by 2031 would be,

(a) Water supply: 54.03 Mld

(b) Wastewater: 46.0 Mld

(c) Solid waste management: 130.5mt.ton per day

(d) Power: 155 MW

**Vision 2031**

1.17. A specially constituted "Think Tank" comprising official and non-official representatives from all walks of life articulated the Vision 2031 for Abohar in following terms:

**"To transform Abohar into an industrial hub focused on Agro and Horticulture based industries and a services centre of Malwa sub region by providing high quality physical and social infrastructure to all its citizens in an inclusive and environmentally sustainable manner**."

The strategies to attain this vision would require spatial land use planning, infrastructure planning and financing, enabling private investment in economic growth, ensuring environmentally sustainable development etc. The role of Master Plan in this regard would be that of facilitating a spatial land use planning framework conducive to attaining the vision.

Visualizing the future structure of the city involves delicate trade-offs. If urban development is freely permitted anywhere it might lead to sprawl that is difficult to service in terms of infrastructure services and may cause loss of fertile agricultural land. On the other hand if the future structure is visualized as compact city that is easier to service, it might increase the land price where development is permissible and might cause unauthorized development where it is not. The extent of urbanization visualized is therefore not narrowly linked to land required for accommodating the projected population and economic activities by 2031. The extent of urbanization is defined based on the land requirement for various urban land uses, transport network that would be desirable and the areas that would acquire development potential on account of such transport network.

**Proposed Land Use and Road Network**

1.18. In the light of the above approach proposed land use and road network plans are incorporated in the Master Plan. The land in LPA, Abohar has been zoned for Residential, Commercial, Industrial, Rural and Agricultural purposes. Further, areas have been designated for important specific purposes like Public Utilities, Bus Stand, Truck Stand, Institutional, green buffer along existing Bye pass. However specific designations for public purposes like schools, hospitals, playground etc have not been earmarked. The major road network has been proposed. The proposed land use plan is shown in Drg. No. DTP (F) 26/09 Dated 14-07-09. It is proposed to follow up the Master Plan preparation by more detailed zonal plans. These planning zones numbering are also shown on Proposed Land use Drg. No. DTP (F) 26/09 Dated 14.07.09.

The major road network proposed comprises four categories roads viz. R1-(200 feet), R2-(150 feet), R3-(100 feet) and R4-(80 feet). Road network is also shown on Drg. No. DTP (F) 26/09 Dated 14.07.09. The proposed road network comprises of the existing Bye pass, Outer Ring Road, radial roads and other roads of various right of ways as explained above.

**Zoning Regulations**

1.19. The Punjab Regional Town Planning & Development (Amended) Act, 2006 provides for the “Control of Development and Use of Land in Area where Master plan is in Operation”. However for control of development through parameters like sub-division

of land, ground coverage, FAR, parking requirements, norms for building construction etc. have already been notified on a state wide basis by the Government. The zoning regulations included in the Master Plan are therefore confined to use of land.

# 2. INTRODUCTION

## Initial Steps

2.1. As a first step towards the preparation of master plan of Local Planning Area (LPA), Abohar, has been delineated and notified U/S 56(1) of "The Punjab Regional and Town Planning and Development Act (Amended),2006" in the official gazette with notification no.12/18/08- 4HGI/7892, dated 15/12/08. The Local Planning Area, (LPA) Abohar includes one city and 50 villages including Abohar rural. This area spreads over an area of 804.24 sq. kms (80424 hectares) serving a population of 309000 persons. Out of total area of LPA, Abohar about 23.07 sq km is urban area which is 2.86% of the total area of LPA, Abohar and 781.17 sq kms lies under rural area which is 97.14% of the total LPA, Abohar. The southern villages of LPA, Abohar touch state of Rajasthan. The detail of all settlements covered under the jurisdiction of LPA, Abohar is given in Annexure 3.

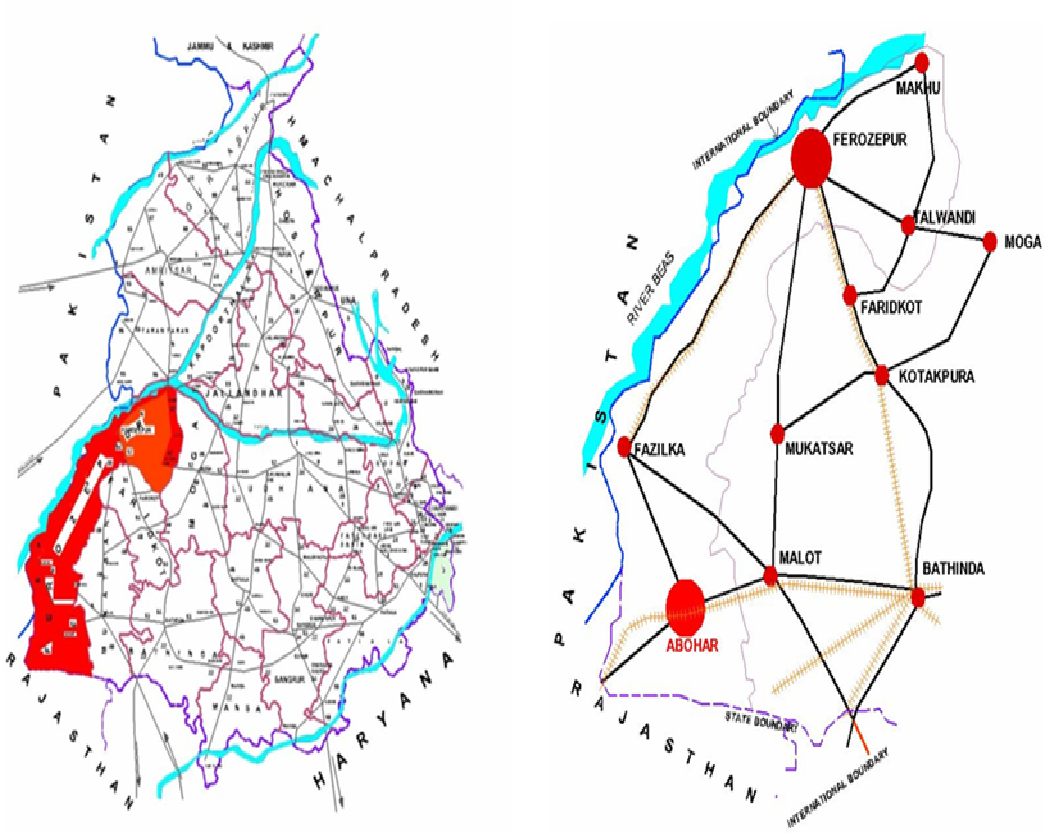
2.2. While delineating the LPA, Abohar the following factors mentioned in rule 22 of the Punjab Regional and Town Planning and Development (General Rules 1995) have been considered:

- Administrative boundary limits of the villages, the tehsils, the districts, and the state have been followed for better identification and management of the Local Planning Area, Abohar.
- Geographical features of the area like Canal network and drainage i.e. Abul Khurana drain are considered.
- For better accessibility, the means of transportation and communication have been considered for better development of the area.
- The present and future growth trends and distribution of the population is another important factor considered for delineation of this area.
- Economic base and commercial activities of the city and their surrounding areas are also taken care of.
- Urban expansion trends and management of periphery areas for ecological and environmental balance have also been kept in view.

**Regional Setting**

2.3. Abohar city, a tehsil headquarter of Ferozepur district, is an important town located in south western part of Punjab and is located on the interstate boundary of the country. Its boundaries touch the mounds and desert plains of Rajasthan. Abohar city is located at a distance of about 325 kilometers towards southwest from Chandigarh, about 77 kms towards west of Bathinda, about 32 kms towards east of Fazilka, about 120 kms towards south of Ferozepur, about 64 kms towards south west of Mukatsar, about 42 kms towards north of Sri Ganganagar and about 65 kms towards north of Hanumangarh. It is well connected by roads with the cities/towns like Chandigarh, Amritsar, Ludhiana, Fazilka, Ferozepur, Muktsar, Bathinda, Sri Ganganagar and Hanumangarh. Two national highways i.e. N.H 10 and N.H 15 pass through the city, thus giving it an important position in road map of not only of district Ferozepur but that of Punjab, Haryana & Rajasthan also. It is connected with Sri Ganganagar, Bathinda and Delhi by broad gauge railway line.

**Figure 1: Abohar with respect to Punjab State, District Ferozepur and surrounding region**



The Local Planning Area, Abohar, which surrounds the city, is an important part of rich fertile land of Malwa region of the state. It extends from 29° 57' 49.2" N to 30° 15'N 58" latitude and 73° 57'38" E to 74° 26' 58" E longitude.

**Physiography and Climate**

2.4. Local Planning Area, Abohar mostly comprises of sandy soil. Big sand dunes (sand mounds) can still be seen in many rural areas whereas the topography of the area experienced a vast change with the various ventures connected with green revolution. The effect of this is that a large number of sand dunes previously existing in the rural areas have been leveled by the farmers to put as much as land under cultivation. No river flows through the LPA, Abohar, however Malookpur distributary branch of Sirhind Canal system crosses in the middle of it, providing a very good irrigation network in the area. It is believed that earlier river Satluj was also flowing in the region which later on turned its course towards west.

Abohar city and its Local Planning Area is nearer to Thar desert of Rajasthan and quiet away from the major river basin that run through the state. Besides this, area lies in south – western region of the sate and far away from Shivaliks which has great effect on its temperature and rainfall. Therefore, climatically this area has a very hot summer. During the month of June which is a peak period of summer, the mercury sometimes touches over 47º C. The dust storms are regular feature in summer. Very small spell of rainy season is experienced by the area as the monsoons almost remain very scanty and meager. The average rainfall is about 410 mm per annum. The winter season is mostly dry with minimum temperature touching to 0º C. The prevailing wind direction of this region is North-West to South-East.

**Historical Background**

2.5. The town of Abohar is said to have been founded by one Abheraj Bhatti during the twelfth century and was called Abhegarh after his name. Abohar is an ancient town mentioned by Ibn Batuta a traveler from Egypt about 1341 A.D. as it existed along the route from Multan to Delhi. There exist remains of an old fort near the tomb of PanjPeer which speaks about the importance of this place. At the shrine i.e. Tomb of PanjPeer, a fair is held in July-August every year. The story goes around that the

ancient beautiful city was destroyed by the curse of PanjPeer who were annoyed by the daughter of King Hari Chand of Abohar. It is said that someone told her that she can save her father (who was suffering from leprosy) with the blood of horses of PanjPeer. She snatched the horses of PanjPeer and never returned the horses to them even when they requested for these. So they cursed her and the inhabitants of the town which is said to have been destroyed by divine powers.

In the beginning of the 19th century, Abohar was uninhabited and the whole tract around it was desert. In 1838, the tract came under the British rule. Abohar was part of district Sirsa till 1884 when it was attached to district Ferozepur. During this period, the physical growth of the town taken place in a grid iron pattern. This old part of the town is now represented by Patel Nagari, Prem Nagari, Nanak Nagri, and Gobind Nagari. It was notified as Area Committee in 1908 and became Class II town and administrated by Municipal Council in 1922.

**Major Development Events**

2.6. In the end of the 19th century, in 1892 the most important development event in the history of Abohar town was the laying down of Sri Ganganagar-Abohar-Bathinda railway line and construction of railway station. In addition to this, Keasarganj mandi (now known as old mandi) was also established. Both these events boosted the economic and physical development of the town.

Notified Area Committee upgraded to Municipal Council in 1922 which was shifted to its new building in 1923 which is now known as Municipal Council office. During the 1929 municipal council constructed water works (now known as old water works located near bus stand) by bringing the water from Malookpur distributory to meet the potable drinking water needs of the town.

Not much development has taken place till Independence. But with the coming up of Sri Bhiwani Cotton Mills & industry in 1957 , the economic base of the town changed from mere trade & commerce to industrial which further gave push to development of the town. Subsequently, more cotton based factories like ‘Jagjit Cotton Ginning and Pressing Factory’ in 1973, ‘The Abohar Cooperative Spinning Mill’ in 1989, and ‘Advance Oil Mills’ in large scale sector were established in the town. Another landmark, which is helping the farmers of the local area to achieve high horticulture (including citrus fruit, dates and grapes) productivity with advanced techniques, was

the establishment of Regional Fruit Research Centre. The enhanced production of citrus fruits like kinnow & Malta have helped to establish new kinnow vaxing & juice factory units in the area.

As far as education is concerned, the first recognised D.A.V high school established in the 1960 year to serve the people of the town. The events of development milestones in Abohar are listed in table below:

**Table 1: Detail of Development Milestones in Abohar**

| Sr. No. | Year | Events |
|---|---|---|
| 1 | 1341 | The Egyptian traveller Iban Batuta visited the Abohar as a first International Historian. |
| 2 | 1892 | First meter gauge railway line Sri Ganganagar-Abohar-Bathinda |
| 3 | 1897 | Kesearganj Mandi now known as Old Mandi |
| 4 | 1908 | Notified Area Committed established |
| 5 | 1922 | Notified Area committee upgraded to Municipal Council |
| 6 | 1929 | Construction of water works (by bringing & serving the canal water) now known as old water works located near bus stand |
| 7 | 1956 | First Cinema Sandeep |
| 8 | 1957 | Sri Bhiwani Cotton Mills & Industries Ltd. |
| 9 | 1960 | D.A.V school and college, Abohar |
| 10 | 1968 | Municipal council raised to Class I |
| 11 | 1968 | D.A.V college for Education |
| 12 | 1972 | Gopi Chand Arya College, Abohar |
| 13 | 1973 | Improvement Trust, Abohar |
| 14 | 1977 | Started laying down of Sewerage |
| 15 | 1978 | Bus Stand |
| 16 | 1980 | Regional Fruit & Research Centre |
| 17 | 1993 | Homeopathy college |
| 18 | 1994 | Tehsil complex Building Constructed |
| 19 | 1994 | New water works Hanumangarh bye-pass |
| 20 | 1996 | Grain Market |
| 20 | 1997 | Industrial Focal Point |

## Institutional and Planning Events

2.7. Besides the growth of trade and commerce, the industrial sector also started concentrating and contributing towards the growth of the town. The establishment of D.A.V High School and College in 1960, D.A.V College for Education in 1968 and Gopi Chand Arya Mahila College in 1972 was the educational institutions which played a dominant role in the region. The detail of institutional and planning events is given in table below:

**Table 2: Detail of Institutional and Planning Events in Abohar**

| Sr. No. | Year | Events |
|---|---|---|
| 1 | 1960 | D.A.V School & College |
| 2 | 1968 | D.A.V College for Education |
| 3 | 1972 | Gopi Chand Arya Mahila College |
| 4 | 1976 | First Commercial Development Scheme |
| 5 | 1984 | Laying down of Abohar Bye-pass |
| 6 | 1993 | Homeopathy Medical College |
| 7 | 1993 | First time Master Plan prepared for Abohar |
| 8 | 1994 | Tehsil complex |
| 9 | 1996 | Grain Market |
| 10 | 1997 | Industrial Focal Point |
| 11 | 1998 | First Town Planning Scheme |
| 12 | 2006 | First approved Private Colony, Ganga Vihar |
| 13 | 2008 | Notification of Local Planning Area, Abohar U/S 56(1) of PRTPD (Amendment) Act, 2006 |

Keeping in view the growth of Abohar city and in order to check unplanned development, the development scheme was prepared by Improvement Trust in 1976 under Punjab Town Improvement Act, 1922 and subsequently two more development schemes were prepared comprising about 1.15 hectares of land. Similarly, first town planning scheme was prepared in 1998 by Municipal council and this followed by three more town planning schemes covering an area of 19.8 hectares approximately. Besides this, two colonies comprising an area of about 8.1 hectares have also been approved in 1906 under Punjab Apartment and Property Regulation Act, 1995.

In order to ensure and regulate the development of Abohar city in a planned way, for the first time Master Plan was prepared for the period of 1993-2020 under the instructions of the department but it was not published. Now with the enactment of Punjab Regional and Town Planning and Development (Amendment) Act, 2006, Government of Punjab has decided to prepare Master Plans for a number of cities and towns which also includes Abohar city. LPA, Abohar has been notified under section 56 (1) of Punjab Regional and Town Planning & Development (Amendment) Act, 2006 vide notification no 12/18/08-4HG1/7892, dated 15/12/08.

## Administrative Milestones

2.8. Abohar city is one of the earliest declared urban settlements of Punjab. It was notified as Area Committee in 1908 and then upgraded to Municipal Council in 1922. It was made tehsil headquarters in 1984. In order to develop the city in a planned way,

Improvement Trust, Abohar was established in 1973. The details of Administrative milestones of Abohar city are given in table below:

**Table 3: Details of Administrative Milestones of Abohar**

| Sr. No. | Year | Milestones |
|---|---|---|
| 1 | 1908 | Notification as Area Committee |
| 2 | 1922 | Area Committee upgraded to Class II Municipal Council |
| 3 | 1968 | Municipal council raised to class I status |
| 4 | 1973 | First time Improvement Trust constituted |
| 5 | 1984 | Made Tehsil Headquarter |
| 6 | 2008 | Notification of Local Planning Area, Abohar, U/S 56 (1) of PRTPD (Amendment) Act, 2006 |

## Legal Framework for Preparation & Implementation of Master Plan

2.9. The principal legislation governing regional and town Planning is the "Punjab Regional and Town Planning and Development Act, 1995 (PRTPD)" was enacted in the year 1995 (Punjab Act No.11 of 1995) which has been amended in the year 2006 and is now known as "The Punjab Regional and Town Planning and Development (Amendment) Act 2006" (Punjab Act No 11 of 2006). This is an act to make provision for better planning and regulating the development and use of land in planning areas delineated for that purpose, for preparation of Regional Plans and Master Plans and implementation thereof, for the constitution of a Regional and Town Planning and Development Board, for guiding and directing the planning and development processes in the State, for the constitution of a State Urban Planning and Development Authority, Special Urban Planning and Development Authorities and New Town Planning and Development Authorities, for the effective and planned development of planning areas and for undertaking urban development and housing programs and schemes for establishing new towns and for matters connected therewith or incidental there to.

2.10. Prior to the enactment of the Act the town planning activity within urban areas was being governed by different legislations such as The Town Improvement Act 1922, The Punjab Municipal Act 1911, The Punjab Municipal Corporation Act 1976, The Punjab Urban Estates (Development and Regulation) Act 1964 etc and for areas falling outside municipal limits in the periphery of urban centers, there was 'The

Punjab Scheduled Roads And Controlled Areas Restriction of Unregulated Development Act 1963(Now repealed) but no comprehensive legislation was available for the overall control and development at local and regional level.

**The Punjab Regional and Town Planning and Development (Amendment) Act 2006 (Main Provisions of the Law)**

2.11. This act provides the framework for preparing Master Plans and Regional Plans and provides for the manner in which the use of land in the area of a planning authority is regulated. The act also prescribes specific time period for various steps in the plan preparation process.

The act intends to achieve the following main objectives**:**

(a) To consolidate, with suitable modifications, in one place laws dealing with the different aspects of urban development.

(b) To set up a high powered Board to advise the State Government and to guide and direct planning and development agencies, with respect to matters pertaining to the planning, development and use of urban and rural land.

(c) To set up a State level Urban Planning and Development Authority and to provide for the setting up of a Special Urban Planning and Development Authorities and New Town Planning and Development Authorities to promote and secure better planning and development of different regions, areas and cities.

(d) To create a legal and administrative set up for the preparation and enforcement of Master Plans for regions, areas and for existing and new cities.

(e) To make the whole programme of urban development mainly a self - sustaining and self - paying process.

(f) To interlink land development and house construction permitting full exploitation of the urban land resource to provide a boost to the programme of house construction, especially the Economically Weaker Sections of the Society.

(g) To provide a legal, administrative and financial framework for the preparation and execution of Town Development Schemes aimed at filling the gaps in the required civil infrastructure and securing the renewal and redevelopment of congested and decayed areas in the existing towns.

The main provisions of the Act related to preparation of Master Plan are described below:

(a) Section 56(1) enables declaration of Local Planning Areas (LPA) in the official gazette for preparing Master Plan. Once an area has been declared under section-56 (1), no person can institute or change the use of land for any purpose or carry out any development in respect of any land without the previous permission of competent authority until the Master Plan comes into operation. However, this prohibition does not apply to any area comprised in abadi deh of any village falling inside its lal lakir or phirni.

(b) Section 57 provides for the state Government to designate Planning Agency for area declared as Local Planning Area.

(c) Section 58 defines scope of Planning agency and provides that;

- The designated Planning Agency will work under the overall directions and control of the State Government.
- The state Government may assign any or all of the following functions to the Designated Planning Agency, namely to
  - Carry out survey of the regional planning area, Local Planning Area, or a site for new town, as the case may be, and prepare reports on the surveys so carried out;
  - Prepare an existing land use map and such other maps as may be necessary for the purpose of preparing regional plan and outline master plan, a new town development plan or a comprehensive master plan, as the case may be;
  - Prepare a regional plan, an outline master plan, a new town development plan or a comprehensive master plan.
  - Subject to and in accordance with the directions of the Govt., a designated planning agency shall exercise all such powers as may be necessary or expedient for the purposes of carrying out its functions under this act and also perform any other functions which are supplemental, incidental or consequential to any of the functions specified in sub section (2) or as may be prescribed.

(d) Section 59 deals with the preparation of present land use map and fixes six months time for this purpose, which may be extended by the State Govt. from time to time.

(e) Section 70(1) states that the planning agency shall not later than one year after declaration of planning area and after the designation of that agency for that area shall prepare and submit to the state government a master plan for its approval. The Master Plan so prepared shall –

- Indicate broadly the manner in which the land in the area should be used.

- Allocate areas or zones of land for use for different purposes.
- Indicate, define and provide the existing and proposed highways, roads, major streets and other lines of communication.
- Indicate areas covered under heritage site and the manner in which protection, preservation and conservation of such site including its regulation and control of development, which is either affecting the heritage site or its vicinity, shall be carried out.
- Include regulations to regulate within each zone the location, height, number of storeys and size of buildings and other structures, open spaces and the use of buildings, structures and land.

(f) Section 70 (3) has the provision for the state government to direct the designated planning agency to publish the existing land use plan and master plan and the information regarding places where copies of the same may be inspected by the public for inviting objections in writing with respect to existing land use plan and master plan within a period of 30 days from the date of publication.

(g) Under Section 70(4), the state government after considering the objections and in consultation with the Board may direct the designated planning agency to modify the master plan or approve it as such

(h) Under Section 70 (5), the Designated Planning Agency after approval of the state government shall publish the final master plan in the official gazette after carrying out the modification if any under intimation to the state government within a period of 30 days from the date of according the approval by the state government.

(i) According to Section 75, the Master Plan comes into operation from the date of publication, referred in to sub section 5 of Section 70.

The entire process is shown in the form of flowchart Figure 2.

Chapter XI of the Act also provides for “Control of Dvelopment and Use of Land in the area where the Master Plan is in operation”.

Chapter XII, Section 91 of the Act deals with the preparation of Town Development Schemes that can play a significant role in the implementation of Master Plan by way of planned development and through making land available for the open spaces, recreation, education and health services, transport and communication network, water supply, sewerage, sewage disposal and other public utilities including electricity and gas etc

Chapter XIV deals with “Control and Development along Scheduled Roads”

In addition to the The Punjab Regional and Town Planning and Development (Amendment) Act 2006 there are a few acts that have no direct bearing on preparation of Master Plan but have a definite role to play in the implementation of the proposals of the Master Plan. These are briefly described below;

(A) Punjab Apartment And Property Regulation Act, 1995

The Punjab Apartment and Property Regulation Act, 1995 has been enacted with a view to regulate the promotion of the construction, transfer and management of apartments on ownership basis, to regulate colonies and property transactions and to provide for registration of promoters and estate agents and enforcement of obligations on promoters and estate agents and for matters connected therewith or incidental thereto.

- It provides planned development by checking, controlling and regulating the activities of the private developers.
- It makes funds available for planned development.
- It provides land for social and physical infrastructure through the mechanism of planned development.
- It also has the provision to make social housing available at low prices for Economically Weaker Section of the society.

(B) Punjab Town Improvement Act, 1922

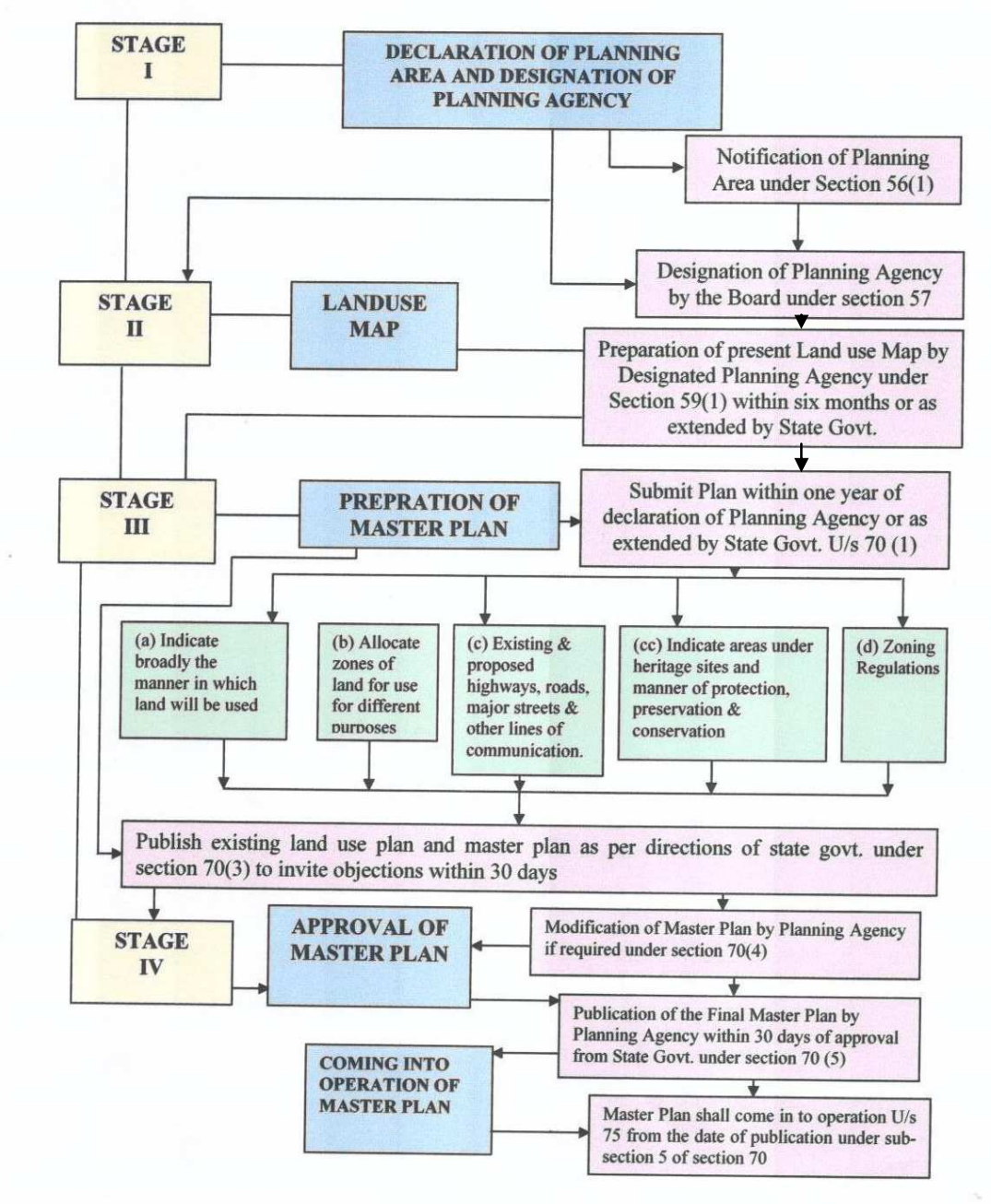
The Punjab Town Improvement Act, 1922 plays a significant role for the implementation of Master Plans in the following manner:

- It helps to provide planned development through the mechanism of Development Schemes.
- It makes land available for the development of social and physical infrastructure like schools, health, parks and playgrounds, and planned road network etc.

It also provides social housing to Economical Weaker Sections and thus helps to check the growth of slums.

2.12. The stages of preparation of Master Plan are shown in flowchart at figure below on next page in a more elaborated way.

**Figure 2 : Stages of Master Plan Preparation**



# 3. POPULATION, HOUSING, ECONOMY AND EMPLOYMENT

## Population Growth and Characteristics

3.1. Demographic profile of the area in terms of the population, growth rate, population density, literacy rate etc. helps in determining the social as well as the economic character of the area. The study has been done decade wise which helps in bringing out the trends of the growth rate, literacy level, sex ratio etc. of the LPA, Abohar and Abohar city. The study of population growth and characteristics plays an important role in defining the urban limits of a town/city. The following studies related to population growth and characteristics for Abohar city and LPA, Abohar have been conducted to know characteristics of LPA, Abohar and Abohar city.

**POPULATION GROWTH**

**Local Planning Area, Abohar:**

3.2. Local Planning Area, Abohar includes only one urban settlement i.e. Abohar and 50 villages including Abohar rural. Local Planning Area experienced growth rate of 25.39% and 18.48% during the year 1981 - 1991 and 1991 - 2001 respectively. Thus showing a decline in the population growth rate during the last decade which might be due to the weakening of the economic base of the city. Abohar is the largest city of Ferozepur district and is the only urban settlement of its LPA, Abohar with population of 1, 24,339 persons in 2001. The growth trend of population of Punjab State and LPA, Abohar is given in table below:

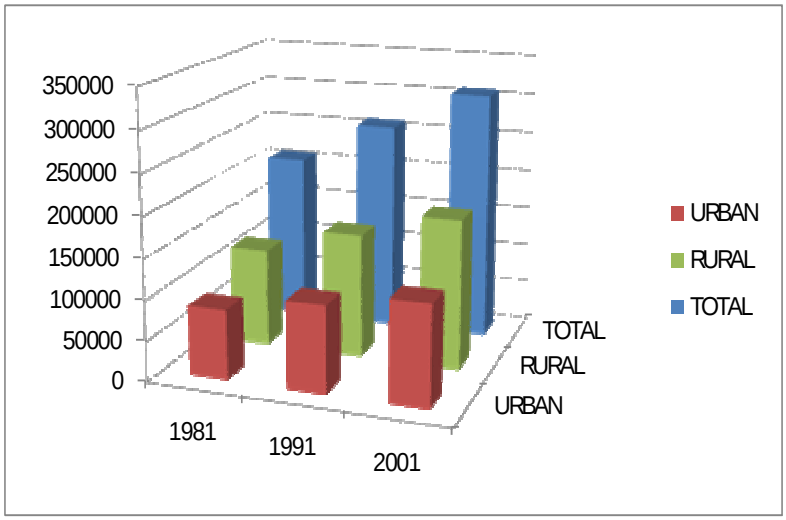
**Table 4: Population Growth Rate of Punjab State and LPA, Abohar: 1981-2001**

| | POPULATION | | | GROWTH RATE IN % | |
|---|---|---|---|---|---|
| | **1981** | **1991** | **2001** | **1981-91** | **1991-2001** |
| **PUNJAB STATE *** | | | | | |
| TOTAL | 16.79 | 20.28 | 24.36 | 20.79 | 20.12 |
| URBAN | 4.65 | 5.99 | 8.25 | 28.82 | 37.73 |
| RURAL | 12.14 | 14.29 | 16.11 | 17.71 | 12.74 |
| * POPULATION IN MILLLIONS | | | | | |
| **LPA, ABOHAR** | | | | | |
| TOTAL | 207998 | 260799 | 309000 | 25.39 | 18.48 |
| URBAN | 86334 | 107163 | 124339 | 24.13 | 16.03 |
| RURAL | 121664 | 153636 | 184661 | 26.27 | 20.19 |

*Source: Census of India, Punjab 1981, 1991, 2001,*

Table above depicts that growth rate of total population of LPA, Abohar has decreased from 25.39 % during 1981- 91 to 18.48 % during 1991- 2001 decade. Similarly the growth rate of urban population i.e. of Abohar city of LPA, Abohar has also decreased from 24.13% to 16.03% and also very low when compared to urban growth rate of Punjab which is about 37.73% during the last decade. But in case of rural population, the growth rate of rural population of LPA, Abohar is about 20.19% during 1991-2001 which is much on the higher side than that of Punjab state which is about 12.74%.

**Figure 3: Population Growth of LPA, Abohar**




Besides above, growth trends have also been analysied in terms of share of population of LPA, Abohar to the State population. As far as the share of total population of LPA, Abohar to total population of state is concerned it has increased from 1.24% in 1981 to 1.29 % in 1991and then decreased to 1.27% in 2001. Also the share of urban population of LPA, Abohar showed the decreasing trend from 1.86% in 1981 to 1.79% in 1991 and has further declined to 1.51% in 2001 whereas the share of rural population is constantly increasing from 1.01% in 1981 to 1.15% in 2001 during this period as shown in table below:

**Table 5: Share of LPA, Abohar in Punjab state**

| YEAR | 1981 | 1991 | 2001 |
|---|---|---|---|
| TOTAL | 1.24% | 1.29% | 1.27% |
| URBAN | 1.86% | 1.79% | 1.51% |
| RURAL | 1.01% | 1.08% | 1.15% |

*Source: Census of India, Punjab 1981, 1991, 2001*

**Abohar City**

3.3. As already stated that Abohar is a largest urban settlement (Class I city) of District Firozepur and is the only urban settlement of LPA, Abohar. Its share in the total urban population of Punjab has decreased from the year 1981 to 2001. Share of population of Abohar city to the total urban population of the state was 1.51 in the year 2001.

Abohar city recorded a lowest growth rate of -6.07% during 1911-1921 and had a population of 8916 persons only in the year 1921. However, the city registered high growth rates of 57.41% and 51.21% during the decades of 1921-31 and 1931-41 respectively. These high growth rates show that the city occupied an important position in the region before partition of the country. These could also be attributed to the coming up of canal water during this time which increased the agriculture produce of the region, thus further impacting the growth of the city. City registered a low growth rate of 20.03% during 1941-51 decade which can be attributed to out migration from the city due to partition.

The most important phase in the growth of population and physical size of the city is the decade of 1951-61. It registered a very high growth rate of 83.98% and had a population of 46,863 persons in 1961. This very high growth is due to the establishment of a very large scale industrial unit i.e. Sri Bhiwani Cotton Mills and Industrial Ltd. The coming up of this industrial unit in 1957 completely changed the economic base of the city from trade and commerce to industrial thus further increasing the employment opportunities in the city and the region.

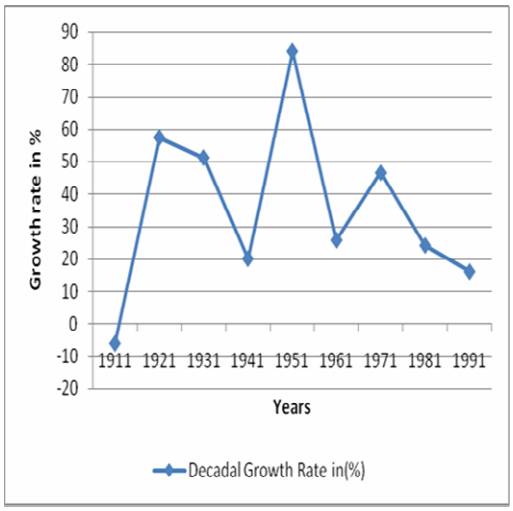
During 1961-71, the growth rate decreased to 25.74% because of normalized social and economic conditions but again jumped to 46.52% during 1971-81 due to coming up of new industrial units. However during the last two decades of 1981-91 and 1991-2001, the growth rates i.e. 24.13% and 16.03% are on decline which is perhaps due to the closure of some cotton based industrial units, specially the closure of Sri Bhiwani Cotton Mills. Due to water logging in some parts of the region, the area under cotton has decreased considerably thus decreasing the supply of raw material for these units. The detail of population growth of Abohar city from 1901 to 2001 is given in table below:

**Table 6: Population Growth Rate Abohar city: 1981-2001**

| Years | Population Of Abohar City | Decadal Growth Rate in(%) |
|---|---|---|
| 1911 | 9492 | |
| 1921 | 8916 | -6.07 |
| 1931 | 14035 | 57.41 |
| 1941 | 21222 | 51.21 |
| 1951 | 25472 | 20.03 |
| 1961 | 46863 | 83.98 |
| 1971 | 58925 | 25.74 |
| 1981 | 86334 | 46.52 |
| 1991 | 107163 | 24.13 |
| 2001 | 124339 | 16.03 |

*Source: Census of India, Punjab 1901 – 2001*

**Figure 4: Growth of Population of Abohar City: 1911-2001**



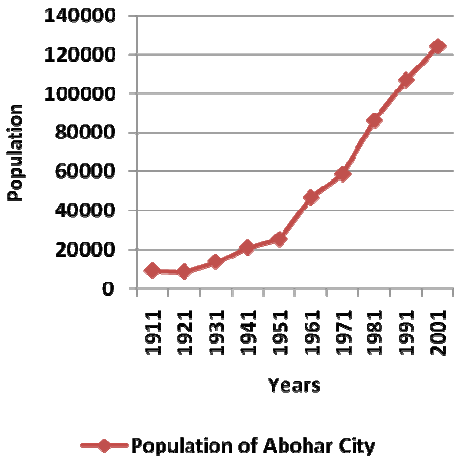




Table below shows that the share of population of Abohar city in total urban of population of Punjab. It was 1.86 % in 1981. The share of population of Abohar decreased from 1.86% in 1981 to 1.51% in 2001 due to reasons explained in preceding paragraphs. The growth trends of urban population in Punjab and that of Abohar city are given in table below:

**Table 7: Growth trends - Urban Population in Punjab and Abohar 1971-2001**

| Years | Urban Population of Punjab (Persons) | Decadal Growth Rate of Urban Population of Punjab (in Percent) | Population of Abohar M.C.(Persons) | Decadal Growth Rate of Population of Abohar City (in Percent) |
|---|---|---|---|---|
| 1971 | 3216179 | - | 58925 | - |
| 1981 | 4647757 | 44.51 | 86334 | 46.52 |
| 1991 | 5993220 | 28.95 | 107163 | 24.13 |
| 2001 | 8245566 | 37.58 | 124339 | 16.03 |

*Source: Census of India, Punjab, 1971 to 2001*

The study of above table shows that growth rate of Abohar city was 46.52% during 1971-81 decade which was higher than that of Punjab. But during the 1981-1991 and 1991- 2001 decade, the growth rates of Abohar city were lower than that of Punjab (28.95% and 37.58%). The decreasing trends in growth rate of Abohar city are perhaps due to closure of many cotton based industrial units. The reason for this is given in the preceding paragraphs.

**POPULATION DENSITY**

3.4. The gross population density of Abohar city has constantly increased during the period of 1971-1991, from 41.58 persons per hectare in 1971 to 75.63 persons per hectare. However it has decreased from 75.63 persons per hectare to 54.73 persons during 1991-2001. The reason for this decrease in population density is increase in the area of Municipal Council limits from 1417 hectares to (14.17 sq. kms) to 2307 hectares (23.07 sq. kms) as per the census data. As per the data regarding area of M.C made available from PRSC, Ludhiana the area of Municipal Council is 22.72 sq.km. Therefore the analysis of population density is done keeping this area in view.

**Table 8: Population density of Abohar city 1971-2001**

| Year | Population (Persons) | City Area (In Hectares) | Density in Persons/hectare |
|---|---|---|---|
| 1971 | 58925 | 1417 | 41.58 |
| 1981 | 86334 | 1417 | 60.93 |
| 1991 | 107163 | 1417 | 75.63 |
| 2001 | 124339 | 2272 | 54.73 |

Source*: Census of India, Punjab 1981, 1991, 2001 & Municipal Council, Abohar*

The density of population within the municipal limits is not uniform all over the city. It varies from ward to ward as given in table below:

**Table 9: Ward wise Population Density of Abohar city: 2001**

| Sr. No. | Ward No. | Area in Hect. | Population | Density Persons Per Hectares |
|---|---|---|---|---|
| 1 | Ward No - 1 | 141.44 | 3609 | 25.52 |
| 2 | Ward No - 2 | 245.89 | 4503 | 18.31 |
| 3 | Ward No - 3 | 69.42 | 6399 | 92.18 |
| 4 | Ward No - 4 | 177.51 | 3320 | 18.70 |
| 5 | Ward No - 5 | 79.8 | 5210 | 65.29 |
| 6 | Ward No - 6 | 23.33 | 4431 | 189.93 |
| 7 | Ward No - 7 | 199.11 | 3866 | 19.42 |
| 8 | Ward No - 8 | 372 | 4946 | 13.30 |
| 9 | Ward No - 9 | 127.39 | 3026 | 23.75 |
| 10 | Ward No - 10 | 16.6 | 1201 | 72.35 |
| 11 | Ward No - 11 | 19.53 | 3925 | 200.97 |
| 12 | Ward No - 12 | 185 | 4485 | 24.24 |
| 13 | Ward No - 13 | 267.35 | 5276 | 19.73 |
| 14 | Ward No - 14 | 30.96 | 4883 | 157.72 |
| 15 | Ward No - 15 | 13.7 | 3988 | 291.09 |
| 16 | Ward No - 16 | 48.5 | 4635 | 95.57 |
| 17 | Ward No - 17 | 21.33 | 4129 | 193.58 |
| 18 | Ward No - 18 | 7.3 | 3499 | 479.32 |
| 19 | Ward No - 19 | 14.68 | 5060 | 344.69 |
| 20 | Ward No - 20 | 13.07 | 4678 | 357.92 |
| 21 | Ward No - 21 | 24.8 | 3340 | 134.68 |
| 22 | Ward No - 22 | 9.8 | 3248 | 331.43 |
| 23 | Ward No - 23 | 10.5 | 3253 | 309.81 |
| 24 | Ward No - 24 | 20.36 | 3828 | 188.02 |
| 25 | Ward No - 25 | 36.6 | 3474 | 94.92 |
| 26 | Ward No - 26 | 21.39 | 3781 | 176.76 |
| 27 | Ward No - 27 | 6.6 | 3734 | 565.76 |
| 28 | Ward No - 28 | 12.54 | 3531 | 281.58 |
| 29 | Ward No - 29 | 12.5 | 4093 | 327.44 |
| 30 | Ward No - 30 | 34.25 | 3258 | 95.12 |
| 31 | Ward No - 31 | 9.45 | 3730 | 394.71 |
| | **Total** | **2272** | **124339** | |

*Source: Census of India, Punjab,M.C. Abohar 2001*

Inter census comparison of ward wise density is however not possible as ward boundaries and number of wards have been changing over the years. The density gradient as per 2001 census shows that ward no. 15, 18, 19, 20, 22, 23, 27, 28, 29, 31 are having a gross density of more than 250 persons per hectare with the distinction of highest density of 565 persons per hectare in ward no. 27 and the lowest only 13.30 persons per hectare in ward no. 8.

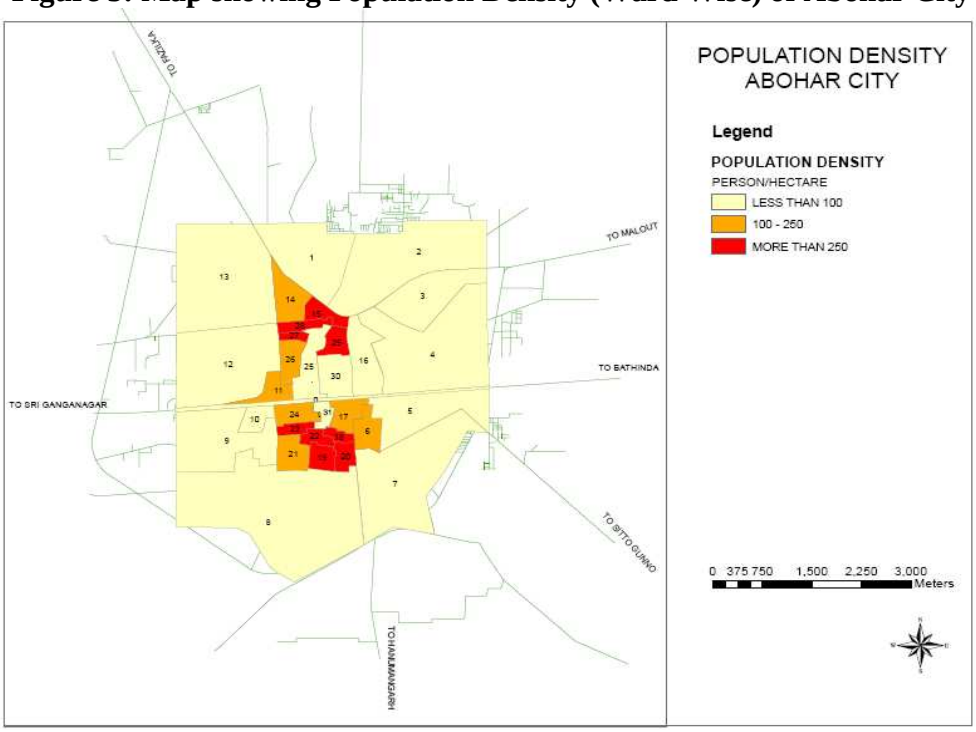
The density has been classified into three groups as shown in table below:

**Table 10: Density Gradient of M. C. Abohar (ward wise): 2001**

| Sr. No. | Density Slab (Persons/hectare) | ZONE | Ward Numbers |
|---|---|---|---|
| 1 | More than 250 | High density zone | 15,18,19,20,22,23,27,28,29,31 |
| 2 | 100- 250 | Medium density zone | 6,11, 14,17,21,24,26 |
| 3 | Less than 100 | Low density zone | 1,2,3,4,5,7,8,9,10,12,13,16,25,30 |

Almost all the old parts of the city except ward no. 30 falls in high density zone as these are thickly built up with narrow streets. The high density also includes some of the recently built up areas which are housed by low income people. About 10 wards having an area of 110.14 hectares (4.85% of total area) houses 38814 persons (31.22% of total population) at a density of 352 persons per hectare which is on very higher side. This means that more than 1/3rd of total population occupies only 4.85% of total area of M.C. Abohar. In comparison to this low density area comprises an area of 2000.86 hectares (88.1% of total area) and about 57208 persons inhabit this area at a density of 28 persons per hectare. This low density area falls all along on the periphery of the city which have vast vacant areas, orchards and grain market and agriculture land.

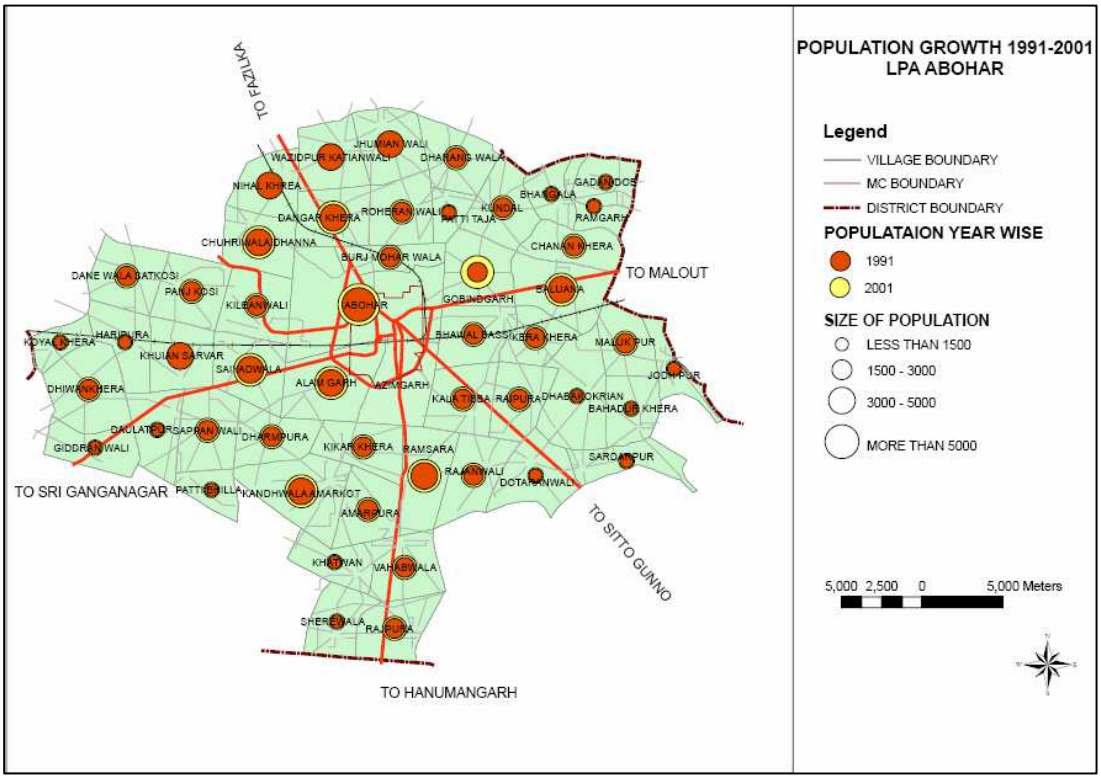
**Figure 5: Map showing Population Density (Ward Wise) of Abohar City**



**Population Distribution in LPA, Abohar:**

3.5. As per the figures of 2001 census, Abohar is the only one urban settlement of L.P.A having a population of 1,24,339 persons, Out of rural settlements Abohar rural is a largest village having a population of 13441, but it is outgrowth of Abohar city. So in real terms Gobindgarh is the largest village having a population of 6027 persons whereas the smallest village is Ramgarh having a population of 923 persons. Some of the villages like Khatwan, Khuian Sarwar, and Koil Khera have registered a negative growth rate, whereas Gobindgarh village has grown at a highest growth rate of 64.76% among the villages of LPA, Abohar. The size of rural settlements is not as much related to the hierarchy of roads on which these are located. Some of the big villages like Gobindgarh, Churiwala Dhana and Darangwala are not located along any major road whereas Gidderanwali has a moderate population but is located on NH 15. The Population distribution of villages of the year 1991 – 2001 is shown in figure below. Similarly the annexure no. 4 depicts the population and growth rate of villages in 1981 – 91 and 1991 -2001.

**Figure 6: Map showing Population Growth of Villages in LPA, Abohar**



**Age structure**

3.6. The age structure or age distribution of population is given by age groups. The age group of below 19 is having about 43.72 % of the total city population and in age group of 20-39 category, population stands for 32.24%. About 17% of population falls in age group of 40-59 and whereas only 6.49 % of population lies in the age group of more than 60 years. The breakup of different age group is given in table below:

**Table 11 Age Structure of Abohar for the year 2001**

| Age-group | Total | | | % of total Population |
|---|---|---|---|---|
| | Persons | Males | Females | |
| All ages | 124339 | 66445 | 57894 | 100.00 |
| 0 - 9 | 25344 | 14005 | 11339 | 20.38 |
| 10 - 19 | 29020 | 29863 | 24501 | 23.34 |
| 20 -39 | 40082 | 20870 | 19212 | 32.24 |
| 40 - 59 | 21139 | 11461 | 9678 | 17.00 |
| 60+ | 8066 | 3885 | 4181 | 6.49 |
| Age not stated | 688 | 366 | 322 | 0.55 |

*Source: Census of India, Punjab- 2001*

**Sex Ratio**

3.7. According to 1981 census, there were 869 females for every 1000 males in LPA, Abohar in 1991, the sex ratio improved to 894 which showed a rising trend in sex ratio but in 2001 the sex ratio again declined to 865. In case of Abohar city also, the sex ratio decreased from 853 in 1981 to 852 in 1991 and then increased to 871 in 2001.The sex ratio of Punjab State 2001 was 876, which is on higher side as compared to LPA, Abohar and Abohar city. The detail of sex ratio is given in table below:

**Table 12: Sex Ratio of Abohar City and LPA, Abohar: 1981-2001**

| Year | Abohar city | | | | Local Planning Area, Abohar | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Population | Males | Females | Sex Ratio | Total Population | Males | Females | Sex Ratio |
| 1981 | 86334 | 46582 | 39752 | 853 | 208998 | 111280 | 96678 | 869 |
| 1991 | 107163 | 57875 | 49288 | 852 | 261379 | 137984 | 123395 | 894 |
| 2001 | 124339 | 66445 | 57894 | 871 | 309000 | 165664 | 143336 | 865 |

*Source: Census of India, Punjab1981, 1991, 2001*

**Religious composition**

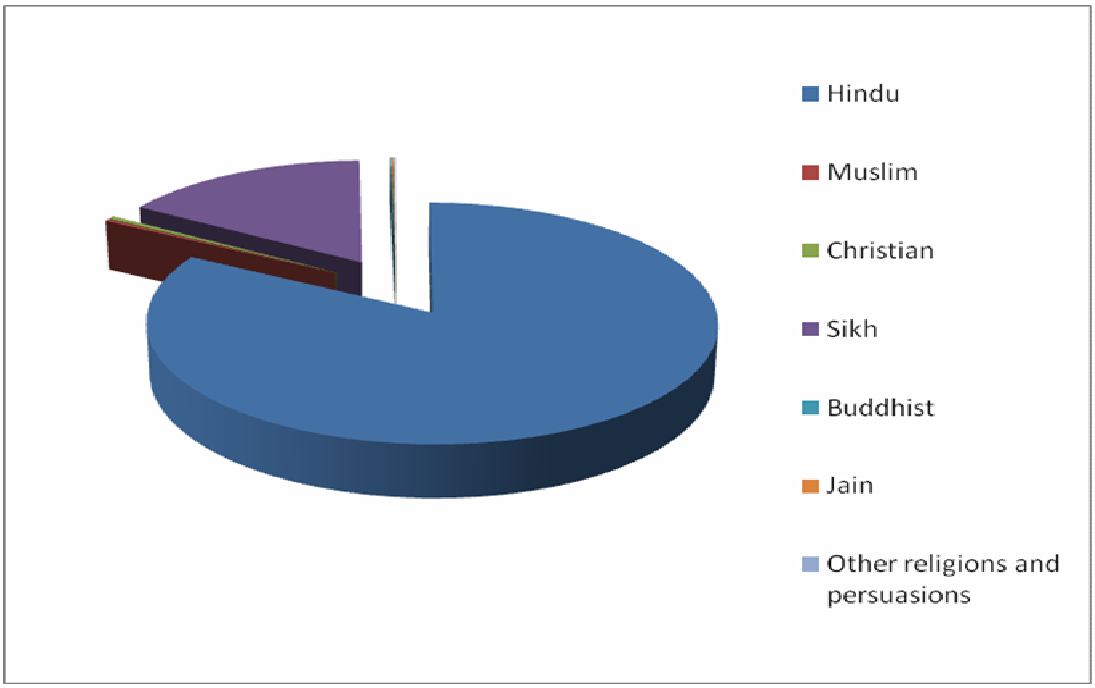
3.8. Hindus constitute major part of 83.02% of population of Abohar, while 15.94% are Sikhs and 0.30% are Muslims where as Christians are 0.43%.The rest of the population belongs to other religions as per 2001 censuses The religious composition of Abohar is given in table below:

**Table 13: Religious composition in Abohar city 2001**

| Year | Religion | | | | | | |
|---|---|---|---|---|---|---|---|
| | Hindu | Muslim | Christian | Sikh | Buddhist | Jain | Other religion & persuasions |
| 2001 | 103221 | 370 | 537 | 19819 | 98 | 149 | 145 |
| Percentage | 83.02 | 0.30 | 0.43 | 15.94 | 0.08 | 0.12 | 0.12 |

*Source: Census of India, Punjab- 2001*

**Figure 7: Religious Composition of Abohar City 2001**




**Caste composition**

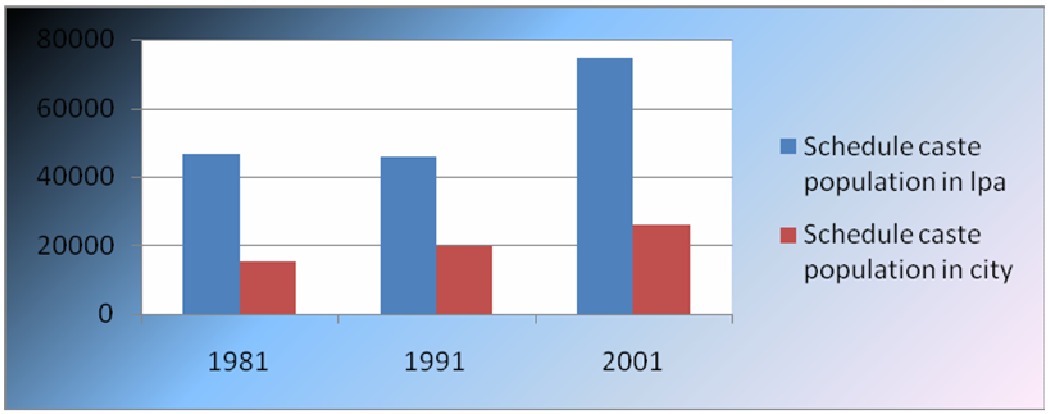
3.9. The total Scheduled Caste population in LPA, Abohar is 74765 persons which is 24.20 % of the total population as per 2001 census. SC population of LPA, Abohar is increased from 22.28% in 1981 to 24.20% in 2001. The percentage of SC population of Abohar city increased from 17.83% in 1981 to 20.76 % in 2001. The average SC population in Punjab State is 28.85%, which shows that percentage of SC population in LPA, Abohar is less than that of Punjab. The detail of scheduled caste population of LPA, Abohar and Abohar city from 1981 to 2001 is given in table below:

**Table 14: Schedule caste population & percentage of S.C population to total population 1981-2001**

| Sr. No | Year | LPA, ABOHAR | | ABOHAR CITY | |
|---|---|---|---|---|---|
| | | Schedule caste population | %age of SC Pop. to total Pop. | Schedule caste population | %age of SC Pop. to total Pop. |
| 1. | 1981 | 46565 | 22.28 | 15396 | 17.83 |
| 2. | 1991 | 45628 | 17.46 | 19760 | 18.44 |
| 3. | 2001 | 74765 | 24.20 | 25810 | 20.76 |

*Source: Census of India, Punjab- 2001*

**Figure 8: Caste Composition of LPA, Abohar and Abohar city 1981 - 2001**




**Literacy**

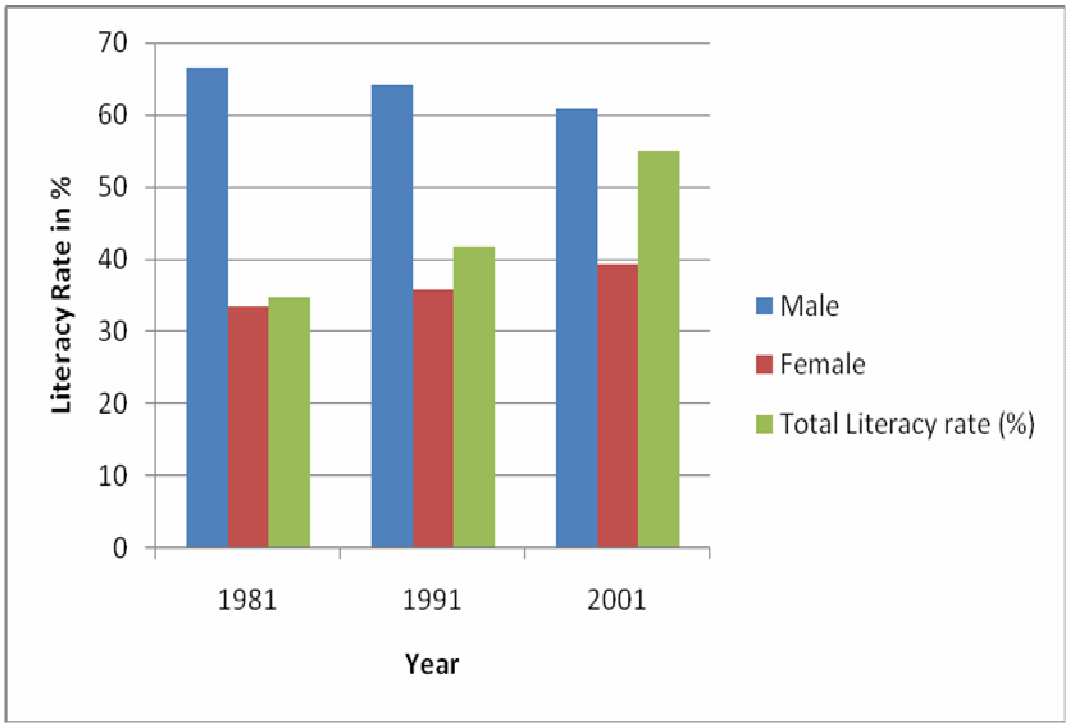
3.10. Table below depicts that the literacy rate is increasing in LPA, Abohar. The literacy rate in 1981 was 34.66%, which increased to 41.70% in 1991 and further rose to 54.89% in 2001.Out of total literate persons in the year 1981, 66.61% were males and 33.39% were female. As per trend literacy rate of female increased from 33.39% in 1981 to 39.17% in 2001 in LPA, Abohar. The literacy rate is shown in table below:

**Table 15 : Literacy rate of LPA, Abohar 1981-2001**

| Sr. No. | Year | Total Population | Total literates | Literacy rate (%) | Males Literacy | | Females Literacy | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Number | %age | Number | %age |
| 1. | 1981 | 208998 | 72443 | 34.66 | 48256 | 66.61 | 24187 | 33.39 |
| 2. | 1991 | 261379 | 109005 | 41.70 | 69922 | 64.15 | 39083 | 35.85 |
| 3. | 2001 | 309000 | 169607 | 54.89 | 103169 | 60.83 | 66438 | 39.17 |

*Source: Census of India, Punjab 1981, 1991, 2001*

**Figure 9: Literacy Rate of LPA, Abohar 1981 - 2001**




The study of below table shows that literacy rate in case of Abohar city is also on the increasing trend. It was 48.24% in 1981 whereas it increased to 63.95% in 2001. The literacy rate of females was 38.10% in 1981 and it increased to 40.06% in 2001 whereas in case of male literacy it has decreased from 61.90% to 59.94% in 2001.

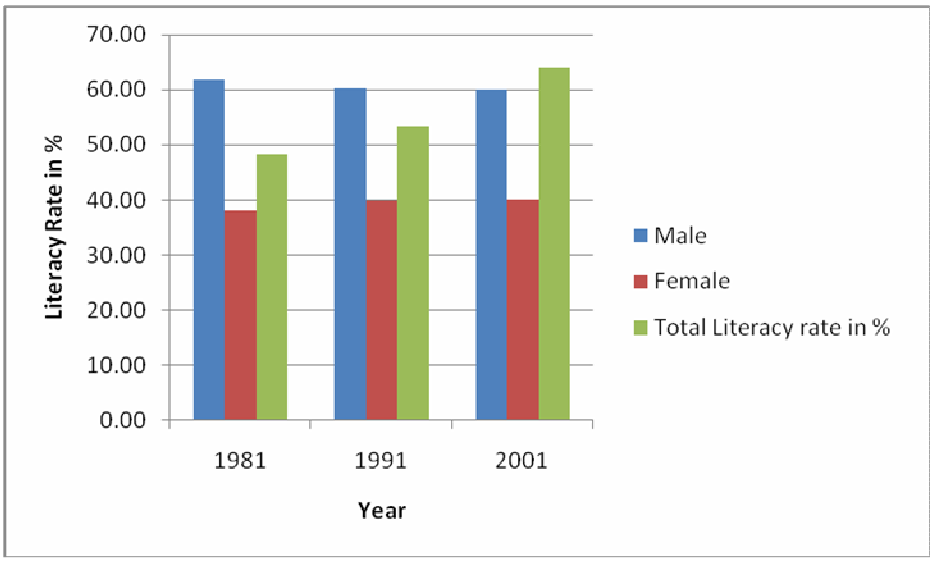
Literacy rate of LPA, Abohar and Abohar city is lower as compared to the Punjab state i.e. 70% in 2001. It means there is a still need to make aware people about the education, and there is need to strengthen the existing education system by way of opening the new educational institutions at different levels in LPA, Abohar taking into account the requirements of the today's society.

**Table 16: Literacy rate of Abohar City: 1981-2001**

| Sr. No. | Year | Total Population | Total literates | Literacy rate in % | Males Literacy | | Females Literacy | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Number | %age | Number | %age |
| 1. | 1981 | 86334 | 41651 | 48.24 | 25784 | 61.90 | 15867 | 38.10 |
| 2. | 1991 | 107163 | 57192 | 53.37 | 34434 | 60.21 | 22758 | 39.79 |
| 3. | 2001 | 124339 | 79513 | 63.95 | 46069 | 59.94 | 33444 | 40.06 |

*Source: Census of India, Punjab 1981, 1991, 2001*

**Figure 10: Literacy Rate of Abohar City 1981 - 2001**




## Housing and Slums

### General

3.11. Housing is one of the basic human needs and ranks after food and clothing in terms of priority. Housing constitutes one of the most important parts of the social environment where an individual is nurtured, grows and matures as a human being, part of the society and as a citizen. Housing, in addition to making contribution to the quality of living also plays a significant role in improving the national economy and generation of employment. It does not provide merely a shelter but gives an identity to the human being besides making him better human being. Poor quality of housing or absence of appropriate shelter has considerable impact on the economy and productivity of human beings besides health and social environment. Housing has been considered to have critical role in maintaining the social health and stability and in ensuring the people a decent quality of life. Accordingly, housing has been placed high on the agenda of any national government committed to the cause of promoting human welfare. Considering the role and importance of housing in the national economy, productivity, industrial growth, employment and quality of life, a number of policies dedicated to creating affordable housing has been framed at the national level. The

agenda of these policies have been focused on the ultimate goal of providing affordable housing for all.

As per Central Statistical Organization (CSO) estimate, the Housing Sector contributed 4.5% to India's Gross Domestic Product (GDP) in 2003-04 at current prices. The contribution of housing in urban areas to the GDP in 2003-04 was 3.13%. Further, the spotlight is focused on the fact that 16% of the Indian work force is engaged in Construction and Transport Sectors. It is estimated that overall employment generation in the economy on account of additional investment in the Construction/Housing Sectors is eight times the direct employment (IIM Ahmedabad: 2005). In view of the substantial use of cement, steel, marble/ceramic tiles, electrical wiring, PVC pipes and various types of fittings, construction activity has a multiplier effect on industrial demand for these items.

Housing is not merely confined to the four-walls which make a house but also all supporting infrastructure which is required to sustain the human beings in terms of physical and social infrastructure. Accordingly, National Housing Urban Policy laid emphasis not only on providing affordable shelter but also creation of appropriate quantity and quality of essential services etc.

**Growth of Housing in Abohar**

3.12. Housing is an activity, which is mainly driven by individuals to provide themselves with an appropriate shelter. With the rapid increase in population, number of houses has also recorded an increase. Besides individuals, different agencies like Improvement Trust, Abohar and Municipal council has also contributed to some extent to household stock in the Abohar city. Besides these, private colonisers have also made their share as plotted development by developing some colonies unauthorisedly and authorisedly in the city. In case of major cities of Punjab, various agencies like PUDA, Improvement Trust have framed many schemes of plotted development & multistory houses but in case of Abohar not much work in this sector is being done by these agencies. Although Abohar Improvement Trust has been established since 1973 but it has not much contributed to the housing sector of the city. Only three development schemes have been executed by Improvement Trust Abohar so far. Out of these, only one is of residential cum commercial nature and 2 are purely commercial schemes covering an area of only approx. 1.51 hectares

offering just 23 residential plots and 13 shop cum flats, 12 shop cum offices, 126 shops. The detail of theses is given in the table below:

**Table 17: Details of Development Schemes of Improvement Trust, Abohar**

| Sr. No. | Development Scheme | Location | Area (in hectares) | Remarks |
|---|---|---|---|---|
| 1 | Rani Jhansi Market | Near Railway Station (Sri Ganganagar Road) | 0.31 (3100 sq. mts) | Only Commercial (1976) |
| 2 | Maharana Pratap Market | Kandhwala Road | 0.96 (9600 sq. mts) | Residential/Commercial (1976) |
| 3 | Lala Lajpat Rai | Opp. Old Teh. Complex | 0.28 (2800 sq. mts) | Only Commercial (1996) |
| | Total | | **1.55** | |

*Source: Improvement Trust, Abohar*

Municipal council has also contributed in a limited way to housing stock of the city by framing about 4 Town Planning Schemes offering 641 residential plots covering an area of approx. 19.81 hectares. The towns planning schemes framed and approved by Municipal Council, Abohar, are tabulated as follows giving details about area and number of plots of each scheme.

**Table 18: Detail of the Town Planning Schemes in Abohar**

| Sr. No. | Name of the Scheme | Location | Year of Commencing | Area (in hectares) | No. of Plots |
|---|---|---|---|---|---|
| 1 | Sham Vihar | Old Fazilka Road | 11/31/1998 | 2.43 | 159 |
| 2 | Kabul Singh (Utam Vihar) | Kandhwala Road | 2/6/2005 | 6.13 | 210 |
| 3 | Ganesh Avenue | Old Fazilka Road | 10/5/2000 | 1.53 | 53 |
| 4 | Shrada Vihar | Sitto Gunno Road | 3/1/2003 | 9.72 | 219 |
| | **Total** | | | **19.81** | **641** |

*Source: Municipal Council, Abohar*

PUDA has not contributed to the housing sector of Abohar city as it has not developed any urban estate at Abohar, whereas private developers have developed only two colonies having 180 residential plots in an area of 8.1 hectres licensed under the Punjab Apartment & Property Regulation Act, 1995.

The growth of residential houses and households has been found to be keeping pace with the growth of population in the Abohar city. As per the Census figures as given in table below number of houses increased from 14446 to 16777 during the year 1981-1991 registering a growth rate of 16.13 % whereas a growth rate of houses recorded 74.36% during 1991-2001 decade. This growth rate is very high as compared to the growth rate of households during this decade which is only 23.18%. This high growth

rate of houses can be attributed to large scale migration from the neighboring rural area to the Abohar city during this period. This shows the comfortable position of housing stock in the city. The table also indicates that the household size remained constant during 1981 and 1991 decades whereas it has been slightly decreased to 5.6 in the year 2001.

**Table 19: Growth of houses, households & household size in Abohar city: 1981 - 2001**

| Year | Occupied Residential Houses | %Age growth Rate of Residential houses | No. of households | %Age growth Rate of Households | Population | Household size |
|---|---|---|---|---|---|---|
| 1981 | 14446 | - | 14489 | - | 86334 | 5.9 |
| 1991 | 16777 | 16.13 | 18057 | 24.60 | 107163 | 5.9 |
| 2001 | 29,254 | 74.36 | 22224 | 23.18 | 124339 | 5.6 |

*Source: Census of India, Punjab 1981, 1991, and 2001*

**Housing Characteristics**

**Pattern of Use of Housing Stock**

3.14. Looking at the pattern of use of the existing housing stock, it has been observed that majority of houses are being used only as residential houses which comprise 66.32% (2/3rd) of the total housing stock. Mixed use of houses has also been observed in large number of cases. Every fifth house in the city is being used both for residential and commercial/office purposes. Excluding the category of vacant houses, every 16th census house (under Educational, Medical, Religious, commercial and Industrial etc.) has been found to have additional use besides serving the residential purpose. Despite the fact that the occupation density in the housing is very high, almost every 14th house in the city remains vacant or unoccupied. Thus it has been observed that the available housing stock is also not being put to optimal use. The large number of vacant houses may be attributed to the outmigration and legal framework including the Rent Control Act, which leads to unwillingness on the part of the owners to rent out the houses. Out migration from Abohar can be related to closer of some industrial units especially closer of Shri Bhiwani Cotton Mills and Industrial Ltd. which employed many workers. Accordingly, favourable environment needs to be created in order to minimise the number of vacant houses so as to ensure the optimum use of the available housing stock. Details of use pattern of housing stock available in the city are given in table below:

**Table 20: Pattern of use of Census houses category wise in Abohar city: 2001**

| S. No. | Category | No. of houses | %Age of total houses |
|---|---|---|---|
| 1. | Residential | 20,930 | 66.32 |
| 2. | Residential cum other use | 938 | 2.97 |
| 3. | Residential cum shop cum office | 5,404 | 17.12 |
| 4. | School/College | 114 | 0.36 |
| 5. | Hotel/Lodge/Guest House | 54 | 0.17 |
| 6. | Hospital/Dispensary | 116 | 0.37 |
| 7. | Factory/Workshop/Work shed | 537 | 1.70 |
| 8. | Place of Worship | 85 | 0.27 |
| 9. | Other Non Residential uses | 1,076 | 3.41 |
| 10. | Vacant houses | 2,303 | 7.30 |
| | **Total census houses** | **31,557** | **100.00** |

*Source: Census of India housing tables 2001*

**Predominant Use of Materials in the Housing Stock**

3.15. Besides looking at the housing stock in term of various uses, the material used for the roof, wall and floor of the residential houses has also been studied to ascertain the quality of housing stock.

**Material of Roof**

3.16. It has been observed that the majority of the housing stock has a permanent roof, which constitutes around 90% of the total housing stock (Refer table below). As against this only 8% of the housing stock has temporary roofing which includes materials like grass, thatch, bamboo, wood, mud, plastic, polythene, slates, GI sheets and stones. This indicates that the economic conditions prevailing in the city are much better. It has also been observed that among the predominant material used for roof approximately 50% of the housing stock has cement concrete whereas about 31% houses have the brick as the predominant material of roofing. Every 12th residential house has used tiles as the material for making the roof. Despite the fact that majority of housing stock is fairly placed so far as quality of roofing is concerned, still there are more than 3000(10% of total census houses) houses which require up-gradation of their roofs in order to improve the quality of housing.

**Table 21: Census houses by predominant material of roof in Abohar city - 2001**

| Material | Concrete | Brick | Tiles | Grass, Thatch, bamboo wood, mud etc. | Other material | Total |
|---|---|---|---|---|---|---|
| No. of houses | 15823 | 9775 | 2720 | 2635 | 604 | 31557 |
| %Age of total | 50 | 31 | 9 | 8 | 2 | 100 |

*Source: Census of India, Punjab 2001*

**Material of Wall**

3.17. Majority of housing stock i.e. 91% houses in Abohar city has used burnt brick, while only 7% has used the mud, unburnt bricks for the construction of walls. Only 1% of the total housing stock used concrete as material for wall. Despite the fact majority of housing stock i.e. 92% of the total housing stock is fairly placed as far as material of wall is concerned. There are still 2163 census houses where mud bricks are used as material of wall which is not safe for construction (Refer table below).

**Table 22: Census houses by predominant material of wall in Abohar city: 2001**

| Material | Mud, Unburnt brick | Burnt Brick | Concrete | Any other Material | Total |
|---|---|---|---|---|---|
| No. of houses | 2163 | 28678 | 365 | 316 | 31557 |
| %Age of total | 7 | 91 | 1 | 1 | 100 |

*Source: Census of India, Punajb 2001*

**Material of Floor**

3.18. As per the figures recorded in 2001 census as many as about 50.01% i.e. about half of total census houses have used cement, stone or mosaic floor type for their flooring whereas another 28.53% used bricks pushing the figure to 78.54%, While the remaining houses used mud or other material for flooring (Refer table below).

**Table 23: Census houses by predominant material of floor in Abohar city: 2001**

| Material | Mud | Brick | Stone | Cement | Mosaic, Floor tiles | Any other Material | Total |
|---|---|---|---|---|---|---|---|
| No. of houses | 6,656 | 9,002 | 4,192 | 11,127 | 464 | 116 | 31,557 |
| %Age of total | 21.09 | 28.53 | 13.28 | 35.26 | 1.47 | 0.37 | 100.00 |

*Source: Census of India, Punjab 2001*

**Type of Housing Structure**

3.19. As per the census figures of 2001, 87% of the total houses have permanent and 6% semi permanent structures. Only 7% of the total houses i.e. 1479 have temporary structures, out of which only 1% are non serviceable structures (Refer table below).

**Table 24: Residential houses by their type of structure in Abohar city: 2001**

| Type of Structure | Permanent | Semi-permanent | Temporary | | |
|---|---|---|---|---|---|
| | | | Total | Serviceable | Non-serviceable |
| No. Of houses | 19,086 | 1,295 | 1,479 | 1,332 | 147 |
| %Age of total | 87 | 6 | 7 | 6 | 1 |

*Source: Census of India, Punjab 2001*

**Housing Condition**

3.20. As per the census figures of 2001, there are total 22244 residential houses, out of which 20930 are purely residential and 6343 are for residence cum other use. Out of total census houses 59% of the houses are in good condition while 37% and 4% respectively are in livable and dilapidated condition. Above figure shows that housing condition in Abohar city is at satisfactory level (Refer table below).

**Table 25: Residential houses by their condition in Abohar city: 2001**

| Housing condition | Good | Livable | Dilapidated | Total |
|---|---|---|---|---|
| No. of houses | 13,132 | 8,223 | 889 | 22244 |
| %Age of total | 59 | 37 | 4 | 100 |

*Source: Census of India, Punjab 2001*

**Households by Number of Dwelling Rooms**

3.21. The figures of 2001 census indicates that out of the total households of Abohar city about 75% are living in the houses having two rooms or more whereas about 24.66% are living in one room set and a few remaining households are having no exclusive room. Thus maximum number of households' i. e. 99.57 % are having at least minimum one dwelling room which shows that city has better housing condition and houseless population is on the very low side. Only 0.43% of the total households are in category of no exclusive room (Refer table below).

**Table 26: Households by number of dwelling rooms in Abohar city: 2001**

| Number of rooms | No exclusive Room | One Room | Two Rooms | Three Rooms | Four Rooms | Five Rooms | Six rooms and above | Total |
|---|---|---|---|---|---|---|---|---|
| Households | 96 | 5,485 | 6,990 | 4,915 | 2,677 | 1,119 | 962 | 22244 |
| %Age of total | 0.43 | 24.66 | 31.42 | 22.10 | 12.03 | 5.03 | 4.32 | 100 |

*Source: Census of India, Punjab 2001*

**Services to Households**

**Households by Source of Drinking Water**

3.22. As per the census 2001 about 71% of the total households have source of the drinking water from tap and 26% are dependent on hand pump in case of Abohar city. Thus major portion of the city population i.e. 97% have tap water or water from hand pump and 1% of the total households are dependent on other sources (Refer table below).

**Table 27: Households by source of drinking water in Abohar city: 2001**

| Source of Drinking water | Tap | Hand pump | Any other | Total |
|---|---|---|---|---|
| Households | 15,841 | 5,814 | 589 | 22244 |
| %Age of total | 71 | 26 | 3 | 100 |

*Source: Census of India, Punjab 2001*

**Households by Source of Lighting**

3.23. 95.2% of the total households of the Abohar city get light from the electricity, while 3.8% are dependent on Kerosene oil and only 0.8% of the total households are not having light (Refer table below).

**Table 28: Households by source of lighting Abohar city: 2001**

| Source of Lighting | Electricity | Kerosene | Any other | No Lighting | Total |
|---|---|---|---|---|---|
| Households | 21,167 | 836 | 96 | 167 | 22244 |
| %Age of total | 95.2 | 3.8 | 0.4 | 0.8 | 100 |

Source: Census of India, *Punjab* 2001

**Availability of Bathroom, Type of Latrine and Type of Drainage Facility**

3.24. As indicated in census 2001 about 77% of the total households have Bathroom facility within the house, 53% and 18% of the total households have water closet and pit latrine respectively while 15% of the total households still do not have latrine facility. Also in case of drainage for wastewater 17% of the total households have closed drainage while 67% are having open drainage. Besides this 16% of total households do not have drainage facility (Refer table below).

**Table 29: Households by type of latrine & drainage connectivity**

| | Type of latrine within the house | | | | Drainage connectivity for waste water outlet | | |
|---|---|---|---|---|---|---|---|
| | Pit Latrine | Water Closet | Other Latrine | No Latrine | Closed Drainage | Open Drainage | No drainage |
| Households | 3,979 | 11,684 | 3,247 | 3,334 | 3,807 | 14,978 | 3,459 |
| %Age of total | 18 | 53 | 15 | 15 | 17 | 67 | 16 |

Source: Census of India, *Punjab* 2001

**Housing Demand and Supply**

3.25. The studies and analysis of housing stock in Abohar city reflects that the position regarding housing stock is very satisfactory as the number of occupied houses 29254 is much higher than number of households 22244 in year 2001. Besides this the qualitative aspect of these residential houses has also been found quite well. Out of total houses available in the city about 90% have pucca roof, about 91% have pucca walls and 77% houses have pucca floors, which clearly indicate that majority of Abohar residents have good quality of houses. Future requirement of housing will be discussed while working out the requirements of physical infrastructure.

**Slums in Abohar**

3.26. Slums represent multiple human deprivations in urban settlements and majority of urban poor seems to reside in the slums and squatter settlements. With the industrialization, slums and slum population have multiplied, as cities have been unable to support the large number of migrants who can't buy a house or a plot of land for their own shelter. This has been creating pressure on urban resources as poor unskilled migrants with negligible income find it convenient to create a temporary shelter on government or private land without security of tenure. Generally these settlements do not have any basic civic amenities, and people live under unhygienic and unsanitary conditions. The Census of India (2001) defines slums as, "all areas notified as slums by the state/local government under any Act; and all areas recognized as slums by state/local government, which have not been formally notified as slum under any Act and a compact area of about 300 population or about 60-70 households or poorly-built congested tenements in unhygienic environment, usually with inadequate and lack of any proper sanitary and drinking water facilities."

**General Characteristics of Slums in Abohar City:**

3.27. According to Municipal Council, Abohar, 16 localities have been identified as slum areas in the Abohar city. The slum wise detail as name of the slum, location, area, population, no. of households, and condition of houses is given in the table below:

**Table 30: Detail of Identified Slum Areas in Abohar City**

| Name of Slum Area | Location | Area in Hect. | Total house holds | Population | Condition of House/ Structure | | |
|---|---|---|---|---|---|---|---|
| | | | | | Pucca | Katcha | Jhugi |
| Arya Nagar | Azimgarh Road | 14.73 | 705 | 5591 | 571 | 134 | - |
| Bawria Mohala | Old Fazilka Road | 1.85 | 85 | 625 | 29 | 56 | - |
| Kuchian Mohala | Azimgarh Road | 0.87 | 56 | 344 | 15 | 41 | - |
| Sant Nagar | Old Fazilka Road | 12.78 | 391 | 2130 | 145 | 246 | - |
| Kothi Faiz | Sri Ganganagar Road | 6.99 | 74 | 480 | 65 | 9 | - |
| Gobind Nagari | Abohar-Fazilka Road | 18.09 | 406 | 2144 | 406 | - | - |
| Nanak Nagri | Abohar-Fazilka Road | 17.12 | 466 | 2741 | 466 | - | - |
| Indira Nagri | Near Old Fazilka Road | 4.91 | 642 | 3865 | 609 | 33 | - |
| Jammu Basti | Abohar-Fazilka Road | 41.70 | 699 | 3733 | 560 | 139 | - |
| Ward No 21(old) | Kandwala Road | 23.99 | 625 | 3624 | 622 | 3 | - |
| Azimgarh | Azimgarh Road | 25.36 | 1128 | 6030 | 937 | 176 | 15 |
| Thakur Abadi | Azimgarh Road | 22.57 | 904 | 4783 | 414 | 490 | - |
| Dayal Nagari | Old Fazilka Road | 12.65 | 298 | 1773 | 278 | 20 | - |
| Chandigarh Mohala | Sri Ganganagar Road | 6.88 | 384 | 1871 | 256 | 118 | 10 |
| Idgaha Basti | Near Old Fazilka Road | 8.10 | 266 | 1428 | 196 | 53 | 17 |
| Dharam Nagri | Abohar-Malout Road | 24.50 | 325 | 1682 | 257 | 68 | - |
| **Total** | | **243.1** | **7454** | **42844** | **5826** | **1586** | **42** |

Abohar city is one of the Class I town of the Punjab state, having a population of more than one lac. Although Punjab has the highest per capita income in the country, yet one fourth of the urban population in the state reside in slums. Similarly in case of Abohar about 42844 persons out of 124339 persons i.e. 34.45% live in slum areas. Emergence of slums is largely due to migration of poor population from rural areas and other smaller towns for employment purpose, and to avail higher level of facilities. The other reasons are ever increasing growth of population, inadequate supply of housing stock from the Government agencies and existing very high land prices.

**Distribution and Location of Slum Areas**

3.28. The study of location wise pattern of slum areas reveals that these are located along Azimgarh Road, Sri Ganganagar Road, Old Fazilka Road and Abohar-Fazilka and

Malout road. Although these are relatively new developed areas than the old city, but still housing condition and availability of facilities are poor in these areas.

**Distribution of Slum Population**

3.29. As per table above, about 42844 persons i.e. 34.45% of total population of Abohar city resides in slum areas. This slum population comprising of 7454 households i.e. 33.54% of total households resides in 7454 houses which is 25.48%

**Level of Facilities Available In Slum Areas – Abohar City**

3.30. The information regarding level of facilities in slum areas supplied shows that only two slum areas Arya Nagar and Bawria Mohala have both water supply and sewerage facility and have pucca streets.

Almost 70% parts of 10 slum areas are being served both water supply and sewerage and also have street lights and pucca streets. This information reveals that besides two slum areas, most parts of the other slum areas are better off, is having water supply, sewerage, Pucca Street and street light facilities.

**Ownership Pattern**

3.31. All slum areas have developed on private land except one slum area named Indira Nagari, which has encroached upon Municipal council land. It covered about 4.94 hectares area. Except Indira Nagari, the existence of all the remaining slum areas on the private land can help in finding appropriate solution for the upliftment of these with the involvement of the slum dwellers and also by providing higher incentives, subsidies and by asking them to contribute part of the cost of the structure. On their part, parastatal agencies can be asked to waive off all the charges and fees levied for construction, sanction of the building plans etc.

**Economy and Employment of LPA, Abohar**

**State of Punjab**

3.32. Punjab being an agrarian state, agriculture has played a pivotal role in the economic development of the state. Through green revolution in the 60’s, Punjab took a major stride in increasing its productivity of food grains, especially of wheat and rice. It contributed significantly towards strengthening India's self-sufficiency by contributing a major share in the central pool over time. During 2006-07, it contributed 75.3% wheat and 31.2% rice to the central pool. However, the growth of secondary sector especially of manufacturing sector is not of satisfactory level. Neighboring states got

an edge over Punjab in the growth of manufacturing sector due to location advantages and due to more conducive policy regime. Punjab has grown at a rate of 5.08% during 10th Five Year Plan as compared to 7.77% at all India level. Its secondary sector has grown at 8.40% as compared to 9.46% at all India level.

**Table 31: Key economic indicators of Punjab state**

| **Key Economic Indicators** | | | | |
|---|---|---|---|---|
| **Item** | **Unit** | **2004-05** | **2005-06** | **2006-07** |
| Gross State Domestic Product at 1999-2000 prices | Rs.in Crores | 81229.39 | 85729.29 | 91148.12 |
| Growth Rate of GSDP at 1999-00 Prices | Percent | 5.20 | 5.54 | 6.32 |
| Per Capita Income at 1999-00 Prices | (Rs) | 27851 | 28872 | 30158 |
| Percentage Share to Central Pool | | | | |
| Wheat | % | 55 | 60.9 | 75.3 |
| Rice | % | 36.9 | 32 | 31.2 |
| Electricity Generated | (m.k.w.h) | 21296 | 24642 | 23695 |
| Per Capita Power consumption | (k.w.h) | 871 | 906 | 968 |

*Source: web site of Economic survey of Punjab 2006-07*

As per provisional estimates, the overall economy of Punjab has witnessed a growth rate of 5.54% at constant (1999-2000) prices during 2005-06 and it is expected to grow by 6.32% during 2006-07.

The Gross State Domestic Product (GSDP) at constant (1999-2000) prices has increased to Rs. 85729 crores from Rs. 81229 crores during 2004-05 showing a growth rate of 5.54% in 2005-06 as compared to 5.20% in 2004-05. Further GSDP at constant prices for 2006-07 is 91148 crores registering a growth rate of 6.32%.

The Per Capita Income at Constant (1999-2000) prices in Punjab is Rs. 28872 during 2005-06 as against Rs.27851 during 2004-05 registering an increase of 3.67%. It is expected to increase to Rs. 30158 in 2006-07 showing a growth rate of 4.45%.

The sectoral growth rates are given in table below. As may be seen from this table, secondary and tertiary sectors have grown at rates faster than that of the primary sector. Within the secondary and tertiary sectors, Construction, Transport Storage and Communication and Banking & Insurance have grown significantly faster.

**Table 32: Sectoral growth rates in GSDP at 2004-2007 prices**

| Percentage change over the previous year | | | |
|---|---|---|---|
| **Item** | **2004-05** | **2005-06** | **2006-07** |
| | | | |
| **1.Agriculture & Allied (Primary)** | 2.16 | 1.68 | 4.05 |
| **II. Industry (Secondary)** | 9.66 | 12.17 | 10.28 |
| Manufacturing | 6.46 | 7.66 | 6.03 |
| Electricity, Gas & Water Supply | 1.61 | 8.12 | 4.2 |
| Construction | 23.71 | 24.98 | 21.77 |
| **III. Services (Tertiary)** | 5.34 | 4.95 | 5.74 |
| Trade, Hotels and Restaurants | 6.22 | 4.03 | 5.12 |
| Transport, Storage& Communication | 7.15 | 8.63 | 10.45 |
| Banking & Insurance | 9.57 | 8.43 | 9.00 |
| **IV. Total GSDP** | 5.20 | 5.54 | 6.32 |

*Source: Web Site of Economic survey of Punjab 2006-07*

The growth rate of GSDP from primary sector has registered a growth rate of 1.68% in 2005-06 at constant prices as compared to 2.16% in 2004-05. According to quick estimates, it will further increase to 4.05% in 2006-07.

The growth rate of GSDP from the secondary sector which covers the manufacturing, construction and power sectors has shown a growth rate of 12.17% at constant prices in 2005-06 as compared to 9.66% in 2004-05. But the growth rate has decreased to 10.28% in 2006-07.

The territory sector which comprises of trade, transport, banking and insurance and public administration etc. recorded a growth rate of 4.95% during 2005-06 against a growth rate of 5.34% in 2004-05. The growth rate during 2006-07 will be 5.74%. Under this sector, transport, storage and communication have shown the growth rate of 10.45% and 9.00% during 2006-07 over the previous year. This growth is mainly due to increase in contribution of transport, storage & communication, trade, hotels & restaurants and banking & insurance sector. It is evident that this structural change in Punjab's economy is the main underlying reason for the sustained urbanization.

**LPA, Abohar**

3.33. Economic data as available for the state is not available for district or the city. The trends of economic growth have therefore to be judged on the basis of employment data. The economy of LPA, Abohar is based mainly on trade, commerce, agriculture and agro based industry. To some extent real estate business, other commercial

establishments, financial and banking services etc. also contribute to the economy of the city.

**Work force Participation & Employment**

3.34. Table below depicts that the percentage of workers is increasing both in LPA, Abohar and Abohar city during the last decades. Increase in workers participation means new opportunities in trade & commerce & territory sector. In the case of LPA, Abohar the percentage of workers to the total population has been marginally decreased from 32.16% in 1981 to 32.07% in 1991 and then again increased to 36.55% in 2001. However, the workforce participation rate has increased from 29.22% in 1981 to 31.86 % in 2001 in case of Abohar city. There are 63.45% non-workers in LPA, Abohar and 68.14 % non-workers in Abohar city as per census 2001. The detail of workers and non-workers is given in table below:

**Table 33: Workers and Non-workers of LPA, Abohar & Abohar city (1981–2001)**

| Year | LPA, ABOHAR | | | | ABOHAR CITY | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Population | Total workers | %Age | Non workers | Total Population | Total workers | %Age | Non workers |
| 1981 | 208998 | 67213 | 32.16 | 141785 | 86334 | 25230 | 29.22 | 61104 |
| 1991 | 260799 | 83633 | 32.07 | 177166 | 107163 | 32296 | 30.14 | 74867 |
| 2001 | 309000 | 112954 | 36.55 | 196046 | 124339 | 39613 | 31.86 | 84726 |

*Source: Censusof India, Punjab 1981, 1991, 2001*

**Occupational Structure**

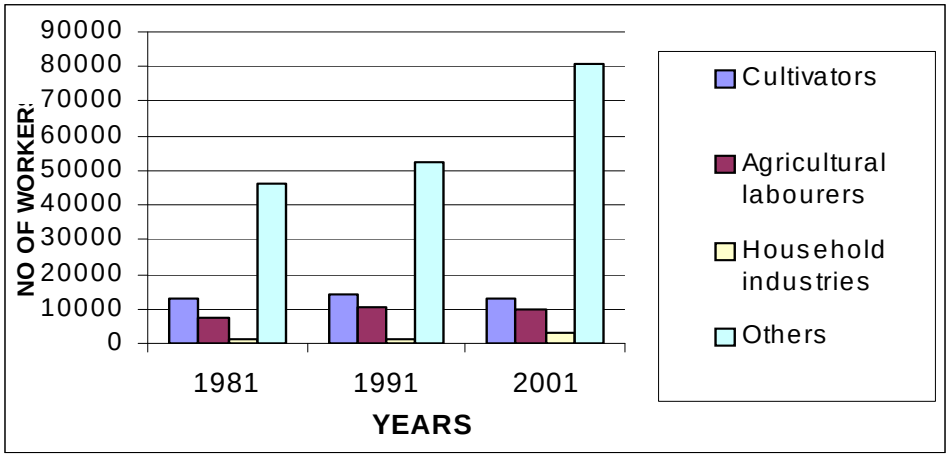
3.35. The change in occupational structure has been noticed to a considerable extent in primary sector i.e. cultivators and agricultural labourers have been decreased from 54.33% in 1981 to 44.42% in 2001 within LPA, Abohar. The percentage of workers working in household sector has recorded a decrease from 2.75% in 1981 to 1.76% in 1991 but it has again increased to 2.50% in 2001. The notable change during 1991-2001 is seen in the percentage of workers engaged in other activities, which jumped from 43.01% to 53.08% in this period but in the year 1981 percentage under this sector was 42.92%. The detail of occupational structure of LPA, Abohar has been given in table below:

**Table 34: Occupational Structure of LPA, Abohar 1981-2001**

| Year | Total workers | Cultivators | | Agricultural laborers | | Household industries | | Others | |
|---|---|---|---|---|---|---|---|---|---|
| | | No | %age | No | %age | No | %age | No | %age |
| **1981** | 60994 | 18752 | 30.74 | 14393 | 23.59 | 1679 | 2.75 | 26170 | 42.92 |
| **1991** | 78435 | 21297 | 27.15 | 22028 | 28.08 | 1377 | 1.76 | 33733 | 43.01 |
| **2001** | 95506 | 22017 | 23.05 | 20407 | 21.37 | 2384 | 2.50 | 50698 | 53.0% |

Source: *Censusof India, Punjab 1981, 1991, 2001*

**Figure 11 : Occupational Structure of LPA, Abohar (1981 – 2001)**



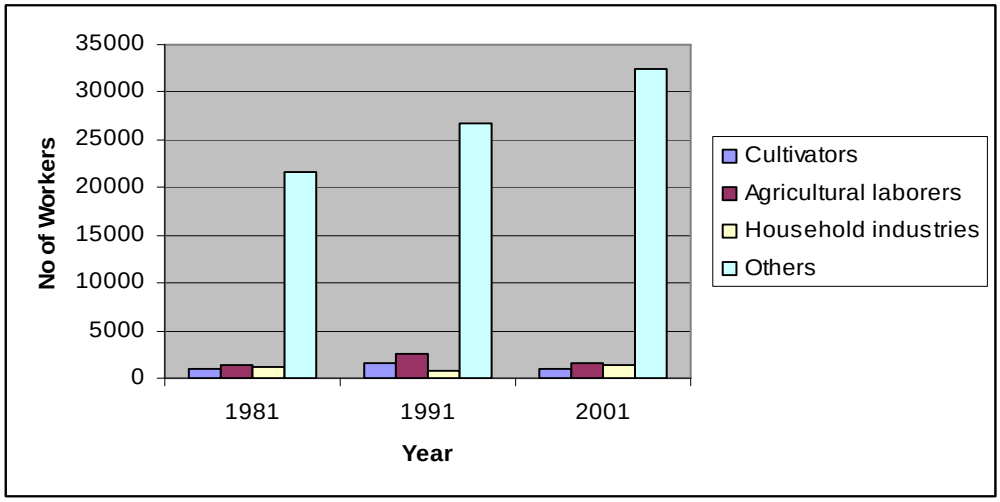

In case of Abohar city, the workers engaged in primary activities i.e. cultivators and agricultural decreased from 9.62% to 7.08% in 1981 and 2001 respectively as given in table. The household industry after showing a decreasing trend during 1981-1991 i.e. 4.33% to 2.56% respectively again recorded an increase from 2.56%% to 3.94% during 1991-2001. Similarly, the share of workers engaged in other activities recorded a mild decrease from 86.05% to 84.82% in 1981 and 1991 and then increased to 88.99% in 2001.

**Table 35**: **Occupational Structure of Abohar City: 1981-2001**

| Year | Total workers | Cultivators | | Agricultural laborers | | Household industries | | Others | |
|---|---|---|---|---|---|---|---|---|---|
| | | No | %age | No | %age | No | %age | No | %age |
| 1981 | 25183 | 1052 | 4.18% | 1370 | 5.44% | 1090 | 4.33% | 21671 | 86.05% |
| 1991 | 31580 | 1504 | 4.76% | 2481 | 7.86% | 809 | 2.56% | 26786 | 84.82% |
| 2001 | 36417 | 916 | 2.52% | 1659 | 4.56% | 1434 | 3.94% | 32408 | 88.99% |

*Source: Censusof India, Punjab 1981, 1991, 2001*

**Figure 12 : Occupational Structure of Abohar City (1981 – 2001)**



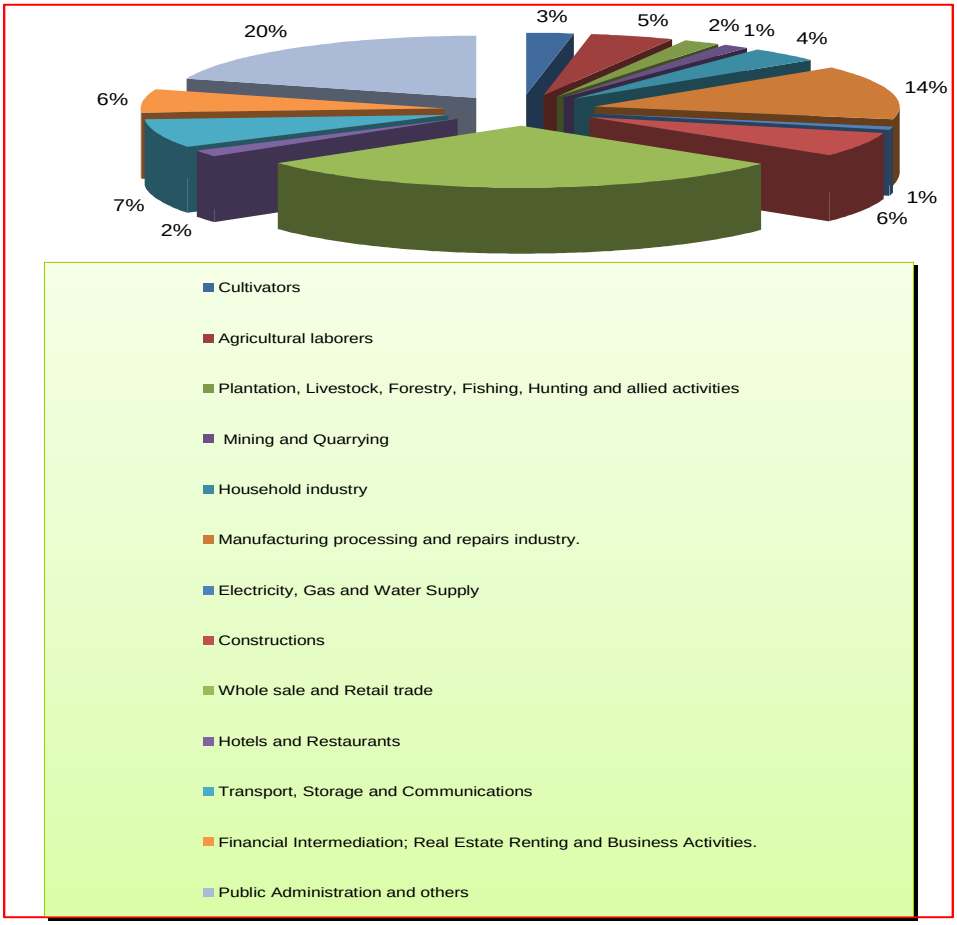

Besides above, the detailed occupational structure of Abohar city as elaborated in the 2001 census is given in Table below. From the table it is found that out of total workers of Abohar City a major share goes to whole sale and trade given under 'G' which is 29.13% followed by Other services 'L to Q' which is 19.93% of the total workers and then followed by manufacturing processing and repair industry (14.09%). Thus almost 63% of the total workers are engaged in above mentioned 3 categories. It also shows that major share of workers are engaged in territory sector.

**Table 36: Detail Occupational Structure of Abohar City**

| Code | Type of worker | Number of workers | Percentage |
|---|---|---|---|
| A & B | Cultivators | 916 | 2.51 |
| | Agricultural laborers | 1659 | 4.55 |
| | Plantation, Livestock, Forestry, Fishing, Hunting and allied activities | 657 | 1.8 |
| C | Mining and Quarrying | 524 | 1.44 |
| D | Household industry | 1434 | 3.94 |
| | Manufacturing processing and repairs industry. | 5127 | 14.09 |
| E | Electricity, Gas and Water Supply | 324 | 0.89 |
| F | Constructions | 2355 | 6.47 |
| G | Whole sale and Retail trade | 10609 | 29.13 |
| H | Hotels and Restaurants | 609 | 1.67 |
| I | Transport, Storage and Communications | 2731 | 7.5 |
| J & K | Financial Intermediation; Real Estate Renting and Business Activities. | 2213 | 6.08 |
| L to Q | Public Administration and others | 7259 | 19.93 |
| | **Total** | **36417** | **100** |

*Source: Census of India, Punjab-2001*

**Figure 13: Occupational Structure of Abohar City:2001**




**Manufacturing Industry**

3.36. Although L.P.A., Abohar and Abohar City do not show the existence of a good number of industries but quite a handsome share of workers is engaged in industrial activities. As per the figures given in census data of 2001, about 5127 workers were engaged in industrial sector, which is 14.08% of total workers in the Abohar city. The household industries have a share of 3.94%.

**Warehousing & Wholesale Trade**

3.37. So far as this economic activity is concerned, it has been found that it is one of the most important economic sector of the city. Besides the wholesale market of agricultural produce the city is serving a regional centre for wholesale cloth market and day to day provisions. The influence zone of this trade is expanded up to Ganganagar, Hanumangarh in Rajasthan and surrounding villages. The concentration of warehouses has also been noticed in and around the city. As per data of 2001

census as many as 10609 workers are engaged in wholesale and retail trade which is 29.13% of total workers. This is the highest employment provider sector of the city. From the above figure, it is clear that the economic base of the city is mainly dependent on this sector. The main wholesale trades are wholesale Grain market, Vegetable Market, Old Mandi, Timber Market, Cloth Market, and day to day provisions.

**Finance, Insurance and Banking**

3.38. The activities related to finance, insurance and banking are concentrated in Abohar city however a few number of banks are found in rural areas of LPA, Abohar, the analysis of which will not be useful here. As per census 2001 figures, about 2213 persons are engaged in financial sector in Abohar city, which is 6.08% of total work force of the city. These workers are engaged in banking, financial institutions and insurance companies. As per information collected from field there are about 16 banks operating in Abohar city, which cater the financial services to inhabitants of LPA, Abohar besides Abohar city. In addition to this, there are about 49 other private finance companies operating in Abohar city.

**Emerging Economic Drivers of the LPA, Abohar**

3.39. Several economic drivers have been indentified within LPA, Abohar which will put a reasonable impact upon the development of Abohar city as well as that of LPA, Abohar. These are listed as follows:

- Locational Advantage: Located on NH-10 and NH-15 and Sri Ganganagar – Bathinda -Delhi Railway line.
- Strong Regional linkage: Well connected through rail and road with neighboring towns/cities and states.
- Regional Level Infrastructure: Homeopathy Degree College, D.A.V College and D.A.V B.ED College, Guru Nanak Khalsa College, Polytechnic College and many regional level Nursing Schools and Colleges, Regional Level Fruit Research Centre.
- Industrial Base: Many cotton based and horticultural based industrial units and small scale agricultural implements units, Punjabi Jutti making household units.

- Regional Level Commercial Centre: Sadar Bazaar comprising of various streets and all other old bazaars, Fruit and Vegetable market, Grain market, Timber market.
- Health Infrastructure: Many regional level hospitals, health centre and Nursing homes.
- Rich Fertile Agricultural Land: A potential for industrial, trade and commerce development.
- Few upcoming new real estate projects – Like PUDA approved colonies.
- New hotels and marriage palaces are being constructed.
- A vast catchment area – No competing urban settlement within radius of 20 kms.
- New traffic improvement investment – Coming up of new Abohar – Fazilka rail link, Hanumangarh road overbridge on Sri Ganganagar – Abohar – Bathinda railway line, Malout Road overbridge on new coming up Abohar – Fazilka railway line, Fazilka Road overbridge on new Abohar – Fazilka railway link.

All the above identified economic drivers will boost the economic and physical development of the area, provide employment opportunities and change physical face of the city and the LPA, Abohar.

# 4. EXISTING LAND USE AND TRANSPORT NETWORK

**Preparation of base map**

4.1. The work of preparation of base map for the LPA, Abohar was assigned to Punjab Remote Sensing Centre, P.A.U., Ludhiana vide memo no. 4827 CTP (Pb) / SP 480 dated 22-10-2007 of Chief Town Planner, Punjab . The base map of whole Planning Area Abohar is generated on 1:10,000 scale using Cartosat I data of **2.5m spatial resolutions**. The Cadastral maps of the villages falling in LPA, Abohar were procured from the State Revenue department by the office of District Town Planner, Ferozepur 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 delineated from Cartosat I data, by the concerned agency and shown on the draft 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, Abohar on 1:10,000 scales using Cartosat I data, the draft base map for densely populated built up areas of Abohar city (core areas) was prepared on 1:5000 scale using quickbird satellite data of **0.6 mtr. 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**

4.2. The draft base map for the LPA, Abohar 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 Ferozepur. 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 had ultimately been incorporated and an updated base map was prepared by P.R.S.C, P.A.U Ludhiana. The Office of D.T.P Ferozepur 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 thus was prepared.

**Existing Land Use: LPA, Abohar**

4.3. The LPA, Abohar comprises 80424 hectares (804.24 sq.kms) of area as per revenue record whereas as per calculations of P.R.S.C. it works out to 80174 hectares (801.74 sq. km) variation of 0.31% only, which can be considered very negligible. Similar the area of municipal council Abohar is 2307 hectare (23.07 sq.km) as per revenue record whereas as per the calculation of PRSC it works out to be 2272 hectare (22.72 sq. km.) variation of 1.52%, is very negligible. The areas of LPA, Abohar and M.C. Abohar as worked out by PRSC Ludhiana have been used for analysis of existing land uses and proposed land use plan. The detail of break up of existing land of LPA Abohar is given in table below:

**Table 37 : Existing Land Use LPA, Abohar-2009**

| NAME OF LANDUSE | Area in hect. | % age to the total area |
|---|---|---|
| **Residential** | **2755.82** | **3.44** |
| Old Built Up City (High density) | 99.15 | |
| Residential Area (Medium density) | 108.68 | |
| Residential Area ( Low density) including Village Abadias | 2547.99 | |
| **Commercial** | **176.72** | **0.22** |
| Local /Retail Shopping Shopping Mall & Marriage Palace | 41.90 | |
| Whole Sale Market, Fruit & Vegetabeles and Grain Market, Godowns, Ware Housing, Cold Storage | 134.82 | |
| **Industrial** | **107.73** | **0.13** |
| Small Scale, Light and Service Indusrty | 84.24 | |
| Medium & Large Scale Indusrty | 23.49 | |
| **Recreational** | **65.64** | **0.08** |
| Parks /Open spaces / Green Belt | 60.17 | |
| Stadium & Sports Complex | 5.47 | |
| **Rural and Agricultural** | **74711.84** | **93.19** |
| Agricultural Area | 66383.15 | |
| Plant Fruit Nursery and Orchard | 6213.40 | |
| Dairy Poultaries, Stud Farm and Bee keeping etc | 3.34 | |
| Pond/Water bodies, Swampy, Waterlogged | 160.63 | |
| Brick Kilns | 42.46 | |
| Extractive Area | 157.16 | |
| Canal & Distributory | 4.20 | |
| Drain | 33.41 | |
| Vacant Land | 1714.09 | |
| **Traffic and Transportation** | **1551.80** | **1.93** |
| Rail Terminal and yard | 9.08 | |
| Rail Circulation | 125.03 | |
| Bus Terminal and depot | 0.81 | |

| NAME OF LANDUSE | Area in hect. | % age to the total area |
|---|---|---|
| Truck Terminal | | |
| Major Roads/Other Roads | 1416.88 | |
| **Utilities & Services** | **60.62** | **0.08** |
| Power house/Sub Station | 2.47 | |
| Sewerage Disposal area | 0.95 | |
| Solid Waste dumping/ Sanitary landfill | 3.16 | |
| Water works | 54.04 | |
| **Government** | **469.80** | **0.59** |
| Government /Public Office | 26.08 | |
| Govt Land | 443.72 | |
| **Public & Semi-Public** | **274.03** | **0.34** |
| Hospital and Health institution | 14.50 | |
| Educational And Research Centre Specialised Educational institutes | 97.13 | |
| Social and Cultural | 98.46 | |
| Cremation and Burial grounds | 63.94 | |
| **Total** | **80174** | **100.00** |

*Source: PRSC, PAU, Ludhiana*

4.4. LPA, Abohar covers the revenue estates of 50 villages includes Abohar rural which also include the area of one urban centre i.e. Abbohar, as given in Annexure 3. Besides this, LPA, Abohar is comprised of mostly agricultural and orchards. The detail of breakup of major existing land uses is given in Table above.

**Existing Land Use: Abohar city**

4.5. LPA, Abohar comprises 80424 hectares (80174 hectares as per P.R.S.C) covering the land of 50 villages including Abohar rural. The total area of Municipal Council of Abohar in the Year 2009 is 2307 hectares as per census and 2272 hectares as per PSRC calculations. The detail of major existing land uses within the M.C. Limits is given in table below:

**Table 38: Existing Land Use Abohar City -2009**

| NAME OF LANDUSE | Area in Hectares | % age to the total area |
|---|---|---|
| **Residential** | **415.31** | **18.28** |
| Residential Area (Urban) | 207.83 | 9.14 |
| Residential Area ((Village Abadies) | 207.48 | 9.14 |
| **Commercial** | **108.66** | **4.77** |
| Local /Retail Shopping Shopping Mall & Marriage Palace | 33.81 | 1.49 |
| Whole Sale Market, Fruit & Vegetabeles and Grain Market Ware Housing, Godowns , Cold Storage ,Oil depot. | 74.85 | 3.28 |
| **Industrial** | **31.75** | **1.40** |

| NAME OF LANDUSE | Area in Hectares | % age to the total area |
|---|---|---|
| Small Scale , Light and Service Indusrty | 8.27 | 0.37 |
| Medium & Large Scale Indusrty | 23.48 | 1.03 |
| **Recreational** | **10.42** | **0.46** |
| Parks /Open spaces / Green Belt | 7.13 | 0.31 |
| Stadium & Sports Complex | 3.29 | 0.15 |
| **Rural Agricultural** | **1255.40** | **55.26** |
| Agricultural Area | 1042.62 | 45.89 |
| Plant Fruit Nursery and Orchard | 191.74 | 8.44 |
| Dairy Poultaries, Stud Farms and Bee keeping etc | 2.63 | 0.12 |
| Pond/Water bodies, Swampy, Waterlogged | 4.67 | 0.21 |
| Brick Kilns | 3.18 | 0.14 |
| Extractive Area | 0.85 | 0.04 |
| Canal & Distributory | 4.20 | 0.18 |
| Vacant Land | 5.51 | 0.24 |
| **Traffic and Transportation** | **292.26** | **12.86** |
| Rail Terminal and yard | 1.44 | 0.06 |
| Rail Circulation | 42.53 | 1.87 |
| Bus Terminal and depot | 0.81 | 0.04 |
| Major Roads/Other Roads | 247.48 | 10.89 |
| **Utilities & Services** | **15.14** | **0.67** |
| Power house/Sub Station | 1.59 | 0.07 |
| Sewerage Disposal area | 0.95 | 0.04 |
| Solid Waste dumping/ Sanitary landfill | 3.16 | 0.14 |
| Water works | 9.44 | 0.42 |
| **Government** | **79.53** | **3.50** |
| Government Public Office | 10.02 | 0.44 |
| Govt Land | 69.51 | 3.06 |
| **Public & Semi-Public** | **63.53** | **2.80** |
| Hospital and Health institution | 4.52 | 0.20 |
| Educational And Research Centre & Specialised Educational institutes | 36.98 | 1.63 |
| Social and Cultural | 14.70 | 0.65 |
| Cremation and Burial grounds | 7.35 | 0.32 |
| | **2272.00** | **100.00** |

*Source: PRSC, PAU, Ludhiana*

### Residential

4.6. It is very much clear from Table that the residential use has a larger share of city area. Out of total Municipal area of 2272 hectares about 415.31 hectares 18.28 % of area is under residential use which includes both planned and unplanned development. The

gross density of the town is 54.73 persons/hectare. The population density is high in inner areas (>250 persons/hectare) as compared to outer areas (< 50 persons/hectare). As far as planned residential development is concerned there are 4 T.P Schemes, One commercial cum residential Development scheme and 2 colonies licensed under Punjab Apartment and Property Regulation Act 1995'. These planned areas cover an area of 29.46 hectares which is just 1.30 %age of total M.C. area. These planned localities are not located in any one side of the city but are scattered on various sides of the city. Besides this very small part of planned areas, rest of the city is developed in unplanned and haphazard manner. Much of this area has regular street pattern though not developed in a planned sense. However, the inner zone which is also the oldest part of the city is characterized by regular grid iron street pattern which was developed in middle and later parts of 19$^{th}$ century when town was developed as mandi town by British Govt. For more details please refer housing part of Chapter 3. So for as the residential use is concerned it has expanded in all directions of the city. In addition to old city localities, new areas like Green Avenue, New Suraj Nagri, Chandar Nagri, Uttam Vihar, Rajiv Nagri, Jaswant Nagri have come up on the southern sides of the city whereas new localities like Dharm Nagri, Mangal Nagri, Ekta Nagri are developed on the eastern side. Similarly Shaheed Bhagat Singh Nagar, Prem Basti on the northern side and Friends colony, Sital Nagar, Sri Ganesh Vihar and Sham Vihar have developed on the western side of the old city.

**Commercial**

4.7. The commercial use is the most important use of the urban areas. It may have lesser share in area but plays an important role in city character. In case of Abohar city the total area covered under commercial use is 4.77% of the total M.C area. The main commercial center in Abohar which acts as CBD of the city is known as Old mandi, Sadar Bazar comprising of Gali No. 6, 11, 12, 13 are located in the parts of the old city. Besides these, Circular road, Gaushala road, timber market, fruit and vegetable market are the other commercial areas located near above areas. The commercial areas of the city lack adequate parking and other public amenities. The commercial area of the city is in the form of semi-organized bazars along streets and roads. Apart from this there are informal bazars in the form of temporary shops like Rehri walas, farhi walas and kiosks located in the existing commercial areas and near the bus stand, railway station,

grain market, and near other important economic activities. There are more than 250 numbers of rehris / informal shops existing in the various parts of the city. These activities are not of permanent nature and are using the roads therefore areas covered under this use are not shown separately.

The Wholesale grain market covering an area of about 42 hectares is located in the northern part of the town along the Fazilka road. There is no planned site marked for other wholesale trade like timber, iron market etc.

**Industrial**

4.8. As Table depicts that the total area under industrial use is 31.75 hectares which is 1.40% of the total municipal area. The city of Abohar has medium and large scale industrial units like Cotton ginning Mills, Oil extraction mills and other agro based industries etc along with small scale industrial units dealing with products like manufacturing of utensils, farm implemnts, kinnow polishing, cotton ginning etc. It is evident from Existing Land Use plan that big industrial units i.e. are located in north of the city on Old Fazilka and Fazilka road whereas the only planned industrial area i.e. Industrial Focal Point (outside M.C. limits) is situated in western part of the city on Sri Ganaga nagar road whereas very few small scale or service industries are seen scattered around Malout Road.

**Industrial Focal Point**

4.9. With a view to facilitate industrial growth, and to locate the industries in planned areas a policy of developing Industrial Focal Points in different cities having potential for industrialization was formed by the State Govt. The Industrial Focal Point of an area of about 41.6 hectares along Sri Ganga Nagar Road was planned outside the M.C. limits and developed by Small Scale Industries and Export Corporation limited in the year 1997. However inspite of all the infrastrucuture such as roads, street light, water supply and other utilities being developed and available in the industrial focal point but so far not a single industrial unit has come up so far in this focal point.

**Recreational**

4.10. The total area under recreational use is 10.42 hectares which is 0.46 % of the total municipal area. In Abohar one city level park known as Nehru Park is located near the Nehru Stadium near Bus Stand. Recreational aspect is also covered in detail in part of social infrastructure of Chapter 5.

**Traffic & Transportation**

4.11. The total area under traffic and transportation is 292.26 hectares which is 12.86% of the total M.C area, which is low as compared to norms and standards. The major problems related to this aspect are missing road hierarchy, lack of parking places, traffic bottlenecks, encroachment of roads, lack of traffic signals etc. The detailed study of traffic & transportation is also covered in the part under Existing Road and Rail network of Physical infrastructure of Chapter 5. However, table depicts that out of this use major share i.e 10.89% of total municipal area is covered under main roads followed by railways which cover an area of 43.93 hectares (1.93%). The details of existing road network and other uses relating to traffic transportation are shown in Existing Land Use Plan, Abohar Drg No. DTP (F) 25/09 dated 13.07.09

**Utilities & Services**

4.12. Utilities such as Water Works, Electric Grid Station, (E.G.S) Sewerage Disposal Works, Solid Waste Dump site and communication etc. cover an area of about 15.14 hectares which is only 0.67% of total municipal area. Some of the utilities like E.G.S. and Communication are evenly distributed in the city as it is clear from Existing Land use Plan of Drg No. DTP (F) 25/09 Dated 13.07.09 of LPA, Abohar whereas disposal works and Solid waste site are located on the western side of the city along the Sri Ganganagar railway line. There are two sites under water works, out of which one is near the bus stand and the other one near Hanumangarh and bye pass intersection.

4.13. **Government**

This use comprises the area under Govt/Semi Govt. office and Govt. land. The total area covered under this use is 79.53 hectares which is 3.50% of the total M.C area.

**Public & Semi-Public**

4.14. This Use comprises the areas covered under Education, Health, Socio-Cultural, cremation grounds etc. The total area covered by this use is about 63.53 hectares which is 2.80% of total municipal area. The most of public and semi-public uses are concentrated in the central part of the city whereas few uses of this category are also seen in the outer parts of the city.

**Agricultural / Rural**

4.15. There are some chunks of land falling within municipal limits which are still being used for agricultural purposes. The areas on the southern side between the existing developed area and bye pass are largely under agriculture and orchards. 1255.4 hectares are under agricultural use which is 55.26% of total area. Out of this category about 191.74 hectares of land is under Plant, Fruit Nursery, Orchard which is 8.44% of total M.C. area. The Existing Land Use Plan of Drg No. DTP (F) 25/09 dated 13.07.09 shows the spatial distribution of all these uses within and outside the limits of municipal council, Abohar.

**Existing Road-Rail Network**

4.16. If urban centers have been recognized as engines of economic growth, traffic and transportation has rightly been termed as wheels of such engines. Urban transport has also been considered an integral part of urban planning. The objective of studying the transport sector is to analyze and understand the role of transport in the present scenario of the city and the surroundings and to understand the existing potentials, strengths, weaknesses and constraints of the transport sector and consequently arrive at strategies and projects which will form an integral part of the city development strategy.

Road and Rail play a significant role in the transport sector in Abohar and surrounding areas. The road network is studied in terms of classification of roads, length of roads, cross section of roads, area of road network and major road intersections, Road overbridges and Railway crossings. Similar data regarding rail network is also studied.

**Road network at Local Planning Area, Abohar level**

4.17. There are two National Highways i.e. N.H. 15, coming from Malout and diverting to Sri Ganganagar and N.H. 10 also coming from Malout and leading to Fazilka. Besides this, there are other 4 main roads Sittogunno, Hanumangarh, Kandhwala, and Hindumalkot.

All the roads passing through LPA, Abohar have undivided carriageways outside the M.C. limits. The detail of width of Right of way, carriage way and length of major roads falling within M.C. limits and outside M.C. lilmits in LPA, Abohar are given in table below:

**Table 39: Detail of Width of Right of Way, Carriage way and Length of Major Roads falling within M.C. limits and outside M.C. lilmits in LPA, Abohar**

| Sr. No. | Name of Road | Total | Within MC | | | MC to LPA, Abohar | | |
|---|---|---|---|---|---|---|---|---|
| | | | Road Length | Right of Way (mts) | Carriage Way (mts) | Road length | Right of Way (mts) | Carriage Way (mts) |
| 1 | Abohar – Fazilka Road (NH10) | 12.70 | 2.40 | 27.7 | 3 | 10.30 | 33.53 | 7.3 |
| 2 | Abohar – Sri Ganganagar Road (NH15) | 21.96 | 3.30 | 19.8 | 7.3 | 18.66 | 30 | 7.3 |
| 3 | Abohar-Malout Road ( NH15) | 12.26 | 2.62 | 27.7 | 3.0 | 9.64 | 33.53 | 7.3 |
| 4 | Bye Pass | 15.61 | - | - | - | 15.61 | 46.0 | 7.3 |
| 5 | Abohar – SittoGunno(Dhabwali) Road | 15.17 | 2.27 | 32 | 5.5 | 12.90 | 30 | 5.5 |
| 6 | Abohar – Hindumalkote Road | 14.28 | 2.48 | 22.8 | 7.3 | 11.80 | 22.8 | 7.3 |
| 7 | Abohar – Hanumangarh Road | 21.1 | 3.5 | 26.5 | 5.5 | 17.60 | 30 | 5.5 |
| 8 | Abohar – Kandhwala Road | 8.74 | 2.24 | 17 | 5.5 | 6.50 | 18.6 | 4.8 |
| 9 | Abohar-Killianwali Road | 8.80 | 1.80 | 7.6 | 3 | 7.00 | 22.8 | 7.3 |
| | **Total** | **130.62** | **20.61** | | | **110.01** | | |

*Source: PWD central works, Ferozepur*

*. Field survey 2008*

The existence of main roads in LPA, Abohar shows that this area is well served by the regional roads, which provide a high level of connectivity with other parts of the State. The length of these roads is 130.62 km within LPA, Abohar boundaries out of which about 20.61 Kilometers fall within the limits of Municipal Council of Abohar. There is very good network of rural roads in LPA, Abohar.

**Road Network at city level**

4.18. The existing road network in the city is partially radial in pattern. The regional roads entering Abohar converge at two points on Malout- Abohar- Fazilka road in the northern part of the city. These two points can be identifies as T – junctions made by Hanumangarh road and Sittogunno road with Malout – Abohar – Fazilka road and

another T – junction made by Hindumalkot road with Abohar – Fazilka road. Besides above Kandhwala road converges with Sri Ganganagar road which further converges with Old Fazilka road which furher make T- junction with Abohar – Fazilka road.

The important roads entering the city are listed below:

- Abohar – Malout Road (N.H. 10 and 15)
- Abohar – Sri Ganganagar Road (N.H. 15)
- Abohar – Fazilka Road (N.H. 10)
- Abohar – Sitto Gunno Road
- Abohar – Hanumangarh Road
- Abohar – Hindumalkote Road

As per the existing positions of these roads, it becomes clear that, southern and eastern parts of the city has comparatively wide road net work than the other parts of the city.The inner city road network has irregular alignments, inadequate width and frequent intersections leading to serious capacity constraints.

**Road Intersections**

4.19. While examining the road network of the city a total number of 13 road intersections have been identified within the limits of Municipal Council, which remains busy throughout the day. These road intersections are listed in the table below:

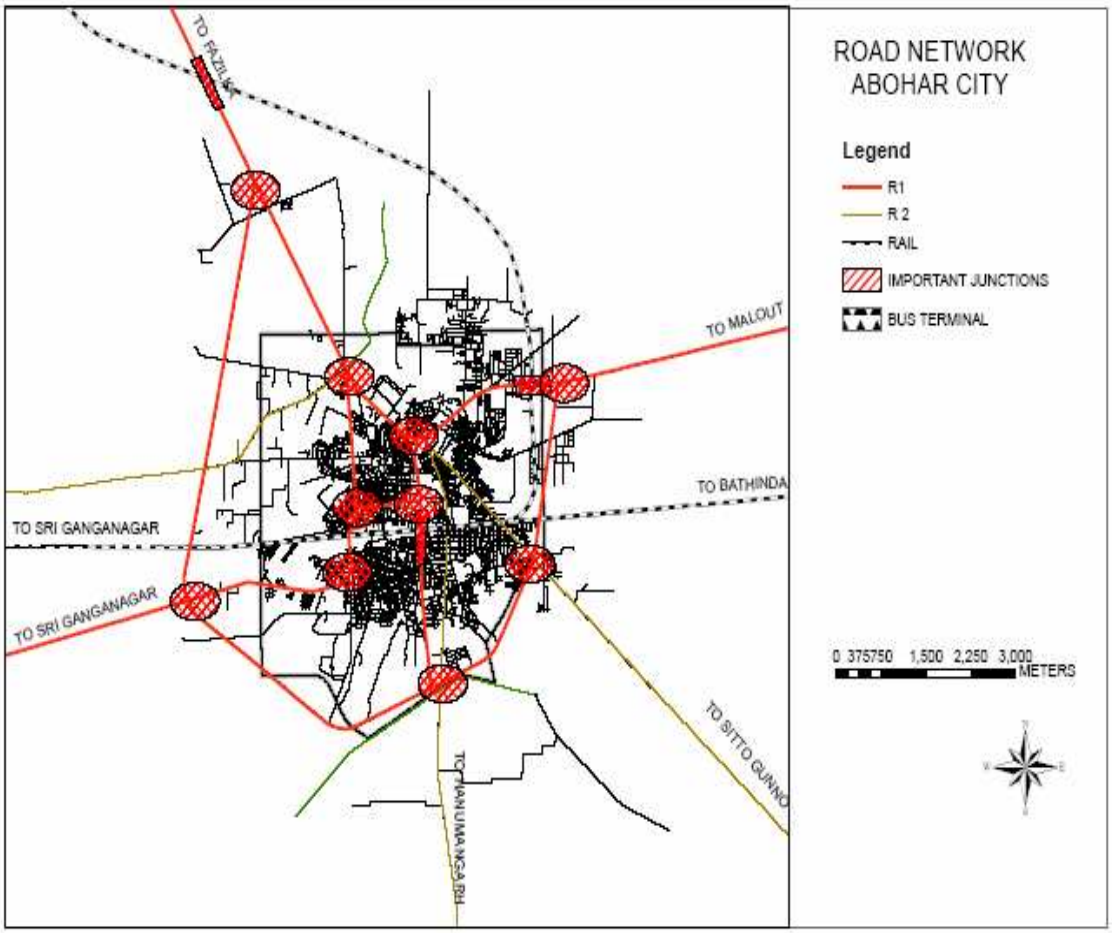
**Table 40: Detail of Road Intersections in Abohar City**

| Sr. No. | Name of Junction | Type of Junction |
|---|---|---|
| 1 | Bus Stand –Malout-Fazilka Road Chowk | T-Junction |
| 2 | Bye Pass- Malout Road | T-Junction (Channelised) |
| 3 | Sitto Guno-Hanuman garh and Malout road | Y Junction |
| 4 | Old Fazilka-Malout-Fazilka Road Chowk | Y Junction |
| 5 | Sitto Gunno Road and bye pass | Cross Junction (Channelised) |
| 6 | Hanuman garh Road and bye pass | Cross Junction |
| 7 | Sri Ganga Nagar Road and bye pass | Cross Junction |
| 8 | Hindumal kote road and bye pass | Cross Junction |
| 9 | Bye pass and Fazilka Road | Y Junction(Channelised) |
| 10 | Sri Ganga Nagar Road -Kandhwala road-Old Fazilka road | Y Junction(Channelised) |
| 11 | Old Fazilka road- Old mandi Road | T-Junction |
| 12 | Old mandi Road- Bus Stand Road | T-Junction |
| 13 | Seed Farm-Malout-Fazilka Road | T-Junction |

*Source: Field survey 2009*

The fig shows that out of 13 road intersections, 3 intersections have been channelized which are on Bye pass. Besides these identified road intersections there are many other intersections in the inner part of the city, which have not been listed over here as these are very minor intersections. The position of above listed road intersections has been shown in figure 14 below:

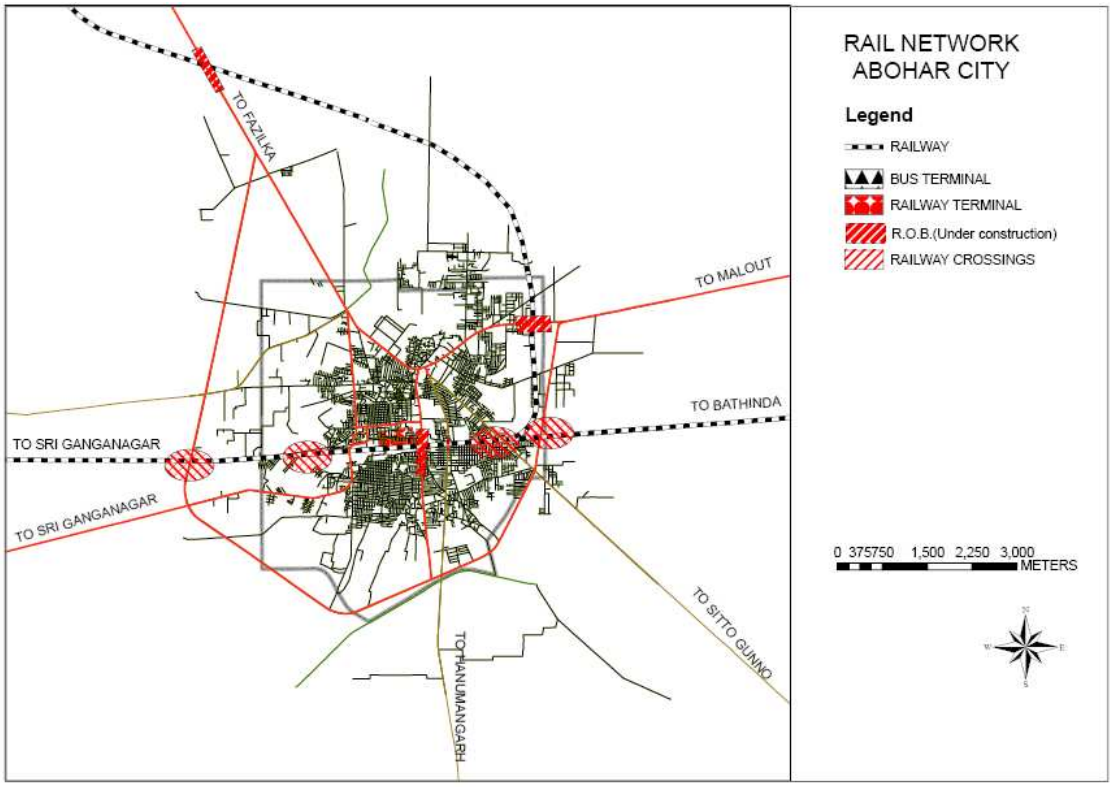
**Figure 14 : Roads Network – Abohar city**




**Rail Network**

4.20. Abohar city has a rail network connecting the city with Bathinda, Delhi and Sri Ganganagar. A new rail link to Fazilka is under construction. There are two railway lines entering in the city one from western side i.e. Sri Gnaganagar and 2nd from eastern side i.e. Bathinda. The existing railway lines, railway station and yard cover an area of 43.97 hectares which is 1.93% of the total area of the city.

**Figure 15 : Rail Network – Abohar city**




**Railway Over-Bridges**

4.21. It is evident from above, the city is divided into two segments by the railway line necessitating railway over bridges. At present there is no railway over bridges (R.O.B.) in the city. However, three R.O.Bs are under construction which is at Hanuman Garh road, Malout road, Fazilka Road. (railway line is also under construction at the last two R.O.Bs)

**Railway Crossings**

4.22. Because of railway line passing through the center of the city there are five level crossings of various roads. A total number of 5 level crossing have been identified in Abohar city which are manned. On some of the railway level crossing the Railway Over Bridges (R.O.Bs) are already under construction as explained in para above.

**Environmental Status**

4.23. The intensity of the pollution in terms of air, water and noise is evaluated in order to clearly understand the level and causes of pollution existing within the city so that appropriate strategies are put in place to tackle the problem of pollution. Though there

is no scientific data collection by Punjab Pollution Control Board in Abohar. The present analysis of environment in Abohar is based upon Primary observations and residents views.

**Air Pollution**

4.24. Emissions generated by fuel burnt by industries have contributed to the lowering of quality of the air. The following are standards for permissible pollutants.

**Permissible Levels**

Residential and commercial area: SPM = 120 $\mu g/m^3$, $SO_2$ = 80 $\mu g/m^3$, $NO_2$ = 80 $\mu g/m^3$

Industrial area: SPM = 200 $\mu g/m^3$, $SO_2$ = 120 $\mu g/m^3$, $NO_2$ = 120 $\mu g/m^3$

But since so far no such study has been conducted in Abohar but considering the status of source of pollutants one can conclude that the Abohar has no exception in terms of environment conditions but the problem can't be termed as serious one as one can observe.

**Major contributors to the air pollution are:-**

- Vehicular exhaust due to the presence of large number of vehicles and higher use of personalized vehicles.
- Absence of effective & efficient system of mass transportation.
- Narrow road width (with average varying between 4.5 to 7 m.), low capacity of the roads and high intensity of traffic.
- Use of low grade fuel (by adding kesrosene/diesel in petrol by auto rickshaws)
- Smoke emitted by the large-scale use of kerosene/diesel based power generators.
- Presence of large number of intermediate public transport vehicles and use of kerosene as the fuel.
- Smoke emitted by various Industries

**Water Pollution : Ground water**

4.25. The Ground water in this area contains high quantity of fluorides and Chlorides which make the ground water unfit for human consumption and also plant life. The unsafe ground water therefore forces the residents of city to have the risk of water borne diseases. For drinking purpose Abohar is depending upon canal system.

**Surface Water Pollution**

4.26. The surface water i.e. canal water is main source of water supply in Abohar city and LPA, Abohar. The Malookpur branch of Sirhind Canal is the only supply line for surface water. This canal passes through vast distance after taking its origin from Ropar head works. It has been noticed that some of the settlements release their wastewater in the main canal system. In addition to this and to further aggravate this problem several industrial units located near to the canal dispose off their waste into main canal system. Because of the above facts the water flowing in this canal became contaminated, which contain many impurities like some chemical contents and suspended particles.

**Existence of Dirty Water Ponds /Bodies**

4.27. The existing ponds in various localities also add to the problem of pollution in the city. Due to lack of storm water network, the rain watetr usually accumulates in these ponds and depressions. But when the leaked sewage also flows in these, then pollution of water gets aggravated. These ponds become the centers for mosquitoes and create many other diseases. In addition to this, the dirty water of these ponds also pollutes the sub soil water of these localities.

Besides above due to lack of sewerage treatment plant, the seweage is pumped in the open land which pollutes the environment and also underground water.

**Dumping Area**

There is vast low lying area in western parts of Abohar especially along Sri Ganganagar railway line and Killianwali road. Infact many patches between these two roads is being used as dupmping ground for solid waste disposal and sewage disposal. The MC just throws the solid waste and pump sewage in these sites without any treatment which causes environmental degradation and sub soil and underground water pollution.

**Key Issues**

- Handling of solid waste is required to be in a scientific manner.
- The city is lacking proper plantation along its roads and in many of public and semi-public places. Plantation on available and visible open spaces is required.

**Heritage & Conservation**

4.28. The basic objectives of urban and regional planning are very clearly related to those of conservation of historic towns, area and monuments. Land use plans, Master Plan, Zoning Regulations and building bye-laws etc. help in achieving these objectives.

Town planning for existing old areas in cities needs care of the architectural fabric in urban areas. Therefore conservation needs to be an integral part of the town planning process, i.e. of land use plans, building regulations and development policies. The perspective plan of a city must be reviewed to assess its effect on the conservation needs of the city. It must reflect and respect the form of all areas and buildings and precincts must recognize the social needs of community in old days.

**Acts / laws**

A few of the Central and State Government Acts which mentions conservation of build heritage monuments and natural and environmental protection are enumerated as under:-

**Central Level Acts**

i) Ancient Monuments Preservation Act, 1904, provide for preservation of ancient monuments and objects of archeological, historical or Artistic interest.

ii) The concept of a monument of national importance was introduced in the Ancient and Historical Monuments and Archaeological sites and remains (Declaration of National Importance) Act, 1951.

iii) Subsequently Ancient Monuments and Archaeological sites and remains Act, 1958 replaced the earlier Act.

**State Level Acts**

i) The Punjab Ancient Monuments and Historical Remains Act, 1964

ii) Provisions contained in "The Punjab Regional and Town Planning and Development Act, 1995"

**Heritage & Conservation in Abohar**

Abohar does not have any place/site of archeological, historical or artistic interest. It has only one site Tomb of Panjpeer which is of historical importance, needs to be conserved properly.

## 5. EXISTING INFRASTRUCTURE

### Physical Infrastructure

### Water supply

5.1 Public water supply in Abohar town was started around 1929 when water works were constructed by bringing the canal water from Malookpur distributory. In Abohar 92% of the population is served with water supply facility. There are two water works with sedimentation tanks and all stages of purification of canal water is carried out. These two water works serve the city - one is old water works near bus stand and other is at Hanumangarh bye-pass and water is supplied by gravity- through overhead reservoirs.

**Sources of water supply**

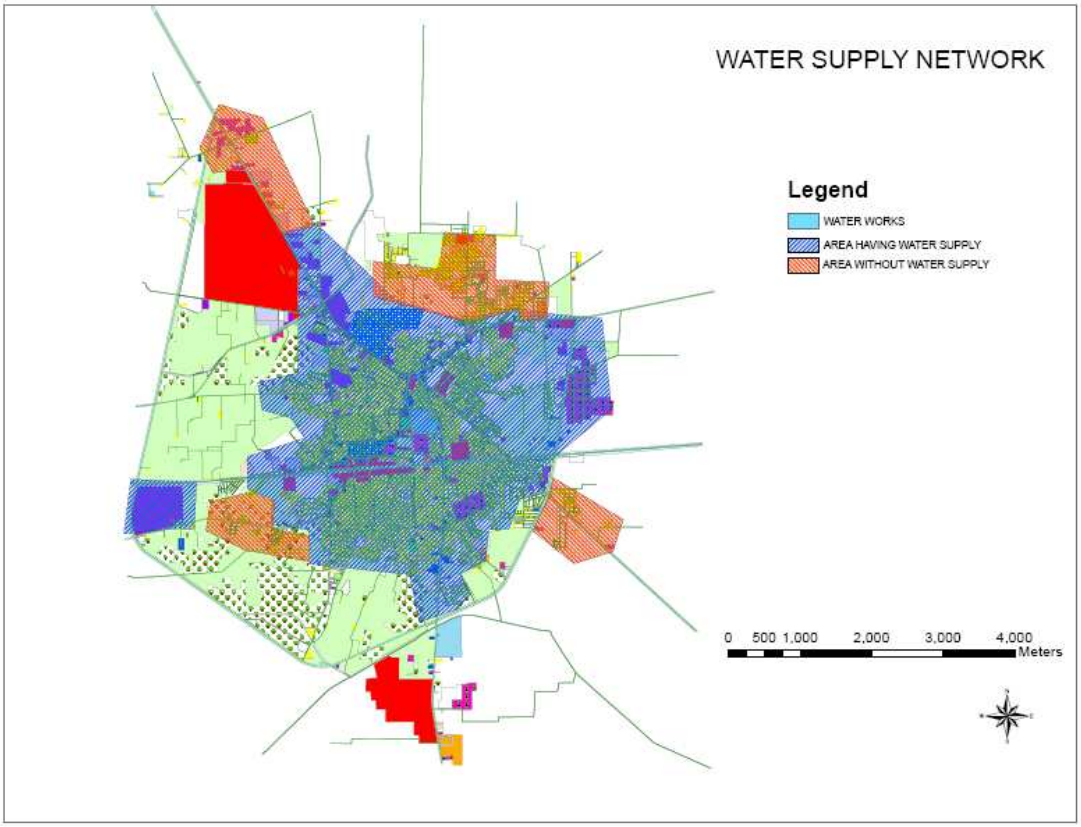
The Water supply system of Abohar city is dependent mainly on canal water. In Abohar, ground water is available at 10 feet below the ground level, but the quality of ground water is not suitable for drinking purpose due to presence of excessive chlorides and fluorides in it. Besides this, TDS contents are also very high in ground water which makes it unfit for human consumption.

River Sutlej is the nearest river to Abohar which is about 60 kms on North–west direction of the town. Malookpur distributary, a part of Sirhind canal system, is passing by the south side of the city and it is a perennial canal so raw water is easily available for water works. The carrying capacity of Malookpur distributory is about 500 cusecs which is quite sufficient to spare required quantity of water for the present population as well as for the population of the town in future. This Malookpur distributory is operated and maintained by irrigation Department. Normally closure period of canal is about 12 to 15 days annually. The quality of water is reasonably good. The turbidity varies from clean in winter and summer to muddy in rainy season. Irrigation Department is selling raw water to bulk consumers at the rate of Rs. 8 per 170 cubic meters for domestic purpose and Rs. 12 per 170 cubic meters for commercial purpose.

Supply, operation and maintenance of water supply are one of the prime and basic services provided by Municipal Council of Abohar. However, the role of Municipal Council is limited to funding the entire cost of the project for maintenance and making the system operational, besides collecting the revenue from the end users. The entire process of planning, construction and laying the major net-work and construction of

water works & OHRs is handled by the state level agency i.e. Punjab Water Supply and Sewerage Board (PWSSB). The Board undertakes this work for and on behalf of the Municipal Council and after completing the system it is handed over to Municipal Council.

**Figure 16 : Water Supply Network Abohar city**




**System of Water supply**

5.2. There are two water works – first old water works near the bus stand that serves the area lying on the northern side of railway line and the second one at Hanumangarh by-pass which is serving the areas located on the south side of this railway line. These water works supply water to about 92% of total population. Only a small area comprising of localities falling on Kandhwala road, Sri Ganganagar road and Gobindghar road is not having water supply. The total length of water supply net work comprising both main and submain is 199 km.

**Area Coverage**

5.3. Besides above water works, another water works with OHR is constructed at Industrial focal point to serve its area. For supplying water to this water works, pipe line from

Malookpur distributory is laid at the site. However presently this water works is not functioning since not a single industrial unit has come up in the focal point. Bulk consumers of water like BSF and Army areas have their own distribution network of water within their territories. The water supply infrastructure in these areas is owned by them and consequently, is not the responsibility of the municipal council. However, the area covered under water supply is shown in above figure.

**Existing Water works & Treatment Plants:**

5.4. Since ground water is not potable so the only source is canal water from Malookpur distributary. There are two water works namely old water works near bus stand and Hanumangarh bye-pass. These have conventional treatment plants comprising of sedimentation, coagulation/flocculation, slow or/and rapid sand filtration and post chlorination stages.

**Table 41: Detail of capacity of different water works (Treatment Plants).**

| Sr. No | Water Works and location | Year of commencing | Area in acres | Treatment Capacity | | Operation & maintenance |
|---|---|---|---|---|---|---|
| | | | | MGD | MLD | |
| 1 | Old water works near bus stand | 1929 recently renovated and constructed OHR in 1981 | 25 acres sufficient for future proposals | 2.5 | 11.36 | PWSSB |
| 2 | Hannumangarh bye-pass water works | 1994-1995 | 40 acres sufficient even for augmenting water supply in future | 5.00 | 22.73 | PWSSB |

*Source: PWSSB*

All the above two water works are in a good condition whereas water work at industrial focal point is not in use so lying in a very neglected condition.

Raw water allocation from the Malookpur distributory to the water works is shown in table below:

**Table 42: Detail of Raw Water Allocation at different sources.**

| Sr. No. | Water Works | Draw Point | Allocated Water in MLD | Remark |
|---|---|---|---|---|
| 1 | Old water works near bus stand | Malookpur distributary | 12.09 | Water drawn through pipe is 1.3 km |
| 2 | Hannumangarh bye pass Water works | Malookpur distributary | 24.18 | It is located on just north of the distributary |

*Source: PWSSB*

**Storage**

5.5. Each of the two water works has one OHSR each and total storage capacity of these is 8.50 mld. In the old water works there are 3 motors of 40 HP for bringing raw water and two motors of 150HP AND 170 HP for uplifting treated water to OHSR. The other one at Hanummangarh bye pass has two motors of 40 HP and 80 HP for bringing raw water and two motors of 200HP each for uplifting treated water to OHSR. The detail of storage capacity of OHSRs at above two places is given in Table below:

**Table 43: Detail of Existing Storage Capacity at different points**

| Sr. No. | Location | Type of Storage | Storage capacity in mld | Height in feet | Year of Construction |
|---|---|---|---|---|---|
| 1 | Old water works near bus stand | OHSR | 3.50 | 100 | 1981 |
| 2 | Hannumangarh bye pass water works | OHSR | 5.00 | 100 | 1994-95 |

*Source: PWSSB*

Each of the two water works functioning in Abohar, supply the water through OHSR. These are useful for supplying water through gravity and for achieving required head. It can also be used as storage of meeting the requirements of fire safety by the fire brigade office.

**Distribution**

5.6. The areas which have been covered by water supply system within the municipal limits have not been divided in clear-cut zones. However, it can be assumed that there are two major zones which are based on the supply area of water works and physical separation of town by Sri Ganganagar-Abohar-Bathinda railway line. Total length of the distribution of pipelines is around 199 kms.The major distribution areas are indicated below:

-area north of railway line served by old water works near bus stand.

-area south of railway line served by Hanumangarh bye-pass water works

**Surface water**

5.7. The dependability of water sources used for Abohar water supply is taken from one main source: Malookpur distributary of the Sirhind branch canal system. The source is dependable and there is more than adequate water available for future requirement.

**Water Connections**

5.8. The city at present has 18208 registered water connections to different category of users. Table below shows total no. of water connections from year 2002-2008. The table indicates that during the year 2002-2008, a growth of 16.67% has been recorded in number of water connections. Thus the no. of connections is increasing at a reasonable rate. Detailed analysis has been made with regard to number of connections registered in the domestic and commercial segments of the city. It has been observed that larger proportions of the connections fall under the category of domestic use which constitute about 97.21% whereas commercial water connections constitute only 2.79% of the total water connections. Number of connections has been growing moderately with the increase in population and increased number of dwelling units and commercial establishments, resulting in more water demand in the city. Moreover, the affordability level of people has lead to increase in the number of connections during the past seven years. It is worth mentioning here that besides the above number of registered connections there are many unregistered illegal water connections that avail the facility of getting water from the existing network putting burden on the supply network.

**Table 44: Detail of water supply connections in Abohar from 2002-2008**

| Years | Water supply | | |
|---|---|---|---|
| | Domestic | Commercial | Total |
| 2002 | 15606 | 328 | 15934 |
| 2003 | 16144 | 335 | 16479 |
| 2004 | 16704 | 340 | 17044 |
| 2005 | 17089 | 357 | 17446 |
| 2006 | 17493 | 363 | 17493 |
| 2007 | 17532 | 541 | 18073 |
| 2008 | 17701 | 507 | 18208 |

*Source: Municipal Council, Abohar*

**Table 45: Water supply**

| Category | Area (in Sq. kms) | Amount of Water supplied | Registered connections | Population | Water supply in lpcd |
|---|---|---|---|---|---|
| Municipal Council Area | 27.01 | 34.09 MLD | 18208 | 149465 on *march 2008* | 228 |

*Source: PWSSB*

**Water demand & Supply**

5.9. The estimated population as per PWSSB for the year 2008 is 1,49,465 out of which 1.37 lac (92%) is served by a piped water system. This gives gross per capita supply of 228 lpcd. As per as the norms prescribed, the amount of water supplied is 135 lpcd. Accordingly, the amount of water supplied is higher than the prescribed norms. The duration of water supply is 3 times a day and the total duration work out is 3 hours on daily basis.

**Key issues:**

- 8% of deficiency in water supply system in Abohar city is due to lack of maintenance.
- Ground water is not recommended for human consumption because of high level of fluorides etc. so canal water is the only source of water for all purposes
- The contamination of water because of existence of water and sewer lines one above the other in narrow lanes, is another problem.
- There is large number of illegal water connections which is another serious problem in field of water supply.
- Un-metered water supply.
- Irrational water charges.
- Old network requiring replacement.
- High degree of water loss due to leakages.
- Poor maintenance of service network

**SEWERAGE NET WORK**

**Introduction:**

5.10. Municipal Council of Abohar with association of Punjab Water Supply & Sewerage Board (PWSSB since 1977) provides the facility of sewerage net work to the areas falling with in the municipal council limits which cover an area of about 22.72sq km. The sewerage includes the waste generated from domestic, industrial, commercial and institutional units etc. operating in the city. Initially, the waste water system in Abohar consisted of open surfaced drains running through the grid iron pattern of narrow lanes of the old part of the city with disposal of waste water into the ponds existing in various localities. Municipal council of Abohar came into existence in 1922. The work

of laying underground sewerage in the city was first taken up in the year 1977. During the period of last 32 years, only 76% of the population could be provided the sewerage facility where as the remaining 24% of the population is still to be provided with this facility. Average daily sewer flow is 16.49 MLD. Besides the length of household collectors, total length of the sewer is 84.78 km which includes length of the intercepting sewer of 14.28 km and length of lateral/ branch sewer is 70.50 km. There is no sewerage treatment plant in the city. Untreated sewage is collected through a net work of sewerage from the contributory area and is lifted at the pumping station near Indira Nagari and is disposed off on the open land. Although the population of the town is not increasing at a faster rate, but still many new colonies like Labour colony, Mohan Nagari, Ram colony, Shiv Sakia Nagari, Harizan colony, Dharm Nagari, Mangal Nagari, Chader Nagari have come up without sewerage network. Waste water is being disposed of in open surface drains and septic tanks in these localities.

**Existing Sewerage System**

5.11. The management, operation and maintenance of the existing sewerage system is being done by PWSSB although the cost is borne by municipal council. Being a small town whole of the town is covered under a single zone for operation and maintenance of the sewerage system. It may be mentioned here that due to water logging the sewerage system is effected in some localities namely Thakur Abadi, Sidhu Nagri, Chandigarh Mohala, Azimgarh and Indira Nagri, sewerage lines are again being laid down in these localities.

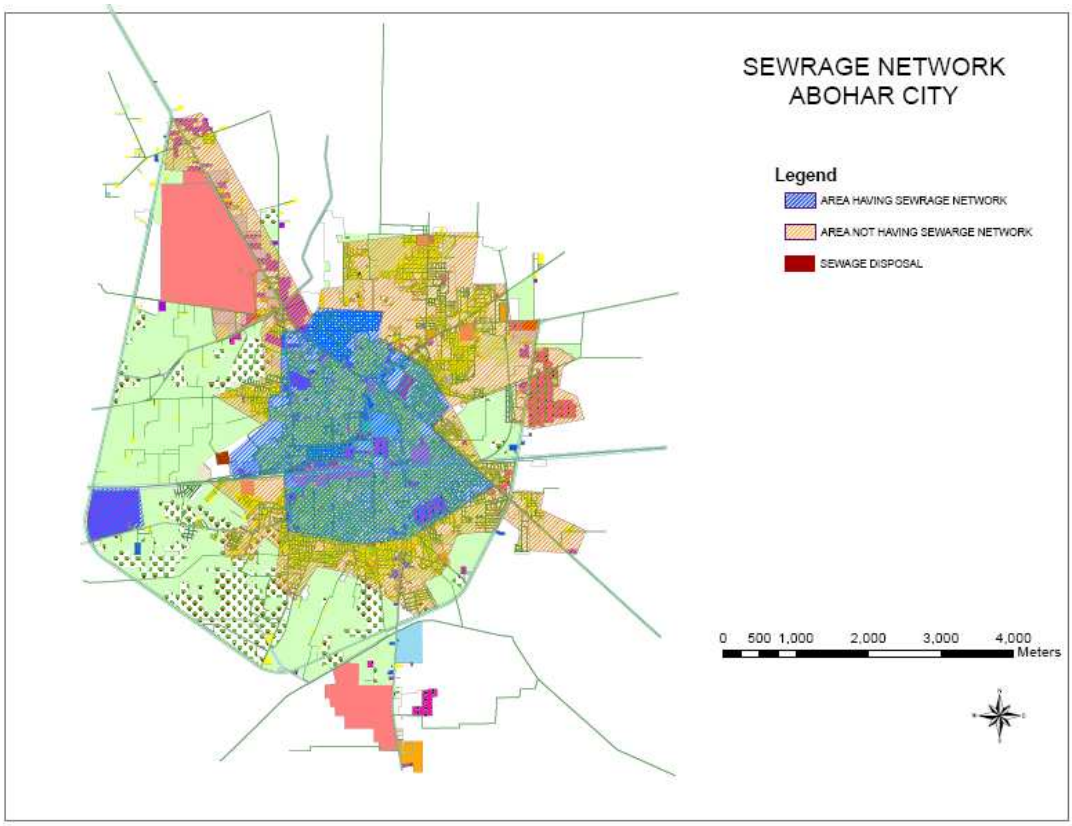
**Table 46: Existing Pumping station**

| Sr. No | Location | Pumps | Motor (HP) | Capacity |
|---|---|---|---|---|
| 1. | Indira Nagari | 3 | 3 motors, each of 90 HP (one of these is used as a standby) | 1.50 lac gallon/ hour (each pump) |

The prevailing gradient/slope of the town is from the south and north to the central parts of the town, then towards west. Due to the prevailing slope of the town the main sewer lines run along major roads from south and north to central parts of the town on the northern side of the railway line and then the sewer lines run towards west to the disposal site. This site is located on the western side near Indira Nagari from where it is pumped out with the help of two motors each of 90 H.P in the open land. The M.C

has about 40 acres of land which is sufficient for the construction of sewerage treatment plant. The present practice of disposal is highly undesirable from the environmental consideration and poses a great threat to the health of the people living in nearby localities. Presently, Municipal Council with the assistance of PWSSB has prepared a proposal to carry the sullage from disposal site pumping station to Abul Khurana Drain and it will run parallel to Sri Ganganagar - Abohar railway line towards west. 3 km length of this proposed sullage carrier out of 12 kms has been constructed at site and whereas the construction work of the remaining sullage carry will be taken up as and when the necessary funds will be provided. The areas served and non- served are shown in figure below:

**Figure 17 : Sewerage Network: Abohar**




**Capacity of Existing Network**

5.12. The information got from PWSSB reveals that the entire length and breadth of existing sewerage system is sufficient to serve the areas for it has been laid down. But it has been observed that only 3 kms out of 12 kms length of sullage carrier is

constructed. Due to this and also non-existence of sewerage treatment plant, disposal of untreated sewerage is carried on open land.

**Key Issues**

- The most challenging issue relating to sewerage system of the city is the disposal of untreated sullage into the open land thus causing environmental problems and many health problems to the residents of the surrounding localities.
- The second challenging problem is that about 24% part of the town lacks this facility. This part of city is comprised of various colonies located in the different parts of the town.
- Immediate need for a sewerage treatment plant to treat and dispose the sewerage.
- Leakage of sewage at some points into water supply pipes and ground water also causing environmental and health problems.
- Due to lack of sewerage treatment plant, the disposal of sewage takes place in the open land and seepage of this into underground water, thus making this unhygienic and unpotable.

**STORM WATER DRAINAGE**

**Existing Status**

5.13. Following the analogy of sewerage network, the city has high degree of deficiency in the storm water network also. Considering the existing status, it has been found that creating an effective and efficient system of storm water drainage has never been on the agenda of the Municipal Council, Abohar. Despite the fact that rain water is a very valuable source of water, the city has been facing problem of flooding in certain parts during the rainy season in the absence of an effective system of storm water disposal.

Besides the fact of inadequate sewerage system, no storm water drain exists in the city. As the town has developed on the sand dunes having no proper direction of natural gradient of its surface and no plinth level has been fixed for the construction of building by the authorities concerned, the rainwater usually accumulates in the depressions. During the old times when there was not much development in the town

these depressions were vacant open lands and the storm water collected there during rainy season, was used to get soaked in the subsoil within a short period. But as the town expanded, more and more open spaces came under the building activity, no vacant land and depressions are left for storage of storm water other than the roads only, so the problem of storm water has become very serious. On the basis of field studies conducted by this office, some flood prone areas are along the Circular Road, Bus Stand road and Azimgarh road and these become very critical during the rainy season. In the absence of storm water system, the rain water is largely discharged into the sewer network. This results in heavy loading of the sewerage network, ultimately leading to choking of the pipes, overflow of the sullage and backflow of the sewage. This calls for the urgency of having a separate storm water network to be put in the place for the whole city to dispose off the rainwater effectively.

**Key issues:**

- In the city like Abohar it will increase the availability of water for irrigation and construction industry.
- Construction cost of separate drainage system is less as compared to combined system
- Maintenance is easy as storm water drains are open drains
- In the city like Abohar rain water collected and reused could act as a boom to enhance the economy.

## SOLID WASTE MANAGEMENT

### Introduction:

5.14. Waste is unwanted material left over from the manufacturing process and refuse from places of animal and human habitation. Solid waste is a combination of unwanted and discarded materials from households, commercial and industrial operations besides street sweeping. Increase in urban population coupled with change in life style and economic prosperity has lead to generation of considerable solid waste. Solid waste has emerged as the major problem in urban areas with regard to its effective management. Solid waste arising from human activity has emerged as one of the major environmental issue leading to extensive pollution and threat to human health. The problems of Solid Waste Management, both domestic and industrial have

assumed alarming proportions, more so in the larger cities. Limited disposal facilities coupled with dumping of the solid waste in a haphazard manner in various parts of city has lead to not only creating environmental problems but also serious health hazards. The National Conservation Strategy and Policy Statement on Environment and Development has laid stress on adopting stringent measures for prevention and control of pollution due to indiscriminate disposal of solid waste on land and into water resources. Hence, immediate steps are required for proper management of urban solid waste.

**Solid Waste Management**

5.15. Solid waste management is the prime responsibility of Abohar Municipal Council within its boundaries. Municipal Council discharges this duty through the infrastructure created for collection, storage, transportation and disposal. The assistant municipal engineer of the Municipal Council is vested with the responsibility of day to day solid waste collection and disposal. The Municipal Council organizes the collection and transportation through its own conservancy workers and three tractor trolleys. Municipal Council collects solid waste from all the residential areas within its limits and then transports it to the dumping site.

**Type & Quantity Of Waste Generated**:

5.16. There has been no formal study to know the estimated waste generated in the town. However as per the report prepared by the municipal council Abohar under the "Municipal Solid Waste (Management and Handling) Rules 2000, the total quantity of waste generated per day is 32MT which means that about 256 gram waste is generated per person per/day. The amount of garbage generated on per capita per basis is found little less than the pattern of garbage generation in other cities of the state which ranges between 300 to 450gms per capita per day. This less amount of waste generated per capita is perhaps due the reason that industrial waste is not included in it.

**Current Practices of Solid Waste Management:**

5.17. Management of the solid waste within the Abohar Municipal Council Area is the prime responsibility of the Municipal Council. In the existing setup of Municipal administration of Abohar, the assistant muncipal engineer is responsible for collection and disposal of solid waste. Astt Municipal Engineer is supported by the field staff

which assist in collection and disposal of the waste. The process of solid waste management can be broadly classified into following stages:-

(i) Primary and secondary collection

(ii) Waste Storage & segregation.

(iii) Waste transportation

(iv) Disposal of Waste.

The solid waste is first collected from the points where it is generated and taken to the collection centers defined by the Municipal Council. This process is taken up both at the individual level or by the Municipal Council. After the garbage is dumped at the identified places it is transported by the Municipal Council to the dumping site for final disposal. The detail of primary collection of solid waste in respect of household, commercial, institutional, road network, industrial and bio-medical waste is given in the following paras.

**Solid Waste Collection-Household Waste.**

5.18. Presently, a two level system of waste collection is made applicable in the Abohar city. Waste is first collected from the point of generation known as primary collection which is then taken to 2nd level of collection created at the community level. Collection of garbage of whole of the city is managed as a single zone due to small size of population/ area and staff in municipal council. The major share of solid waste is generated at the household level which is about 23 metric ton. The waste generated is largely non-toxic in nature with large component of organic and inorganic waste. There is no segregation of waste at the generation level, with the result both the organic and inorganic waste gets mixed up which poses considerable problem in effective disposal of the waste. In addition, it also causes enormous loss in terms of transportation and final disposal

The waste generated at individual premises is removed initially by the owner or the Municipal employees. This collected solid waste is then dumped at various collection points identified by the municipal council and at other unauthorized open places by the use of wheel barrows and cycle rickshaws. Those collection points consist of various community bins (containers), designated open sites and portable bins. However the waste in many cases is not dumped directly into the community bins. It is dumped

either outside the bin, into any open areas or just dumped on the road side. This shows the awareness level in terms of importance of solid waste management is very low.

**Road Side Waste and Road Sweeping**

5.19. Municipal Council has employed various safai sevaks to sweep the roads daily and collect the solid waste. Each safai sevak is given a particular road/area for sweeping of municipal road/area. They are also given wheel barrows to dump their collected waste to the designated sites.

**Bio Medical Solid Waste**

5.20. The waste generated by the hospitals mostly falls into the category of hazardous /infectious waste which poses danger to human life. The bio-medical waste requires specialized mechanism for its collection, transportation and disposal. As per the report of municipal council there are about 22 private clinics which have made their own arrangement for disposal of their wastes. Total waste generated is 0.5 MT and Municipal council has no proposal for future in regards to the disposal of bio- medical solid waste.

**Industrial solid waste**

5.21. The industrial waste generated is due to industrial and manufacturing processes adopted by the industrial units. Most of the industrial units are based on agro raw material. Abohar basically is not an industrial city therefore the waste generated from different small and medium industries are not alarming which may create headache to the Municipal council.

Industrial solid waste is not stored within the premises but is generally disposed off outside the premises, sometimes along the roads/open spaces. Some times heaps of industrial waste is noticed at a distance away from the industrial premises along the roads/open areas. Most of the industries follow manual handling of the waste as a normal practice. There are indeed very few mechanical aids available for proper collection and transportation of industrial solid waste.

**Waste collection at the secondary level:**

5.22. Secondary level comprises of bins and dumping sites to which the waste generated at the primary level is transported and dumped before transportation for final disposal. The secondary level collection points serve as an intermediate transfer point from household, roadside waste, commercial and institutional waste to disposal in the

landfill sites. The entire city is considered as a single unit with 4 containers at four different locations serving the whole city.

The solid waste from the primary source is dumped either into the open sites or to the container sites. To collect the garbage there are 150 wheel barrows which transport the garbage to these sites.

**Transportation of waste:**

5.23. The solid waste from 4 designated collection sites created at the secondary level is then transported to the dumping site for final disposal by municipal council staff on regular basis. The waste collected at the designated open sites is then both mechanically and manually lifted & filled in tractor trolleys for transportation to the disposal site. There is one JCB for the above stated purpose. There are three tractors with 5 trolloys, four containers and JCB with the Municipal Council which are used for transportation of solid waste/garbage to the dumping site. The capacity of each container is 158 cft and whereas of each trolley is 216 cft which are handling the load of transportation of solid waste/garbage to the dumping site

**Disposal of solid waste**

5.24. The method adopted by the Abohar municipal council for disposal of the solid waste is through the mechanism of landfills. At present Abohar municipal council uses only one site for dumping the solid waste. The site is located near disposal works on the west side of Indira Nagari. The area immediately used for dumping is 5 acres. The average depth available at the site varies from 6 to 8ft. for dumping of the solid waste. Total area available for the landfill site is 25 acre out of which 5 acre is used and 20 acre is vacant land which could be used for future expansion. The site is at a distance of 1.5 KM from the city centre.

The landfill site is not lined and properly defined. Moreover land filling is being done in an unscientific manner. The waste is directly dumped, without any segregation where a JCB is employed to spread the waste over the site. There is no compaction of the waste undertaken to compress it since no bulldozer and compacters are available for this purpose. In the absence of scientific disposal of the waste a lot of valuable waste is lost due to absence of recycling. Municipal council Abohar does not involve rag pickers in recovering the valuable recyclable waste. These results in loss of

opportunity of creating employment for low income groups of the city besides reducing the quantum of solid waste dumped at the site besides loss of valuable waste. Further, in the absence of defined boundaries, animals like pigs etc. vegetate on the waste. In addition, due to unscientific disposal of the waste, lot of foul smell is generated due to the presence of organic waste polluting the environment in the process. No treatment of the solid waste is undertaken during the dumping process as required in the system of sanitary landfills. The site does not have any kind of fencing or compound wall surrounding to it. This poses a danger for children or cattle in that area. Details of the dumping site including the area, distance from the site etc. is given in table below:

**Table 47: Details of Waste Dumping Sites**

| Sr. No. | Site | Land area (acres) | Average depth (in ft.) | Distance from city centre | Remarks |
|---|---|---|---|---|---|
| 1. | Indra Nagari | 5 | 8 | 1.5 mts. | In addition to 5 acres – 20 acres vacant area is available for further expansion. |

*Source: Municipal Council, Abohar*

**Manpower deployed**

5.25. The responsibility for the solid waste management within the urban limits of Abohar municipal council has been vested with the assistant municipal engineer of the council. He is assisted by a work force of 281 personnel, comprising of sanitary inspectors, supervisors, and safai sewaks besides drivers etc. In all 266 safai sewaks have been deployed which includes full time, part time workers besides daily wages. Although the man at the top is technically trained but the staff at next level are not professionally trained to manage the work. Moreover, the supporting staff is not much aware of the current technological developments in the field which creates road blocks on scientific planning and disposal of the solid waste. There is absence of formal system of communication between the supervisors and the subordinates .Most of the communication is through informal channel that is conveying verbally which leads to mismanagement of the system. Further there is no rational system of deployment of manpower which is usually done on an adhoc manner without any relationship of quantum of waste generated or population served. This reduces the efficiency of the manpower deployed in the system. Further there is no system of recording the public complaints regarding the solid waste. In the absence of the system, redressals of

complaints have a low priority. Large scale absences of workers from their duty have also been observed. The details of manpower deployed in the solid waste management is detailed in table below:

**Table 48: Existing man power deployment solid waste management**

| Sr. No. | Name of the Official | Number |
|---|---|---|
| 1. | Assistant municipal engineer | 1 |
| 2. | Chief Sanitary Officers | - |
| 3. | Sanitary Inspectors | 2 |
| 4. | Sewadars | 4 |
| 5. | Sanitary Supervisors | 4 |
| 6. | Safai Sewaks (Full time) | 179 |
| 7. | Safai Sewaks (Daily wages)* | 87 |
| 8. | Drivers | 4 |
| | **Total** | **281** |

**Key issues:**

- Despite large number of manpower deployed for management of solid waste, heaps of stinking waste can be seen at a number of places in the city. Removal of garbage is done arbitrarily by the staff without following any well laid down system. Cleaning of roads also has not been found to be satisfactory and the dumping of waste by the public has been found to be highly unsatisfactory. In the process, solid waste management has emerged as the major issue in the management of the city. The key issues involved in the solid waste management have been found to be :
- Absence of scientific management of solid waste
- Absence of public participation and lack of public awareness.
- Untrained and unqualified manpower deployed.
- Inefficiency in the management of vehicles used for transportation.
- Lack of data on the generation of the solid waste.
- Poor management of dumping sites
- Absence of segregation of waste at the primary level
- Absence of recovery of valuable recyclable waste.
- Absence of involvement of large institutional network creating large volume of solid waste including Marketing Board, Department of Industries, etc.

- Mixing of industrial and toxic waste with the domestic waste.
- Absence of scientific system of sanitary landfills
- Absence of appropriate mechanism for converting waste into generating energy and fertilizers.

**Traffic and Transport**

5.26. Transportation is an integral part of any city that is totally responsible for the existence and prevailing characteristics of the city. Without transportation the cities could never have developed. First of all transportation forms the circulatory system that connect cities with each other and with the countryside. Cities are the culminating points in a system of overlapping and interconnected transportation nets of rail, roads, highways etc. Without transportation, the functional differentiation of the city into areas of specialized land uses could not have occurred, and without transportation, the functionality of the town cannot be achieved or in other words it acts as the spinal cord of the city

The office of the District Town Planning, Ferozepur has conducted the traffic volume survey in the month of April-2009 for the whole day and the peak hours have been identified observing the extent of problems like congestion, journey speed, pollution, load etc. It helped in calculating the congestion index degree of congestion that reflects the extent of conflicts, jamming conditions etc. on the roads of the city. The cordon points for survey have been selected after a recky survey on various roads. The ten zunction points have been identified on mostely major regional roads alongwith city roads. The survey for both directions of traffic flow has been conducted simultaneously. This survey helps to assess the vehicle composition and the capacity utilization of roads. The detail of survey is given in table below:

**Table 49 : Details of traffic volume (Mode wise) on Major Roads – Abohar City**

| Raod | Bus | Truck | Cars | Tractor trolley | 2 Wheeler | Auto/ Rickshaw | Cart/ Gadda | | V-C Ratio |
|---|---|---|---|---|---|---|---|---|---|
| **Abohar- Fazilka** | | | | | | | | | |
| Morning To Out | 82 | 55 | 224 | 310 | 465 | 97 | 31 | | |
| To City | 89 | 90 | 195 | 199 | 321 | 72 | 36 | | **0.55** |
| Evening to out | 50 | 114 | 183 | 200 | 338 | 78 | 14 | | |
| To City | 49 | 66 | 205 | 199 | 339 | 51 | 18 | | **0.75** |
| Total | 188 | 270 | 583 | 598 | 998 | 201 | 68 | 2906 | |
| **Percentage Vehicles** | **6.47** | **9.29** | **20.06** | **20.58** | **34.34** | **6.92** | **2.34** | | |
| **Hindumal-Kot** | | | | | | | | | |
| Morning To Out | 27 | 81 | 89 | 77 | 167 | 74 | 8 | | |
| To City | 22 | 26 | 79 | 104 | 201 | 61 | 6 | | **0.39** |
| Evening to out | 20 | 30 | 80 | 69 | 146 | 38 | 1 | | |
| To City | 17 | 45 | 40 | 51 | 127 | 34 | 1 | | **0.26** |

| Raod | Bus | Truck | Cars | Tractor trolley | 2 Wheeler | Auto/ Rickshaw | Cart/ Gadda | | V-C Ratio |
|---|---|---|---|---|---|---|---|---|---|
| Total | 86 | 182 | 288 | 301 | 641 | 207 | 16 | 1721 | |
| **Percentage Vehicles** | **5.00** | **10.58** | **16.73** | **17.49** | **37.25** | **12.03** | **0.93** | | |
| **Old Fazilka Road** | | | | | | | | | |
| Morning To Out | 1 | 31 | 118 | 146 | 777 | 85 | 20 | | |
| To City | 1 | 18 | 109 | 124 | 952 | 88 | 49 | | **0.71** |
| Evening to out | 1 | 19 | 87 | 79 | 601 | 54 | 15 | | |
| To City | | 11 | 83 | 64 | 512 | 48 | 19 | | **0.42** |
| Total | 3 | 79 | 397 | 413 | 2842 | 275 | 103 | 4112 | |
| **Percentage Vehicles** | **0.07** | **1.92** | **9.65** | **10.04** | **69.11** | **6.69** | **2.50** | | |
| **Bus stand road** | | | | | | | | | |
| Morning To Bus stand | 102 | 42 | 225 | 104 | 1383 | 382 | 75 | | |
| From Bus stand | 123 | 22 | 149 | 38 | 775 | 165 | 48 | | **0.97** |
| Evening To Bus stand | 130 | 27 | 240 | 66 | 1034 | 241 | 25 | | |
| From Bus stand | 32 | 23 | 228 | 41 | 535 | 156 | 32 | | **0.73** |
| Total | 387 | 114 | 842 | 249 | 3727 | 944 | 180 | 6443 | |
| **Percentage Vehicles** | **6.01** | **1.77** | **13.07** | **3.86** | **57.85** | **14.65** | **2.79** | | |
| **Sitoo Guno Road** | | | | | | | | | |
| Morning To Out | 54 | 66 | 184 | 89 | 504 | 92 | 4 | | |
| To City | 79 | 121 | 110 | 58 | 302 | 50 | 15 | | **0.65** |
| Evening to out | 56 | 45 | 91 | 34 | 210 | 30 | 5 | | |
| To City | 40 | 35 | 30 | 39 | 220 | 20 | 10 | | **0.33** |
| Total | 229 | 267 | 415 | 220 | 1236 | 192 | 34 | 2593 | |
| **Percentage Vehicles** | **8.83** | **10.30** | **16.00** | **8.48** | **47.67** | **7.40** | **1.31** | | |
| **To Sri Ganga nagar** | | | | | | | | | |
| Morning To Out | 10 | 30 | 94 | 90 | 908 | 54 | 14 | | |
| To City | 6 | 24 | 82 | 30 | 768 | 62 | 12 | | **0.44** |
| Evening to out | 7 | 15 | 72 | 43 | 562 | 39 | 7 | | |
| To City | 7 | 25 | 53 | 16 | 333 | 39 | 5 | | **0.25** |
| Total | 30 | 94 | 301 | 179 | 2571 | 194 | 38 | 3407 | |
| **Percentage Vehicles** | **0.88** | **2.76** | **8.83** | **5.25** | **75.46** | **5.69** | **1.12** | | |
| **Kandwal Road** | | | | | | | | | |
| Morning To Out | 4 | 14 | 80 | 56 | 452 | 140 | 26 | | |
| To City | 4 | 12 | 110 | 54 | 520 | 126 | 28 | | **0.50** |
| Evening to out | 2 | 16 | 65 | 66 | 753 | 113 | 30 | | |
| To City | 1 | 17 | 64 | 32 | 765 | 102 | 25 | | **0.53** |
| Total | 11 | 59 | 319 | 208 | 2490 | 481 | 109 | 3677 | |
| **Percentage Vehicles** | **0.30** | **1.60** | **8.68** | **5.66** | **67.72** | **13.08** | **2.96** | | |
| **Bye pass(Sitto Gunno Chowk)** | | | | | | | | | |
| Morning To Out | 42 | 161 | 179 | 87 | 205 | 67 | 13 | | |
| To City | 34 | 97 | 201 | 125 | 169 | 47 | 6 | | **0.55** |
| Evening to out | 18 | 60 | 174 | 24 | 54 | 18 | 10 | | |
| To City | 16 | 67 | 131 | 47 | 102 | 12 | 13 | | **0.26** |
| Total | 110 | 385 | 685 | 283 | 530 | 144 | 42 | 2179 | |
| **Percentage Vehicles** | **5.05** | **17.67** | **31.44** | **12.99** | **24.32** | **6.61** | **1.93** | | |
| **Hanuman Garh Road** | | | | | | | | | |
| Morning To Out | 16 | 34 | 82 | 40 | 206 | 41 | 13 | | |
| To City | 13 | 21 | 89 | 36 | 247 | 37 | 5 | | **0.30** |
| Evening to out | 13 | 11 | 31 | 39 | 139 | 20 | 21 | | |
| To City | 17 | 18 | 58 | 18 | 153 | 41 | 21 | | **0.23** |
| Total | 59 | 84 | 260 | 133 | 745 | 139 | 60 | 1480 | |
| **Percentage Vehicles** | **3.99** | **5.68** | **17.57** | **8.99** | **50.34** | **9.39** | **4.05** | | |
| **Fazilka (Bye pass)** | | | | | | | | | |
| Morning To Out | 16 | 62 | 106 | 94 | 155 | 7 | 2 | | |
| To City | 27 | 105 | 104 | 66 | 138 | 10 | 0 | | **0.35** |
| Evening to out | 16 | 66 | 68 | 48 | 88 | 10 | 2 | | |
| To City | 15 | 64 | 84 | 55 | 95 | 5 | 0 | | **0.24** |
| Total | 74 | 297 | 362 | 263 | 476 | 32 | 4 | 1508 | |
| **Percentage Vehicles** | **4.91** | **19.69** | **24.01** | **17.44** | **31.56** | **2.12** | **0.27** | | |
| **Grand Total** | 1177 | 1831 | 4452 | 2847 | 16256 | 2809 | 654 | 30026 | |
| **Percentage** | 3.92 | 6.10 | 14.83 | 9.48 | 54.14 | 9.36 | 2.18 | 3.92 | |

*Source: Filed survey, May 2009*

**Vehicle composition on main road network**

5.27. It has been noticed that there is mixed traffic running on the main city road network such as heavy vehicles (Trucks, Trailors, Buses etc), medium vehicles, light vehicles, three wheelers, two wheelers, cycles, carts etc. As per survey of traffic volume on main city roads conducted by this department there is a great variation in the composition of vehicles. The outer roads of the city are having a large number of heavy vehicles whereas the main roads falling in the inner part of the city normally have large number of light vehicles and two wheelers.

**Volume capacity ratio on main road networks**

5.28. In order to assess the capacity utilization of roads, a detailed analysis of the existing road network has been made in terms of volume & capacity of important roads.

The ratio of volume and capacity (V/C) is one of the most important factors for evaluating the level of services of road network. The peak hour volume of different categories of major road network in Abohar has been assessed to calculate volume capacity ratio. While the capacity is measured in PCU's per lane of road width, the V/C ratio up to 1 is considered as the optimum condition. If ratio exceeds 1 it indicates condition of congestion whereas figure below 1 indicates under utilization of the road capacity. As per the UDPFI guidelines the table of equivalent PCU factors is given below:

**Table 50: Recommended PCU factors for various types of vehicles on urban roads**

| Sr. No | Type of vehicle | Equivalent PCU factors |
|---|---|---|
| 1 | Two wheeler motor cycle | 0.5 |
| 2 | Car, Jeep, Van | 1 |
| 3 | Rickshaw, Auto-Rickshaw | 1.5 |
| 4 | Bus, Truck, minibus | 2.2 |
| 5 | Agricultural Tractor Trailor | 4 |
| 6 | Tonga, Hand-Cart etc. | 2 |

Source: UDPFI Guidelines

The various roads that are taken under consideration have been classified under three categories:

- **Arterial Road-** Roads for intra-urban through traffic, with no frontage access, no standing vehicle and very little cross traffic and minimum roadway intersection spacing 500 m.

- **Sub Arterial Road-** Roads for intra-urban through traffic with frontage access but no standing vehicles having high cross traffic, high capacity intersections and minimum roadway intersection spacing 300 m.
- **Collector Street-** Streets for collecting and distributing traffic from arterial roads to local streets and also for providing access to arterial and sub-arterial roads, having free frontage access but no parked vehicle and having heavy cross traffic and minimum road way intersection spacing 150m.

As per the standards quoted in table above the volume capacity ratio on the main roads of Abohar has been calculated and summarized in table below:

**Table 51: Volume capacity ratio on main roads of Abohar city**

| Raod | Cordon Point | PCU / Hour | Capacity | V-C Ratio | Type of carriageway | Classification of Road |
|---|---|---|---|---|---|---|
| **Aohar- Fazilka** | At junction of Old Failka raod | | **2200** | | **2 lane (2way)** | **Arterial** |
| Morning | | 1211 | | 0.55 | | |
| Evening | | 551 | | 0.75 | | |
| **Hindumal-Kot** | 200 mts from Railway crossing | | **1500** | | **2 lane (2way)** | **Arterial** |
| Morning | | 585 | | 0.39 | | |
| Evening | | 386 | | 0.26 | | |
| **Old Fazilka Road** | At junction of Fazilka Road | | **1350** | | **2 lane (2way)** | **Sub-Arterial** |
| Morning | | 962 | | 0.71 | | |
| Evening | | 564 | | 0.42 | | |
| **Bus stand road** | 100 mt from Bus stand on Malout Road | | **1350** | | **2 lane (2way)** | **Sub-Arterial** |
| Morning | | 778 | | 0.97 | | |
| Morning | | 653 | | 0.73 | | |
| **Sitoo Guno Road** | Near Railway crossing | | **1200** | | **2 lane (2way)** | **Arterial** |
| Morning | | 778 | | 0.65 | | |
| Evening | | 391 | | 0.33 | | |
| **Sri Ganga nagar Road** | Near crossing of Bye Pass road | | **1500** | | **2 lane (2way)** | **Arterial** |
| Morning | | 653 | | 0.44 | | |
| Evening | | 370 | | 0.25 | | |
| **Kandwal Road** | Near crossing of Bye Pass road | | **1200** | | **2 lane (2way)** | **Sub-Arterial** |
| Morning | | 602 | | 0.53 | | |
| Evening | | 632 | | 0.53 | | |
| **Bye pass(Sitto Gunno Chowk)** | | | **1500** | | **2 lane (2way)** | **Arterial** |
| Morning | 100 mts from Chowk on Bye pass | 828 | | 0.55 | | |
| Evening | | 390 | | 0.26 | | |
| **Hanuman Garh Road** | Near crossing of Bye Pass road | | **1200** | | **2 lane (2way)** | **Sub-Arterial** |
| Morning | | 365 | | 0.30 | | |
| Evening | | 280 | | 0.23 | | |
| **Fazilka (Byepass)** | Near junction of Pass road and Fazilka road | | **1500** | | **2 lane (2way)** | **Arterial** |
| Morning | | 523 | | 0.35 | | |
| Evening | | 363 | | 0.24 | | |

*Source: Field survey-2009*

The above table reveals that most of the roads of Abohar are under utilization having V/C ratio ranging from 0.23 to 0.97 and less than 1. This means that there is no traffic problem on these roads but having smooth flow of traffic.

The maximum v/c ratio in Abohar city is on Bus Stand road with 0.97 in morning peaks where as in evening this has 0.73 v/c ratio. This indicates the optimum utilization of the road capacity. Apart from this Abohar- Fazilka road has highest V/C ratio i.e 0.75 during evening peak hours.

**Bus Transport**

**Bus Terminal and Frequency of bus Service**

5.29. There is one Bus Terminal in Abohar city which is situated on road which start from Abohar – Fazilka road goes to railway crossing. This is near old water works and main commercial streets, old market and old parts of the city. It takes only 5 to 10 minutes time to reach the main market/ bazaar from bus stand. The total Area of Bus stand is 3 acres. It does not have a work shop which is an important component. The area of bus stand is not sufficient to accommodate all the components as per the norms given in UDPFI Guidelines. Some buses originate and terminate at the terminal. Few of the buses just passes through the bus stand to stop for few minutes stoppage. Since bus terminal lie at the centre of the city it creates congestion in the areas surrounding it and the main road passing in front of it. It has been noted that preferred mode of travel of the people of the area for distant stations is also the buses, accordingly, it attract large volume of the traffic in process. In addition, terminal caters to large number of daily commuters who come to work and business places and in process terminal also attracts large number of other vehicles. With large number of cycle rickshaws, auto rickshaws, taxies occupying the space around the bus terminal, movement of traffic in the area largely remains chaotic for most part of the day.

**Bus Routes and Intercity Bus Service**

5.30. As per data supplied by General Manager PRTC Abohar, total number of 565 buses operates from this bus stand daily. And 48 mini buses are also operating. The city is well connected by bus service with the important towns and cities of the state like

Ludhiana, Patiala, Chandigarh, Mansa, Malout, Dabwali, Kotkapura, Amritsar, Jalandhar, Hoshiarpur, Dabwali, Sirsa, Hissar, Ambala of Haryana and Hanumangarh, Ganganagar of Rajasthan. The maximum number of 201 trips is found on Abohar – Malout - Muktsar road. Table further indicates that there are 64 buses operating towards Muktsar via Panniwala road and 102 buses on Sri Ganganagar road. The route of Abohar- Hanumangarh road has a number of 62 buses and 30 buses on Dabwali and 106 on Fazilka - Firozpur road. These figures are outside directions from the city and the same number of buses stands for inward direction of the city thus the figure doubles to be 1130 buses and 96 minibuses which operate from the bus stand and Table below indicates that over the years, bus traffic has recorded an increase of 39 buses only.

As informed by General Manager, Punjab Roadways Transport Corporation, the average occupancy of buses is considered to be 50 Passengers per bus per trip which shows that 28250 passengers are picked up from Abohar bus stand daily by buses and minibuses. The detail of daily bus traffic route wise in Abohar is given in table below:

**Table 52: Daily Bus traffic route-wise in Abohar 2007-08**

| Name of Route | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| Abohar – Malout - Muktsar road (Faridkot-Moga-Ludhiana-Amritsar-Jallandhar-Chandigarh) | 191 | 196 | 196 | 201 | 201 |
| Abohar – Muktsar road via Panniwala | 61 | 62 | 63 | 64 | 64 |
| Abohar – Sri Ganganagar road | 99 | 99 | 102 | 102 | 102 |
| Abohar- Hanumangarh road | 57 | 58 | 60 | 60 | 62 |
| Abohar – Sittogunno- Dabwali road | 26 | 28 | 28 | 30 | 30 |
| Abohar –Fazilka- Ferozpur road | 92 | 98 | 98 | 106 | 106 |
| **Total** | **526** | **541** | **547** | **563** | **565** |

*Source: Punjab Roadway Transport Corporation, Abohar*

**Intra city bus service**

5.31. There is no public transport system in Abohar city. Due to the inefficient services and unorganized system of public transport, predominant modes used for intra city passenger travel are personalized vehicles, cycle rickshaws, auto-rickshaws etc. which exaggerate the problems like congestion, accidents, parking as well as pollution.

However some mini buses going to rural areas from bus stand pick up the passengers and drop at various stops in the city to facilitate the general public, hence functioning partly as public transport. Besides this, a large number of buses owned by private and government organizations such as colleges and various schools etc. have their own fleet of buses which carry a large number of passengers daily. Preferred mode of transport in the city has been witnessed as use of auto rickshaws which have been found to be highly convenient by the users because of affordable fare and convenience of getting on and getting down at any place in the city. It has been estimated that about 250 auto rickshaws and about 1200 cycle rickshaws,48 mini buses,150 tempos,90 peter rehras and 265 car jeeps are plying on the city roads. Looking at the existing pattern of transportation it has been observed that for the smaller distance and intra city travel, auto rickshaws & cycle rickshaws are the preferred mode of travel whereas for inter city and longer distance bus travel remains the popular mode of travel

**Parking demand and availability**

5.32. Parking remains another critical area for the Abohar city. Increasing number of vehicles, narrow road network, small old houses in the core areas, and absence of parking space within majority of built up areas, parking problems are on the rise in the city. Absence of public transport, higher use of personalized vehicles and rapid growth of intermediate public transport has led to the more and more vehicles using road for the parking. Lack of norms of parking provided in the commercial, institutional buildings have led to shift of vehicles from these buildings to the roads and further the parking requirements are based on the ground coverage rather than on the total floor area of commercial spaces.

**Table 53: Detail of on street parking on various Road, Abohar**

| Road Stretch | Scooter/MC | Cycles | Tractor Trolley | Cars/Jeeps | Tempo | Truck/bus | Mini truck |
|---|---|---|---|---|---|---|---|
| Old Fazilka Road | 51 | 36 | 8 | 13 | 6 | 32 | 48 |
| New grain Market | 52 | 25 | 5 | 13 | 9 | 8 | 52 |
| Malout Chowk to Sitto bye pass | 41 | 16 | 20 | 36 | 4 | 11 | 15 |
| Circular Road | 108 | 43 | - | 46 | - | - | - |
| Malout Chowk to Malout Byepass | 48 | 23 | - | 32 | 9 | 24 | - |
| Bus Stand to Azimgarh Road | 61 | 38 | - | 10 | - | - | - |

*Source: Field Survey, 2009*

In case of Abohar city the main Bazars and roads of the city i.e. Circular road, main commercial streets in old parts, Goushala road, Azimgarh road are totally devoid of parking spaces .No doubt some parking spaces do exist in vacant space in old mandi. At circular road due to lack of parking space, the vehicles remain parked right on the road thus creating traffic congestion and problems. Similarly due to business activity on main commercial streets called Bazaars Street no 6, 11, 12 and street on the north of the bus stand and on all the main regional roads, and lack of parking space along these streets/roads, vehicles remain parked on these roads thus making traffic problems serious.

**Truck Terminal**

5.33. In spite of development of small and medium industries in the city and wholesale activity consisting of grain market, vegetable markets, godowns, whole sale trade etc. still Abohar don't have any authorized truck terminal. Due to the absence of truck terminal, trucks are parked along the main roads like Abohar – Malout road , Abohar – Sittugunno (Dabwali) road, Abohar – Fazilka and and vacant spaces along the Abohar – Malout road etc. Besides giving shabby look to the area parking along the roads also cause traffic problems. Various work shops have been developed along Abohar – Malout road, Abohar – Sitto Gunno road and to some extend at Abohar – Fazilka road. These work shops attract vehicles which lead to encroach the road creating bottlenecks in free flow of traffic. The following table gives the detail of goods booking agencies running in the city:

**Table 54: Details of Goods Booking Agencies.**

| Sr. No. | Name of the Truck/Transport union | Location |
|---|---|---|
| 1 | Okora transport | Old mandi |
| 2 | Delhi -Punjab transport | Old mandi |
| 3 | Jaipur golden transport | Old mandi |
| 4 | Amritsar transport co. | Old mandi |
| 5 | Wadhawa goods carrier | Old mandi |
| 6 | Maruti Transport | Shankar market |
| 7 | Milap transport company | Sri Ganganagar road |
| 8 | Jagdamba transport co | Circular road |
| 9 | Chadha transport co | Circular road |
| 10 | Punjab state carrier | Fazilka road |
| 11 | Abohar goods Transport co. | Fazilka road |
| 12 | Anand transport co. | Fazilka road |
| 13 | Sudarshan roadways | Old mandi |
| 14 | Delhi rajasthan transport | Fazilka road |
| 15 | Koram goods carrier | Old mandi |

*Source: Truck union and Tempo union, Abohar*

The above stated booking agencies operate from various localities of the city. Due to this, trucks also remain parked near these booking agencies thus hindering the smooth flow of traffic. Also the four wheeler unions having no space of their vehicles but simply are operating from the office of small size room have no space for parking. In absence of this, vehicles remain parked on the roads, leading to traffic problems.

**Taxi Terminal**

5.34. Intermediate modes of transportation are significant in all the urban settlements for the movement of passengers. At present there is no authorized taxi stand in the town. But nearly five unauthorized taxi stands have been identified in the town, as in table below:

**Table 55 : Detail of Taxi Stand**

| Sr No | Name of Taxi stand | No of vehicles |
|---|---|---|
| 1 | Guru Nanak taxi stand (Old Mandi) | 140 ( car jeep) |
| 2 | Guru nanak taxi stand ( bus stand) | 70 |
| 3 | Behind State Bank of India (old mandi) | 50 |
| 4 | Tempo stand – railway station road | 150 |
| 5 | Old mandi bazaar no 4 peter rehra | 90 |

*Source: field survey, May 2009*

The areas that have been occupied by these taxi stands are actually the parking areas for the nearby buildings. Due to the encroachment of the parking area by the taxi stands the vehicles are parked along the roads resulting in the congestion of traffic on roads.

**Goods Vehicle Movement**

5.35. Roads are significant mode of transportation within the settlement and also in the regional context. Six main roads entering the town are Malout Road, Sitto Gunno Road, Hanumangargh Road, Sri Ganganagar road, Hindumalkot and Fazilka road. In addition to the flow of passengers on various vehicles there is a flow of inward & outward goods on these roads. The chief incoming goods in Abohar are cloth, grocery, milk & vegetables, electronics. Though all these goods used to come to Abohar even before but their quantity has greatly increased. It indicates that Abohar has gained much significance in this activity. Abohar itself is also the source of many outgoing goods. Some of the major commodities involved in outgoing goods are agriculture implements, refined oil, ghee vanaspati, wheat flour, cotton, cotton seeds, kinnow and maltas.etc. Trading of all these commodities is also done through these six main roads entering the

town which means that they need better maintenance. Brief account of booking agencies dealing with transportation of goods is given in truck terminal paragraph.

Abohar - Malout and Fazilka road is the backbone of the town carrying local & regional traffic. Development of wholesale grain market on Abohar – Malout – Fazilka road has further enhanced the traffic problem on this road. Moreover the development of wholesale kinnow market has further added to the problem of traffic congestion.

**Vehicular Growth**

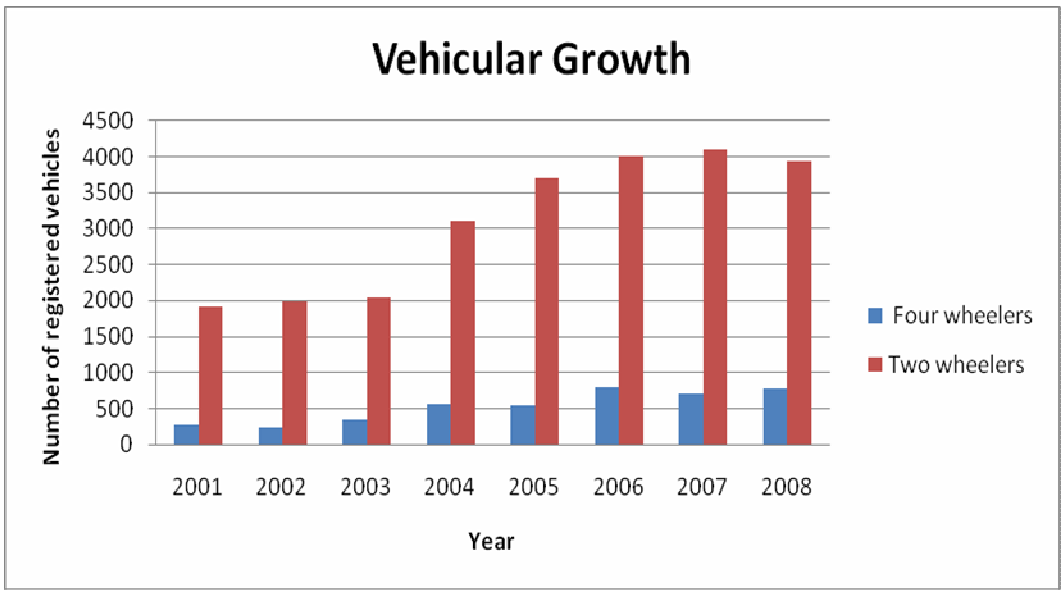
5.36. The number of registered vehicles has recorded more than 3 fold growth during the 2001-08 period. The number of vehicles increased from 2185 to 4810 during 2001 and 2006, thus registered a growth rate of 120%. But from 2006 to 2008 year, the numbers of vehicles have decreased in Abohar city. This is perhaps due to registration of vehicles in other offices of the district. Out of the total number of vehicles majority of vehicles are the two wheelers followed by the other vehicles including cars, jeeps and tractors. There is an increase in personalized vehicles ownership that leads to the growth of vehicles in the city. With the large induction of vehicles in the city, parking of such vehicles is becoming a major problem. With the smaller size of plot in the core areas, the entire parking spills over to the road side. With the economic conditions recording higher order and attitude changing very fast, the city is likely to witness further growth of vehicles. Therefore, strategic needs to be worked out to provide parking spaces and to improve the road network. Table below indicates the pattern of growth of registered vehicles category wise in the city on annual basis.

**Table 56: Registered vehicles category wise 2001-08**

| Year | Total registered vehicles | Two wheelers | Four wheelers | Growth rate % |
|---|---|---|---|---|
| 2001 | 2185 | 1912 | 273 | - |
| 2002 | 2220 | 1992 | 228 | 1.6 |
| 2003 | 2402 | 2050 | 352 | 8.2 |
| 2004 | 3667 | 3101 | 566 | 52.6 |
| 2005 | 4253 | 3707 | 546 | 15.9 |
| 2006 | 4810 | 4009 | 801 | 13.1 |
| 2007 | 4812 | 4099 | 713 | 0.04 |
| 2008 | 4714 | 3934 | 780 | -2.3 |

*Source: District Transport Office, Abohar*

**Figure 18 : Vehicular Growth, Abohar City 2001 - 2008**




**Road Accidents**

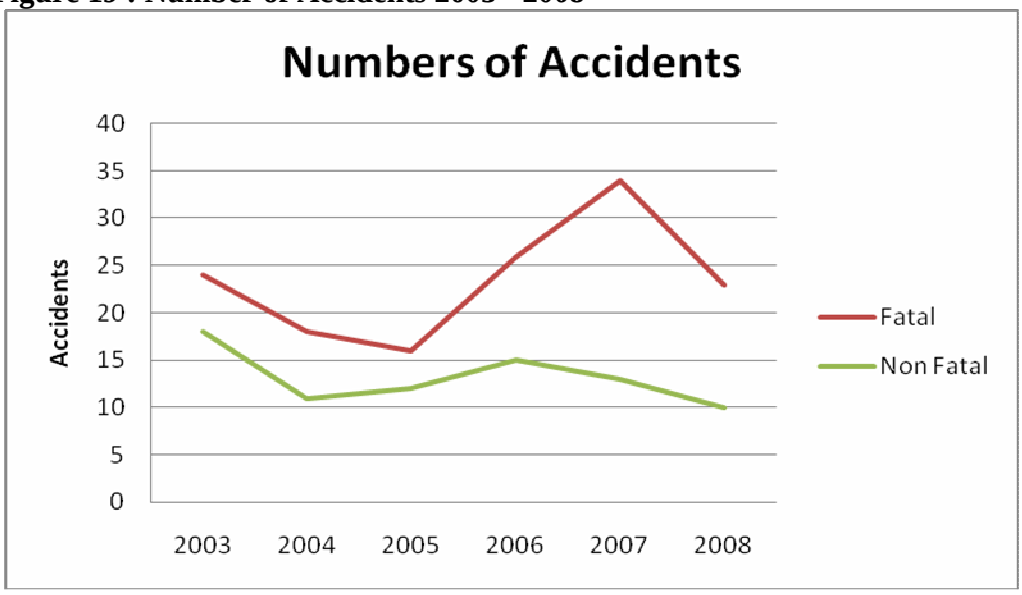
5.37. With a view to asses the safety of the road users in Abohar it is important to study the road accidents in the city. As per the figures made available by the Police deptt., the total no. of accidents increased from 28 in 2005 to 41 in 2006 and then increased to 47 in 2007 and decreased to 32 in 2008. So despite the rapid increase in vehicular population, the number of accidents have by and large, remained at the same level. There is a reduction in non-fatal accidents in the city. This may be due to large congestion and slowing the speed over the period of time. Because of increase in fatal accidents, there is a need of strict regulations and enforcement mechanism of these regulations. The table below shows the no. of accidents from 2003 to 2008.

**Table 57: Year wise Fatal and Non Fatal accidents in Abohar city 2003-08**

| Year | Total No. of accidents | Fatal | Non Fatal |
|---|---|---|---|
| 2003 | 42 | 24 | 18 |
| 2004 | 29 | 18 | 11 |
| 2005 | 28 | 16 | 12 |
| 2006 | 41 | 26 | 15 |
| 2007 | 47 | 34 | 13 |
| 2008 | 32 | 23 | 10 |

*Source: Senior Supdt. Police, Abohar*

**Figure 19 : Number of Accidents 2003 - 2008**




**Rail Based Transport**

5.38. In addition to road traffic, railway also has a reasonable volume of goods and passenger traffic into Abohar city. In all 9 pairs of passenger trains pass through the city on daily basis which caters to the traffic on Abohar – Sri Ganganagar, Abohar-Bathinda railway line. Maximum trains ply on Abohar- Bathinda route and accounts for nearby 2/3$^{rd}$ of the total trains. Besides long distance travelling, railway also caters to daily commuting passengers which mainly comprises of govt. employees, industrial and agricultural workers. Railway being the economical and efficient mode of transportation, largely catering to the intercity long distance traffic would continue to attract large volume of passenger traffic.

**Table 58: Detail of passenger trains passing through Abohar city**

| Name of route | Incoming | Outgoing |
|---|---|---|
| Abohar – Sri Ganganagar, | 3 | 3 |
| Abohar- Bathinda | 6 | 6 |

Source: Station Supdtt. Railway, Abohar

In addition to 9 pairs of Passenger trains large number of goods trains are also passing through the city for transportation of raw material and finished goods. Railway plays an important role in the movement of goods. The data as supplied by the railway department shows almost constant number of goods trains are running during past four years as shown in table below:

**Table 59: Number of goods trains passing through Abohar**

| Year | No. of trains |
|---|---|
| 04 | 15 |
| 05 | 18 |
| 06 | 19 |
| 07 | 17 |

*Source: Station Supdtt. Railway, Abohar*

## Social Infrastructure

### Educational Facilities

5.39. Educational facilities have a formative effect on the mind, character or physical ability of an individual. These facilities include the institutions by which society, through schools, colleges, universities and other institutions accumulates knowledge, values and skills. These facilities help in pacing the economic development and employment of the urban areas and its hinterland. Abohar is the educational hub in its Local Planning Area, which serves not only the Abohar city but also its surrounding villages. There are quite a large number of institutes in Abohar city and LPA, Abohar which cater to the educational requirement of Abohar city as well as its surrounding villages. Theses institutes include Degree Colleges, Homeopathic College, Nursing Colleges, Technical institutes affiliated to Punjab Technical University and other institutions. D.A.V College of Abohar is the most oldest and famous institute of the city situated at Hanumangarh Road. A B.Ed degree college also operates from its premises. Abohar city has four Nursing institutes namely Sarswati Nursing College, (Sitto Gunno Road - Dhabwali Road), Parmadical and Nursing college (Fazilka Road), Sachkhand Nursing School (Killanwali Road), Sardar Patel Institute of Nursing (Old Fazilka Road) & one Homoepathic college (D.H.M.S Hanumangarh Road) which are providing education in the field of medicine. In addition to these there are 4 degree colleges, two Computer centres (affiliated with Punjab Technical University) and One PolyTechcnical College and One Government I.T.I located in different parts of the city which are fulfilling both technical and non-technical educational requirements of Abohar city and LPA, Abohar. It has also one Management College, Malout road which imparts education in the field of management. These institutes are adequate as compared to the Norms & Standards prescribed in the UDPFI guidelines.

Besides the higher level of institutions which are catering to the needs in the fields of

higher education, Abohar city and its Local Planning Area has number of schools at primary & secondary level which imparts education at school level. Presently there are 91 primary and elementary schools and 29 high/higher secondary schools functioning in the rest of LPA, Abohar, whereas 93 primary and elementary and 22 High/ Higher/ Secondary schools are working in Abohar city.

5.40. Considering the existing population and norms & standards defined for educational institutions, quantitatively the number of institutions is adequate to cater the needs of the education of the city but qualitatively most of the institutions have been found to be deficient in the basic amenities and facilities. The condition of buildings of these institutions in a number of cases has been found to be poor. The classrooms are inadequate to provide appropriate space to the students and accordingly remain crowded. Number of classrooms is also on the lower side. Number of schools does not have adequate open spaces in the vicinity of such institutions. Space occupied by these institutions is also on the lower side when compared with the norms prescribed by various agencies. The situation remains critical particularly in case of educational institutions located within the old city area. Further numbers of institutions and academies have been found to be operating from residential houses and commercial buildings indicating shortage of space for educational institutions.

As far the slum localities are concerned, most of them don't have primary level schools. This leads to lower level of literacy in slum areas which further decrease the skills and productivity of slum dwellers which keeps them in vicious circle of poverty. This calls for providing appropriate numbers of schools in these areas so that slum dwellers have better quality of life and enjoy good health.

In view of this, it will be important that educational institutions operating in residential and commercial areas are shifted to appropriate sites earmarked for educational purposes. In addition educational institutions having less areas or absence of play areas etc. are provided with more land in order to meet the basic needs of the students. The new areas to be developed should have appropriate number of institutions imparting education at various levels.

The following table shows the availability of educational facilities in Abohar city and LPA, Abohar

**Table 60: Educational facilities in LPA, Abohar and Abohar city**

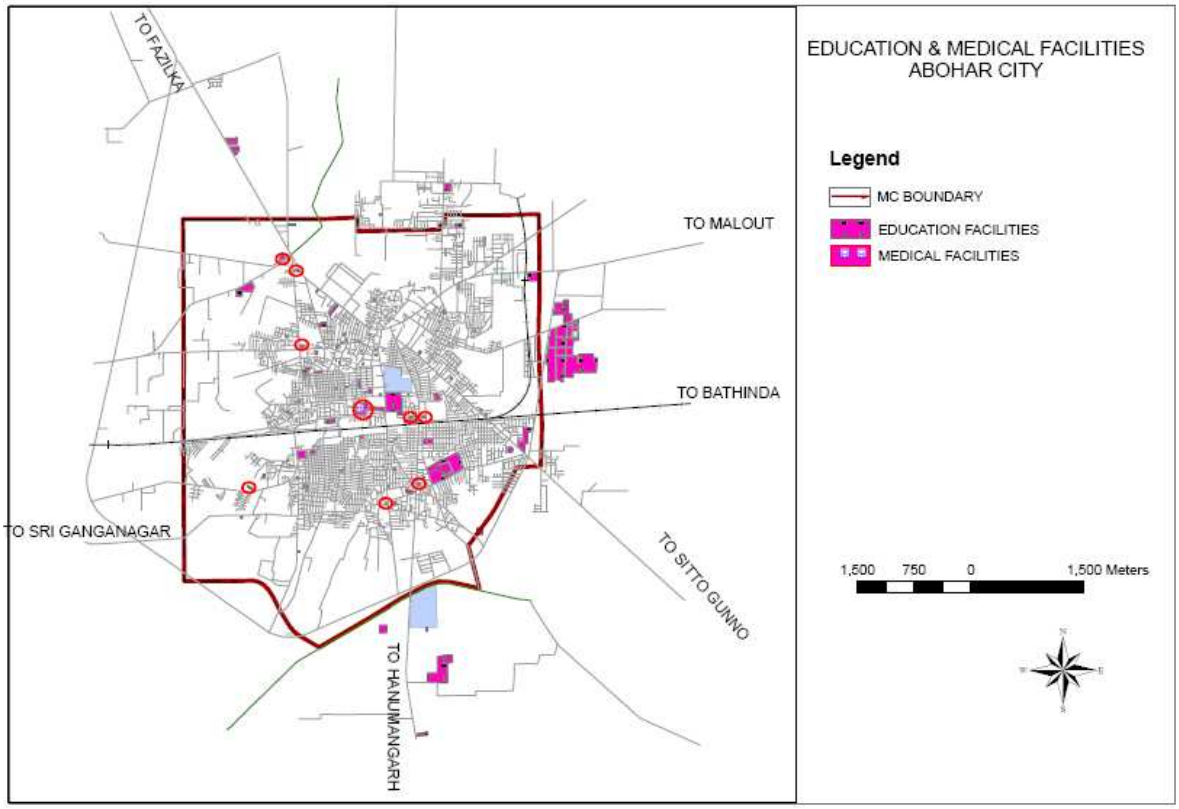
| Sr. No. | Name of Facility | Existing in Numbers | |
|---|---|---|---|
| | | Abohar city | Rest of LPA, Abohar |
| 1 | Primary & Elementary schools | 93 | 91 |
| 2 | High/Secondary Schools & Senior Secondary Schools | 22 | 29 |
| 3 | Colleges (Degree) | 4 | - |
| 4 | Technical Institutions | 2 | - |
| 5 | B. Ed Colleges | 3 | - |
| 6 | Homeopathy College | 1 | - |
| 7 | Nursing and Paramedical College | 4 | - |
| 8 | Management College | 1 | - |
| | **Total** | **130** | **120** |

*Source: DEO, Ferozepur and Census of India, Punjab 2001*

## Health Care

5.41. A health care provider is an organization that delivers proper care system in a systematic way to an individual in need of health care services. As per information available from census 2001 and field survey there are 147 units of medical facilities of different types providing health services to the residents of Abohar city, LPA as well as to the persons from outside the LPA. Out of these units there are 3 hospitals, 1 in Abohar city and two in different villages in LPA with a total bed capacity of 150. Total number of Sub Health Centers, Primary Health Centers and Dispensaries has been counted to be 43 in LPA, Abohar out of which 3 are working in Abohar City and the remaining 40 are working in villages falling in LPA, Abohar. Besides these, there are 50 small clinics and 20 Nursing homes providing medical facilities to the inhabitants of Abohar city. Also about 155 private doctors and RMPS are looking after the health of the citizens of Abohar city. In addition to this, there are 4 Ayurvedic dispensaries in the LPA, Abohar. In order to take care of animals and pets there are 16 Veterinary Hospitals and 9 Veterinary Dispensaries working in rest of LPA, Abohar.

**Figure 20 : Educational And medical facilities Abohar city**




The details of different medical facilities available in Abohar city and Local Planning Area, Abohar is given in table below:

**Table 61: Medical Facilities in LPA, Abohar**

| Sr. No. | Name of the Facility | Existing in Numbers | |
|---|---|---|---|
| | | Abohar City | Rest of LPA, Abohar |
| 1 | Sub Health Centre and Primary Health Centre /Dispensary | 3 | 40 |
| 2 | Hospitals | 1 (100) | 2 ( 25 Beds each) |
| 3 | Ayurvedic Dispensary | 2 | 2 |
| 4 | Ayurvedic Hospital | - | - |
| 5 | Homeopathic Dispensary | 1 | - |
| 6 | Homeopathic Hospital | - | - |
| 7 | Veterinary Dispensary | - | 9 |
| 8 | Veterinary Hospital | 1 | 16 |
| 9 | Nursing Homes | 20 | - |
| 10 | Small Clinics | 50 | - |
| | **Total** | **78** | **69** |

*Source: CMO, Ferozepur and Census of India, Punjab 2001*

The study of health care system also reveals that due to lower number of govt. health care units in the city, health care becomes unaffordable for majority of the poor due to high charges of private hospitals. The numbers of beds available at Abohar are inadequate to meet the current level needs. In order to provide appropriate level of health care in the city, it will be important that sufficient number of sites should be created at the time of the zoning stage. Moreover spatial distribution of health care units with a proper hierarchy would be critical to serve the entire population.

**Sports and Recreational Facilities**

5.42. Recreational facilities constitute an important element of physical and social development of an individual and for that reason, their provision and balanced spatial distribution at the local, sub-city and city level assumes importance. Accordingly, it would be important that city is divided into compact and sustainable communities and recreational facilities of appropriate order are made available to these communities residing therein. Recreational facilities have been found to exist in the shape of parks and open spaces, cinemas, stadiums, museums, sports related activities, clubs, library and amusement parks etc. Recreational facilities have also been divided into active and passive recreational facilities. Provision of both these facilities has to be made in order to cater to the essential needs of the individuals and communities.

**Parks and Open Spaces**

5.43. As per the field studies conducted by the District Town Planner, Ferozepur and the data collected from Municipal Council, Abohar, there is one city level park known as Nehru Park. Besides this, there are three neighborhood parks in the city one is Known as Patel Park located in old part of the city, 2$^{nd}$ one is known as Children Park (Hanumangarh Road) and 3$^{rd}$ one is known as Jai Parkash Park located in Nai Abadi. Except these few parks, there is no park of reasonably good size. In addition to above, 5 numbers of parks from 900 sq. yards to 1500 sq. yards have been earmarked in 4 Town Planning Schemes. Another 4 number of Parks with an area about 4500 sq. yards have been provided in two colonies approved under the "Provisions of Punjab Apartment and Property Regulation Act, 1995." The most parts of the city are virtually lacking the parks and open spaces. The number of parks, location and area under these parks is given in tables below:

**Table 62: Name, Location and Area under Parks, Abohar city**:

| Sr. No. | Name of Park | Location | Area in hectares |
|---|---|---|---|
| 1 | Nehru Park | Old Tehsil Road | 3.04 |
| 2 | Patel Park | Patel Nagri | 0.81 |
| 3 | Children Park | Near Old Water Works | 0.61 |
| 4 | Jai Parkash Park | Nai Abadi | 1.21 |
| | **Total area** | | **5.67** |

**Table 63: Details of other parks in Abohar city:**

| Sr. No. | Location | No. of Parks | Area in sq.mts |
|---|---|---|---|
| 1 | Sham Vihar | 1 | 811 |
| 2 | Utam Vihar | 3 | 5061 |
| 3 | Ganesh Vihar | 1 | 850 |
| 4 | Sharda Vihar | 2 | 1927 |
| 5 | Ganga Vihar | 2 | 1922 |
| 6 | Gitanjali Vihar | 2 | 1963 |
| | **Total Area** | **11** | **12534 = 1.25 hectares** |

*Sources: M.C Abohar and Field study*

All the above parks cover an area of about 6.92 hectares. Major parts of the Abohar city have been developed in unplanned way, so most of these do not have parks and open spaces. Similarly old parts of the city also lack parks and open spaces. So the existing land for parks and open spaces is inadequate and don't match the planning norms and standards. Thus there is need to create additional parks and properly locating these all over the city.

**Cinemas & Multiplexes**

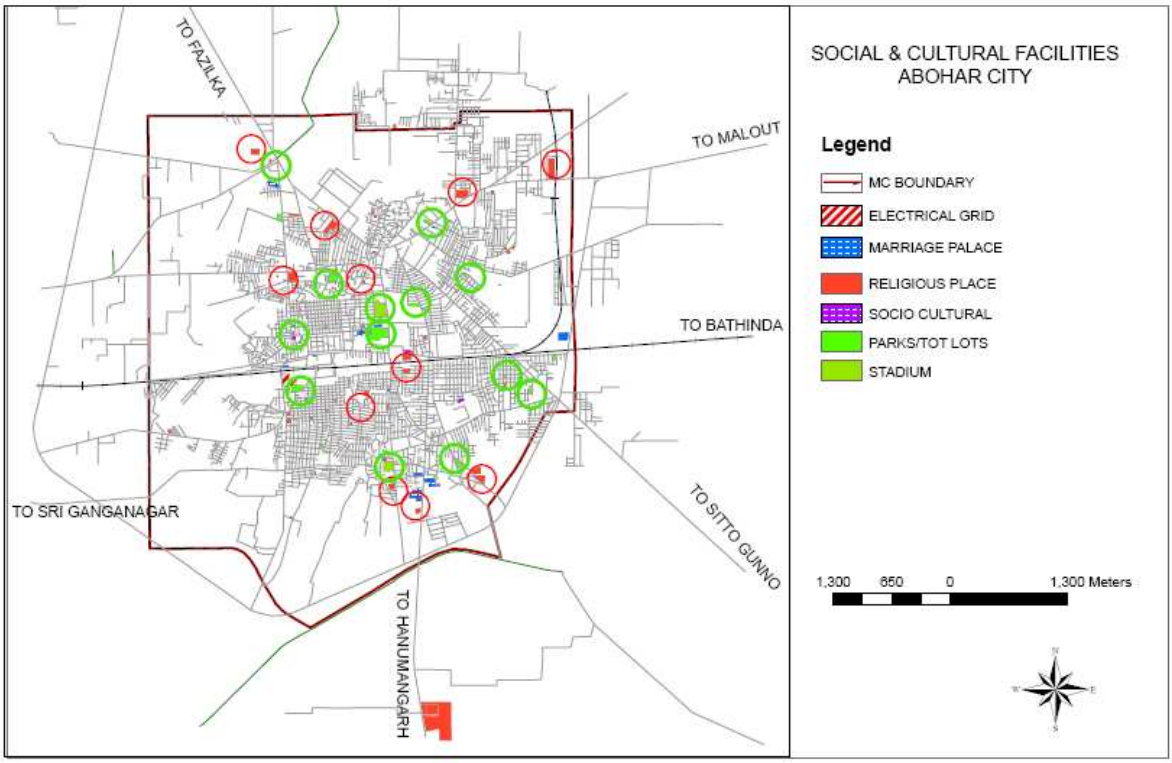
5.44. There are 3 cinemas in the city catering to the entertainment needs of the residents. These are located near Bus stand, on western Circular Road and old Fazilka Road. These are located on the periphery of old city. Besides this, no new cinema or multiplexes are coming up due to slow development of the city. Almost all the Cinemas have adequate space for parking but the location in older parts and on narrow streets/roads are causing traffic problems.

**Other Recreational facilities**

5.45. In addition to the above there are 4 libraries/reading rooms, one stadium and one indoor Badminton stadium in Abohar city which provide recreational facilities to the general public. However, any well organized cultural or drama club has not been

noticed in the city thus city is lacking the facility of good theater. There is no museum, no Art Gallery etc. in the city for recreational purposes.

**Figure 21 : Social and Cultural facilities**




**Sports**

5.46. There is only one public stadium known as 'Nehru Stadium' in Abohar city, which lies almost in the middle of the city. Besides this, there are two small stadiums one each in D.A.V college and Khalsa College in the city. There is one Badminton indoor stadium. The sports facilities available in city are not according to norms & standards. Although the sports facility exists but only one stadium is not adequate to serve the sports need of the city. In addition, the existing sports infrastructure should be upgraded and efficiently re-planned to improve the level of sports facilities. The available open spaces within the existing institutions should be considered as the best option to optimize the use of scarce open spaces available within the city. These facilities also should be provided as an integral part of new coming up institutions.

However, looking at the growing population and physical expansion of the city, it is important that adequate level of recreational facilities are to be created in the city and distributed to cover the entire population of the city. It will be essential to create a well defined hierarchy of these amenities which should be followed as an integral part of

planning and development process. Existing encroachments in the open spaces needs to be removed to make available these areas back for the use of community. Available open spaces need to be rationally planned and developed in order to make their optimum use. More libraries need to be added to the city for promoting the habit of reading among the residents and the childrens. Slum areas should be focus of provision of open spaces and other recreational activities in order to improve the quality of life of human population living therin. Promoting planned development would be critical to provide adequate sites for development of recreational facilities. Involvement of NGO's and Voluntary Organizations should be actively pursued for the development of recreational facilities in Abohar city and this would require a well defined road map to provide these facilities in various segments of the city.

**Police Station**

5.47. In order to maintain law and order in LPA, Abohar and Abohar City the elaborated arrangement of police administration has been made. There are two police stations and two police chowkies in Abohar city and LPA, Abohar. The detail of police stations and their location is given in table below:

**Table 64: Detail of police stations in LPA, Abohar**

| Sr. No | Name of Police Stations | Location | Status |
|---|---|---|---|
| 1 | City Police Station | Hanumangarh Road, Abohar | Police Station |
| 2 | Thana Sadar | Fazilka Road, Abohar | Police Station |

**Post and Telegraph**

5.48. Due to advancement in the technology and policy of liberalization adopted, post and telegraph has emerged as an important medium of communication. Despite rapid progress made in different modes of communications, post and telegraph still remains the most popular option of communication for vast majority of population. There are in all 7 post offices operating in the city out of which 6 are branch level and 1 head post office. Number of such offices are reducing due to availability of better option of communication wihich are not only faster but also cheaper. But still, these facilities serve considerable proportion of population both at the city and LPA level. The existing distribution of post offices also needs to be rationalized in order to serve the community in a better manner. Accordingly their provision should be made as per

defined norms in order to cater to the needs of vast majority of city population. Details of the post offices available within Abohar are provided in the table given below:

**Table 65: Post Offices in Abohar City**

| Sr. No. | Name of the Facility | Existing in Numbers |
|---|---|---|
| 1 | Head Post Office | 1 |
| 2 | Branch Post Office | 6 |

*Source: Head Office, Abohar*

With the introduction of the privatization in the telecommunication sector, large numbers of players have emerged in this area leading to faster growth and cut throat competition. Accordingly demand for providing telephone exchanges has gone up considerably. Since the private players have got major chunk of the segment, so most of the demand for space will be met in the private sector, but considering the existing pattern, govt. agencies still continue to be major player in the segment of telephone net work. With the increasing population and availability of enormous network, government sector would be required to expand its operational mechanism to meet the future demands in the urban sector. Accordingly number of telephone exchanges would require to be created within the city besides upgrading the facilities and infrastructure in the existing exchanges to cater the existing needs and the future requirements of population.

## 6. VISUALISING THE FUTURE

### Population Projections 2031

6.1. The population is the basic human factor for which planning is done. The requirements of different types of infrastructure for Abohar city and for surrounding villages of LPA, Abohar in 2031 would be based on the projected population for that year and also migration of population that seeks livelihood in the city. For the purpose of population projections, following two methods have been applied:

1. Ratio method or sharing pattern method
2. Extrapolation method: Extrapolation of the past trends and assuming that the trend will continue in future.

In addition to this, the government policies and the opportunities affecting the growth of Abohar city and rural areas of LPA, Abohar have also been kept in mind.

The following table gives the detail of decadal growth rate of population of Abohar city, population of rural areas and total population of LPA, Abohar:

**Table 66: Growth Rate of Population of Abohar city, Rural Area and LPA, Abohar – 1981, 1991, 2001**

| Year | Abohar City | | Rural | | Total | |
|---|---|---|---|---|---|---|
| | Population | Growth rate (in percent) | Population | Growth rate (in percent) | Population | Growth rate (in percent) |
| 1981 | 86334 | - | 121664 | - | 207998 | - |
| 1991 | 107163 | 24.13 | 153636 | 26.28 | 260799 | 25.39 |
| 2001 | 124339 | 16.03 | 184661 | 20.19 | 309000 | 18.48 |

*(Source: Census of India, Punjab, 1981, 1991, 2001)*

### Method 1: Ratio Method or Sharing Pattern Method

In order to achieve more realistic picture of projected population it has been decided to follow the share of urban and rural population of LPA, Abohar to the total urban and rural population of Punjab state. Report of the technical group on Population projections constituted by the National Commission on Population entitled "POPULATION PROJECTIONS FOR INDIA AND STATES 2026" has provided projection of Punjab urban, Punjab rural and their share in the total population of the state upto year 2026 as represented in table below:

**Table 67: Projected Population of Punjab Total, Punjab Urban and Punjab Rural 2001-2026**

| Year | 2001 | 2006 | 2011 | 2016 | 2021 | 2026 |
|---|---|---|---|---|---|---|
| Punjab Total | 24359 | 26059 | 27678 | 29112 | 30323 | 31345 |
| Punjab Urban | 8263 | 9439 | 10681 | 11940 | 13185 | 16456 |
| Percentage Urban | 33.92 | 36.22 | 38.59 | 41.01 | 43.48 | 52.50 |
| Growth rate of Punjab Urban in % | - | 14.23 | 13.16 | 11.79 | 10.43 | 24.81 |
| Punjab Rural | 16096 | 16620 | 16997 | 17172 | 17138 | 14889 |
| Percentage Rural | 66.08 | 63.78 | 61.41 | 58.99 | 56.52 | 47.50 |
| Growth rate of Punjab rural in % | - | 3.28 | 2.26 | 1.03 | -0.20 | -13.14 |

*(Population in Thousands)*

The percentage share of Abohar city and rural population of LPA, Abohar to total urban and rural population respectively of Punjab is calculated and is given in table below:

**Table 68: Percentage share of Abohar city and Rural Population of LPA, Abohar to Total Urban and Rural Population of Punjab 1981-2001**

| Percentage share of Abohar city to the Total Urban Population of Punjab | | | Percentage share of Rural Population of LPA, Abohar to Total Rural Population of Punjab | | |
|---|---|---|---|---|---|
| 1981 | 1991 | 2001 | 1981 | 1991 | 2001 |
| 1.86 | 1.79 | 1.50 | 1.01 | 1.08 | 1.15 |

*(Source: Census of India 1981, 1991, 2001)*

For projecting the urban population i.e. of Abohar city, the percentage of urban population (Abohar city) is derived from the total urban population of Punjab in year 2001 which comes out as 1.50%. This figure of 1.50% has been used constantly for projecting the urban population for Abohar city for the year 2006, 2011, 2016, 2021, and 2026. For calculating the projected population of 2031, the growth rate of previous five years is taken. Besides this, the floating population of about 5% has also been added to the projected population.

Similarly, for projecting the rural population of LPA, Abohar, the percentage share of LPA, Abohar's rural population has been derived from total rural population of Punjab in the year 2001 which comes out as 1.15% and the same has been used constantly for projecting rural population upto the year 2016. Thereafter growth rate of 2011 – 16 i.e. 1.03% has been taken for calculating the projected population of LPA, Abohar rural

for the year 2021, 2026 and 2031 because the growth rate of Punjab rural during the year 2016 - 2021 and 2021 – 2026 is negative. The Projected population of Abohar city and LPA, Abohar rural is given in the table below:

**Table 69: Projected Population and Growth Rate of Abohar City and Rural Areas and LPA, Abohar**

| Year | Abohar City | | | Rural Areas | | LPA, Abohar | |
|---|---|---|---|---|---|---|---|
| | Projected Population (in 000' persons) | Total Projected Population including 5% of total as floating Population (in 000' persons) | Growth Rate (in percent) | Projected Population (in 000' persons) | Growth rate (in percent) | Projected Population (in 000' persons) | Growth Rate (in percent) |
| 2006 | 142 | 149 | | 184 | | 333 | |
| 2011 | 160 | 168 | 12.75 | 195 | 5.98 | 363 | 9.01 |
| 2016 | 179 | 188 | 11.90 | 197 | 1.03 | 385 | 6.06 |
| 2021 | 198 | 208 | 10.64 | 199 | 1.02 | 407 | 5.71 |
| 2026 | 247 | 259 | 24.52 | 201 | 1.01 | 460 | 13.02 |
| 2031 | 308 | 323 | 24.71 | 203 | 1.00 | 526 | 14.35 |

**Population Projection by Extrapolation Method:**

6.2. Apart from above method, another method is extrapolation of past trends and assuming that the trend will continue in future.

The average growth rate of Abohar city for past three decades 1971-1981, 1981-1991 and 1991 – 2001 comes out 28.89% whereas for rural areas it is about 23.23% for past two decades 1981-1991 and 1991-2001. For calculating the projected population of Abohar city, the average growth rate of 30% is assumed for 2001 - 2011 and 2011-2021 years and and 35% for the year 2021 – 2031. For rural areas, taking into account the trend of growth of LPA, Abohar rural, overall growth pattern and Projection of rural areas of Punjab, the growth rate for the decade 2001 – 2011 is assumed as 23% and then further for the decade 2011 – 2021 it is assumed as 18% and then again taking into account decreasing trend for the decade 2021 – 2031 it is assumed as 13%. The above future rates of growth for Abohar city and rural areas of LPA, Abohar have been projected on certain assumptions given next to table below. The projected

population of Abohar city, rural areas of LPA, Abohar and LPA, Abohar up to year 2031 is given in table below:

**Table 70: Projected Population for Abohar City, Rural Areas of LPA, Abohar and LPA, Abohar**

| Year | Abohar City | | Rural Areas | | LPA, Abohar |
|---|---|---|---|---|---|
| | Population (in 000 persons) | Growth Rate in % age | Population (in 000 persons) | Growth rate in %age | |
| 2001 | 124 | | 185 | | 309 |
| 2011 | 161 | 30 | 228 | 23 | 389 |
| 2021 | 209 | 30 | 269 | 18 | 478 |
| 2031 | 284 | 35 | 304 | 13 | 586 |

*(Source: Census of India, Punjab 1971, 1981, 1991, 2001)*

**Assumptions for Population Projection**

1. Abohar city is the only class I city in the Distt. Ferozepur and in the surrounding region.
2. Abohar city has a rich agricultural hinterland and its present trend is towards horticulture which will further help in the growth of the city.
3. New Railway Link which will connect Abohar city to Ferozepur and Jalandhar via Fazilka will boost up the economy of the region.
4. The present industrial policy of the state does not mention any special incentive for Abohar city and also due to problem of water logging in this region there is declining trend of cotton based industry.
5. The growth rate for calculating population projection of the next decades (2011-2021 and 2021 – 2031) is taken as 30% and 35% as the upcoming new development of industrial and trade sector will boost up and with the coming up of new rail link to Ferozepur, Jalandhar via Fazilka will improve the regional linkages which inturn act as major infrastructure development for industrial sector.

The following table gives the comparative picture of projected population for Abohar city, rural areas and LPA, Abohar for 2031 by two methods:

**Table 71: Comparison of Projected Population of Abohar City, Rural Areas, LPA, Abohar by Two Methods**

| Method | Abohar City Projected Population (in 000 persons) | Rural Areas Projected Population (in 000 persons) | LPA, Abohar Projected Population (in 000 persons) |
|---|---|---|---|
| Method 1 | 323 | 203 | 526 |
| Method 2 | 282 | 304 | 586 |

Out of the above two methods, Population Projected by Method No.1 is adopted for the plan formulation, as there will be development of trade commerce, industrial sector in planned manner and in anticipation of new govt. policies likely to be framed by the Govt. to develop this region. Despite general trend of reduced population growth rate, Abohar city is likely to retain its share of urban population. The Projected Population of Abohar city therefore has been taken as 3,23,000 persons for the year 2031.

**Villages of Urban fringe Abohar**

It has been felt that some of the villages of LPA, Abohar which are situated near the area to the M.C. limits will adopt urban character in near future and will act as an urban fringe around the city. The following villages have been included in this fringe area as shown in table below:

**Table 72: Village and population included in urban fringe**

| Name of Village | Population |
|---|---|
| Abohar Rural | 13441 |
| Alamgarh | 5838 |
| Burj Mohar singh wala | 3778 |
| Total | 23057 |

*(Source: District Census Handbook 2001)*

Population projection of above villages have been done separately to assess the urban thrust and have been calculated as per the method adopted for calculating the

projections for villages falling in L.P.A Abohar. The projected population of these villages is given in table below:

**Table 73: Projected Population of Villages included in Urban Fringe**

| **Years** | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 |
|---|---|---|---|---|---|---|
| **Projected Population** | 23813 | 24351 | 24588 | 24825 | 24849 | 25086 |

The consolidated population of Abohar city and its fringe area are given in table below:

**Table 74: Projected Population of Abohar City and its Urban Fringe**

| **Years** | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 |
|---|---|---|---|---|---|---|
| **Projected Population in lacs** | 1.73 | 1.92 | 2.13 | 2.33 | 2.84 | 3.48 |

**Workforce Projections**

6.3. For calculating the workforce projection, LPA, Abohar is divided into two parts:

1. Abohar city
2. Villages in LPA, Abohar (Rest of LPA, Abohar)

Employment data category wise is available for Abohar city and Ferozepur district-total, Rural and Urban. To estimate the 2031 employment data category wise for rest of LPA, Abohar following assumption has been made as:

- Employment pattern of villages falling in LPA, Abohar will be similar to Ferozepur District Rural

Based on above assumption percentage of main workers to population and category wise employment to main workers for the year 2001 for the above said constituents are calculated as given in tables below:

**Table 75: Detail of Main Workers to Population and Category wise Employment to Main Workers 2001**

| Category | | Abohar (M.C.) 2001 | Main Workers as %age of Population and categories as %age of main workers | LPA, Abohar Rural | Main Workers as %ageof Population and categories as %age of main workers |
|---|---|---|---|---|---|
| Population | | 124339 | | 1,84,661 | |
| Main workers | | 36417 | 29.29 | 56,400 | 30.54 |
| A & B | Cultivators | 916 | 2.52 | 24,973 | 44.27 |
| | Agriculture Hunting Forestry | 1659 | 4.56 | 15,406 | 27.32 |
| | Fishing, Hunting and allied activities | 657 | 1.80 | 2,985 | 5.29 |
| C | Mining & Quarrying | 524 | 1.44 | 23 | 0.04 |
| D | Household Industry | 1434 | 3.94 | 1,140 | 2.02 |
| | Non HHI | 5127 | 14.08 | 2,665 | 4.73 |
| E | Electricity Gas & Water Supply | 324 | 0.89 | 220 | 0.39 |
| F | Construction | 2355 | 6.47 | 1,334 | 2.37 |
| G | Whole Sale & Retail Trade | 10609 | 29.13 | 2,529 | 4.48 |
| H | Hotels & Restaurants | 609 | 1.67 | 78 | 0.14 |
| I | Transport Stoarage & Communication | 2731 | 7.50 | 917 | 1.63 |
| J & K | Finance Real Estate and Business Services | 2213 | 6.08 | 566 | 1.00 |
| L to Q | Public Admin & Other Services | 7259 | 19.92 | 3,562 | 6.32 |

Similarly, based on above assumption percentage of main workers to population and category wise employment to main workers for the year 2031 forcast (which is based on %age of 2001) for the year 2031 for the above said constituents are calculated as given in tables below:

**Table 76: Projected Main workers and employment category wise constituent areas of LPA, Abohar 2031f**

| Data and Assumptions 2031 | | Abohar (M.C.) | LPA, Abohar Rural | Total |
|---|---|---|---|---|
| Population | | 323000 | 20300 | 343300 |
| Main workers | | 94602 | 62001 | 156603 |
| A & B | Cultivators | 2380 | 27453 | 29833 |
| | Agriculture Hunting Forestry | 4310 | 16936 | 21246 |
| | Fishing, Hunting and allied activities | 1707 | 3282 | 4989 |
| C | Mining & Quarrying | 1361 | 25 | 1386 |
| D | Household Industry | 3725 | 1254 | 4979 |
| | Non HHI | 13319 | 2930 | 16249 |
| E | Electricity Gas & Water Supply | 842 | 242 | 1084 |
| F | Construction | 6118 | 1467 | 7585 |
| G | Whole Sale & Retail Trade | 27559 | 2780 | 30339 |
| H | Hotels & Restaurants | 1582 | 86 | 1668 |
| I | Transport Storage & Communication | 7094 | 1008 | 8102 |
| J & K | Finance Real Estate and Business Services | 5749 | 622 | 6371 |
| L to Q | Public Admin & Other Services | 18856 | 3916 | 22773 |

**Infrastructure requirements**

**Water Requirements**

6.4. **General:** In true sense, the term water demand refers to the estimated quantity of water required for a city to fulfill water needs of the people residing in the city. The estimated water demand includes per capita consumption, system loses, industrial and commercial consumption, fire fighting demand etc. The water demand is broadly classified as domestic and non-domestic water demand.

**Rate of water supply:**

**Domestic water demand**

The Indian Codal Precisions recommended a minimum water supply of 135 lpcd for cities and the same has been adopted for Abohar. The residential area in Abohar is expected to have a much higher demand due to better life style adopted by the residents. However, considering the availability of water and the norms followed by the PWSSB, a rate of supply of 135 lpcd for domestic purpose will be adopted for requirement purpose.

**Industrial water demand**

Bulk supply to industrial establishment will be considered as per specific requirement of each industry. However, the figures of 135 lpcd include water requirements for commercial, institutional and minor industries.

**Unaccounted for water (UFW)**

As per Central Public Health and Environmental Engineering Organization (COPHEEO) manual, a maximum provision of 15% towards losses, unaccounted water shall be made.

**Estimation of Water Demand**

The net water demand comprises consumption of domestic and non domestic purposes. Non domestic uses include consumption by Institutions (Colleges, Schools and Hospitals), Commercial Establishments, Industries, Public Parks, Hotels, Tourist places etc. Gross water demand@135lpcd comprises net water demand and unaccounted water non-physical @ 15% losses. Estimated net water demand and Gross water demand is calculated for, Abohar city and urban fringe as given in table below:

**Table 77: Projected Net and Gross water Demand for Abohar City 2031**

| Year | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 |
|---|---|---|---|---|---|---|
| Projected Population in lakhs | 1.73 | 1.92 | 2.13 | 2.33 | 2.84 | 3.48 |
| Net water demand in million litre | 23.36 | 25.92 | 28.76 | 31.46 | 38.34 | 46.98 |
| Gross water demand in million litre | 26.86 | 29.80 | 33.07 | 36.18 | 44.09 | 54.03 |

The above water demand excludes the water demand of Large Scale industries. In future, these bulk consumers will continue to manage their own water supply system and they will not depend on Municipal Supply.

The water requirements for the rural settlements (village abadis) have not been projected since this aspect is independently handled by the department of Public Health.

**Sewerage requirements**

**Per capita waste water flow**

6.5. The rate of waste water flow depends upon the rate of water supply to community and the rate of ground water infiltration.

The entire spent water of community should normally contribute to the total flow in a sewer. However, the actual dry weather flow quantities usually are slightly less than the per capita water consumption. Since some water is lost in evaporation, seepage into ground, leakage etc. Generally, 80% of the water supply may be expected to reach the sewers unless there is data available to the contrary.

As per PWSSB's practical experience, wastewater flows has been estimated, considering that 85% of water supplied to the consumers will reach the sewers.

**Projected waste water flows**

Considering 85% of the water supplied to the consumers reaching the sewer the projected waste water flows has been calculated.

**Table 78: Projected Gross Waste Water Flows of Abohar city and urban fringe 2031**

| Year | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 |
|---|---|---|---|---|---|---|
| Net waste water flows in ML | 19.9 | 22.0 | 24.4 | 26.7 | 32.5 | 40.0 |
| Gross Waste Water Flows in ML | 22.9 | 25.3 | 28.1 | 30.8 | 37.5 | 46.0 |

The above waste water flow excludes the flows from Large Scale industries.

**Solid waste disposal**

6.6. The production of solid waste in an urban area is a function of the socio economic profile of the population and activities in the area. As per UDPFI guidelines, the generating of waste varies from about over a quarter of a kilogram in small towns to about half a kilogram per capita in large and metro cities. For Abohar city which is medium sized city the waste generation is assumed 3/8 of kilogram per capita and total waste generation will be 3/8 x 348000 = 130500kg = 130.5 metric tons per day.

**Power**

6.7. As per the standards given in UDPFI guidelines, the power consumption works out to be 2 KW per household at city level. Based on above the power consumption for Abohar city on five yearly basis is calculated in the table below:

**Table 79: Power Requirement of Abohar city and urban fringe 2006-2031**.

| **Year** | **2006** | **2011** | **2016** | **2021** | **2026** | **2031** |
|---|---|---|---|---|---|---|
| Household | 38444 | 42667 | 47333 | 51778 | 63111 | 77333 |
| Power Consumption in MW | 77 | 85 | 95 | 104 | 126 | 155 |

For the requirements of electric sub station, for the population of 15000 persons one electric sub station of 11KV is required as per the UDPFI guidelines. Thus for the projected population of 3,48,000. 4 electric sub stations of the capacity of 66 KV are required.

**Constitution of Think Tank**

6.8. As per the D O letter dated 2-12-2008 of Chief Secretary addressed to all the Deputy Commissioners of the Punjab state, circulated vide Chief Town Planner's Endst. No. 9526-45 CTP (Pb) /sp 135 dated 10-12-08 of Chief Town Planner Punjab, there is a proposal to set up a 'think tank' under the chairmanship of Deputy Commissiner concerned for each town/city to envisage a vision 2031 for that town/city.

Based on the instructions contained in the above referred letter, the 'think tank' for visualizing the future of the Abohar city (vision 2031) was constituted by Deputy Commissioner Firozpur on 23/01/2009.

**The Strengths ,Weaknesses, Opportunities, Threats ( SWOT) Analysis**

6.9. The present strengths, the opportunities likely to be presented by the city itself and the surrounding region, the present weaknesses of Abohar city and the threats emanating in the region have been outlined and have been discussed in the 'Think Tank' meetings. The following Strengths, Weaknesses, Opportunities and Threats for LPA, Abohar have been identified on the basis of study of the existing conditions prevailing in the Abohar city and LPA, Abohar:

**Strengths and Opportunities**

The strengths and opportunities are the factors which allow positive change or present development options or alternatives. The following are the strengths and opportunities in the context of vision and strategies for LPA, Abohar.

- Location: It occupies very important location in its own Malwa sub region.
- Accessibility: Well connected to surrounding towns/cities of the state and also of Rajasthan and the region through NH – 10 and NH – 15 and also through Sri Ganganagar-Bathinda-Delhi railway line.
- Regional level & Educational Infrastructure: Homeopathic degree colleges, Nursing colleges, Degree colleges, Polytechnical College sufficient to sustain and boost the economic development of the city.
- Industrial Sector: cotton and horticultural based industries.
- Employment Potential: good employment generation due to industries, trade and commerce.
- Regional level Commercial centre: Grain market and vegetable market, timber market.
- Health Infrastructure: Hospitals and Nursing homes to cater the medical needs of the region.
- Rich economic, social and cultural heritage of the city.
- A vast fertile hinterland producing various crops like cotton, wheat, rice and fruits like kinnows, malta and other fruits – all these make a potential source for the economic development of the city.
- A vast tract of land is available for the expansion of the town.
- Proposed railway link to Ferozepur and Jalandhar via Fazilka will further trigger the economic development of the city and the LPA, Abohar.
- Coming up of new hotels and marriage palaces will contribute to the economic well being of the city and the region.
- Demography: High percentage of literacy and young population in the age group of 15 – 39 years also offers a valuable skill manpower resource for the economic development of the region.

**Weaknesses and Threats:**

- Urban Growth and Land Management: About 60% urban development is unplanned and haphazard. There are 16 slums with 34% population. These represent health risks and are a hindrance to the planned development of city.
- Competing development in the vicinity: Abohar being only the urban settlement in the region has the highest potential to be commercial hub. But the neighboring city of Bathinda which is only at a distance of about 77 kms is also functioning as a counter magnet due to its being a commercial and higher educational and health care centre in the region.
- Concentration of commercial activities in congested areas of the old part of the city with narrow streets, no parking spaces etc. are creating major traffic and environmental problems.
- Only 85% of the city served by water supply and sewerage networks whereas remaining area/population is still devoid of theses basic facilities.
- Traffic hazards: Poor road geometry, narrow streets, encroachment of roads, lack of parking spaces, lack of truck stand, lack of ROB, lack of recreational facilities like open spaces, parks, stadiums renders the city unfit for comfortable living.
- Although a good number of educational institutions like colleges and schools are located in the city but inadequate classrooms, lack of playgrounds in these make these not ideal centres of education and not providing all round development of the students.
- Absence of sewerage treatment plant and storm water drainage and disposal of solid waste unscientifically – a potential threat to living environment.
- Closure of some existing cotton based industries, not a single industrial unit has came up in Industrial focal point and lack of new investment in industrial sector are posing threats for further development/growth of the city.
- Waterlogging problem in some parts of the city and region is another threat to building activity and agriculture sector.
- Underground water is not fit for human consumption, due to this city and the region is totally depends on canal water which sometimes becomes erratic.
- Lack of any large scale public or semipublic industrial unit which can attract allied small scale units.

**Vision- 2031**

6.10. Based on the outcome of discussions held in the meetings of 'Think Tank', the Vision Abohar 2031 is articulated as follows:

"**To transform Abohar into an industrial hub focussed on Agro and Horticulture based industries and a services centre of Malwa sub region by providing high quality physical and social infrastructure to all its citizens in an inclusive and environmentally sustainable manner."**

**Strategies to attain Vision 2031**

6.11. In order to achieve the objectives and goals enshrined in the vision statement, mission statements for various focused areas have been detailed below:

**Growth management**

- Promoting planned development through effective city planning.
- Rationalizing land use pattern for effective traffic management and provision of basic services and amenities.
- Making effective plan implementation and enforcement as integral part of city planning and development process.
- Conserving the cultural fabric.
- Making growth management process participatory.
- Review of master plan on regular basis.
- Improving system of approvals of building plan through use of IT and GIS.
- Making urban development self sustaining.

**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 parks and open spaces.
- Promoting better water management.
- Making city free from air, water and noise pollution.
- Discouraging the growth of slums and improving existing slums.

**Urban Services:**

**Water supply**

- To ensure safe, equitable, reliable, adequate and quality water supply
- To ensure 100% coverage of the city
- To promote rain water harvesting and recycling of water.

**Sewerage and Drainage**

- Total coverage of the city 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.

**Solid waste management**

- To improve the solid waste management in the city using best practices.
- To use PPP model for Solid waste management.
- To promote “Recycling” system of SWM.
- To make solid waste management people centric

**Storm water disposal**

- To introduce the storm water disposal system in the entire city
- To improve the capacity of the water bodies existing within the city
- To improve the natural water drainage channels by de silting and stopping the sewage water from entering the channels.

**Traffic and Transportation**

- To improve safety, mobility and efficiency of traffic within and out side the city
- To segregate and rationalize the inter and intra city traffic
- To improve road geometry and road capacity of existing network
- 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 provide adequate parking spaces to remove traffic bottlenecks.

- To plan and provide effective public transport services

**Social Infrastructure**

- To provide adequate sites based on norms, for creating / developing 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.

# 7. THE MASTER PLAN

**Components of the Master Plan**

7.1. 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 a network of major roads to have better 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 will include 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. Master Plan of LPA, Abohar comprises four main components as follows:

1. Existing Land use Plan
2. Proposed Land use Plan
3. Heritage and Conservation
4. Zoning Regulations

**Master Planning Objectives**

7.2. 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 and enforcing plan proposals. The objective of the Master Plan is to create enabling spatial Land Use Planning framework to achieve the Vision of LPA, Abohar. More specifically, the following are the objectives:

- To make Abohar city as the most vibrant economic centre to promote the balanced regional growth.
- To make land allocation in an environmentally friendly manner.
- To minimize haphazard, unplanned and sub-standard growth and development of the city and to achieve planned growth to create healthy environment.
- To effectively manage the traffic and transportation within the city through the mechanism of rationalizing the landuse pattern defined in the Master Plan.

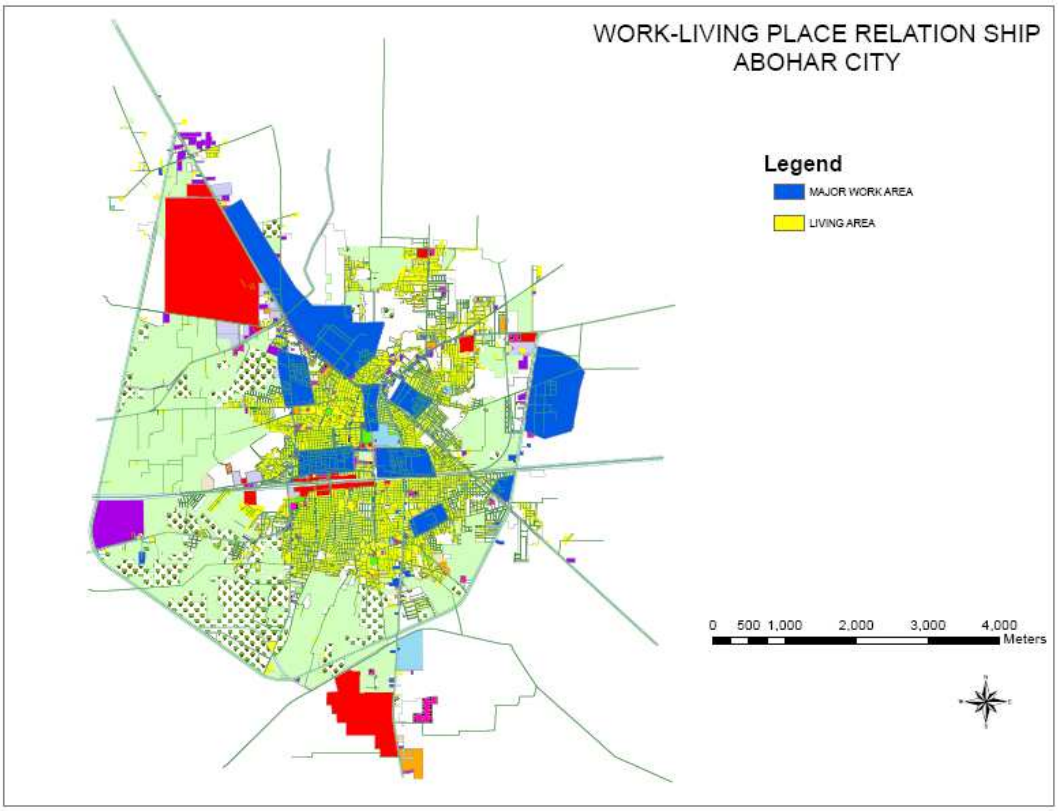
- To make land available for public purposes.
- To minimize travel within the city by creating self contained and self sufficient communities
- Adequate parking spaces to be created in the city as an integral part of commercial, industrial and institutional planning and development process.
- To strengthen the basic infrastructure favourable for Agro and horticulture based industries.
- To rationalize the distribution of physical and social infrastructure in order to have better reach and ensure appropriate quality of life to all the residents of the city.
- To identify man-made and natural heritage and to make heritage conservation as integral part of the city planning and development process.

**Evaluation of Existing Structure**

7.3. Understanding of existing city structure is prerequisite to visualize future structure for accommodating projected growth. The structure of the city can be appreciated by noting the relationship between living and work areas in terms of their connectivity with each other. A thematic map of LPA, Abohar at figure 22 shows such a structure as it exists at present. A careful study of this map brings out the following facts of the existing structure:

- The Central part of city where main bazar (CBD) known as Old Mandi, Sadar Bazar, comprising of Gali No. 6, 11, 12, 13, Vegetable market, Timber market, Circular Road, Nirankari Bhawan, Gaushala Bazar, Bus Stand Road are located, is the main work area of the city where most of the people are engaged in trade and commerce. The second work area is the Old Fazilka Road, Abohar – Sitto Gunno Road, Abohar – Hanumangarh Road, Abohar – Malout Road where the concentration of various activities like grain market, many industrial units and godowns, shops, work shops and tehsil complex are located. The other work areas that are mainly industrial units and godowns are located along Abohar – Fazilka Road on north west side of the city.

**Figure 22** ***Work & Living Areas – Abohar City***




- The main living areas are spread all over the city except for Grain market and the areas under godowns on the North –West side. Most of the old living areas are developed in a grid iron pattern but the other residential areas except very small planned pockets have developed in unplanned and haphazard manner. It becomes clear from the thematic map that the living areas falling on the southern side of the railway line have very poor connectivity with the work areas. The lacks of railway overbridges except the one under construction are the reasons for poor connectivity of these areas with work areas.
- There is no doubt about potentiality of Abohar because of railway line but at the same time city has been fragmented into two segments which have poor connectivity among each other and with work areas and living areas. This fragmentation is an unavoidable feature of the city.
- Except some educational institutions, hospital and two industrial units which have developed outside the bye pass (along Sittogunno road, Hanumangarh road and Sri

Ganganagar road), on the whole most of the city has developed as a compact city structure within the bye pass.

**Proposed city structure -2031.**

7.4. Cities grow organically depending upon the availability of land and potential for growth, sometimes leap frogging the natural as well as manmade barriers. On the basis of studies conducted by the office of District Town Planner Ferozepur, it is observed most of the development activities around Abohar are concentrated in the areas falling in the vicinity of existing developed areas of the city except some very small developments along the main roads. Keeping in view, the present growth trend and present as well as future size of the city, only the following one city structure has been envisaged for the development of future city of Abohar:

**COMPACT CORE WITH EXPANSION ON ALL SIDES IN THE VICINITY OF THE EXISTING DEVELOPED AREAS.**

7.5. The pattern of this city structure has the following merits and demerits:

**Merits**:

- Minimum invasion upon fertile and scarce land resource of the state.
- Compact and integrated development of the city, avoiding sprawl
- An effective, economic and efficient infrastructure development
- Close relationship of work-place and residential areas

**Demerits:**

- It may create a feeling of congestion and more load on existing infrastructures
- Improving core city infrastructure to cope with increased population may be difficult.

**Land use Requirements**

7.6. Before proceeding to prepare proposed land use plan and transport network the areas required for different purposes is to be worked out on the basis of norms and standards of various organizations.

**Land required for main land uses:**

7.7. The land requirements for different uses for the projected population of Abohar and the villages falling in fringe area of Abohar city have been worked out on the basis of norms given in UDPFI. The assessment of the urbanisable area is normally based on the proposed residential area which is considered to be 40% of

total proposed urbanisable area of cities like Abohar as per the norms given in UDPFI. Though the residential area requirements for urban areas of LPA, Abohar as per UDPFI guidelines works to 3434 hectares, but the proposed road network would open up many new areas for urban uses because of potentialities due to connectivities likely to come. Therefore keeping in view the proposed road network particularly the Ring Road, the new proposed areas are required to be put under different uses out of which major share is to be covered by residential use.

**Residential use:**

7.8. As per the data available from census of India as described in table in Housing Chapter, out of total house holds about 25% have one room, 31% have two rooms and 22% have three rooms per dwelling unit. For the purpose of working out the requirements for residential use, the average of these three categories (which comes to be two rooms accommodation) has been taken. For calculating the housing requirements, following assumptions have been kept in view:

**Table 80: Calculation of average plot area in Abohar City**

| Sr.No. | Description | Area in sq.m. |
|---|---|---|
| 1 | Carpet area of average dwelling unit. 1 Living Room,2 Bed Rooms, 1 Kitchen and other sub units etc. | 120 |
| 2 | Built up area inclusive of walls, verandahs etc | 144 |
| 3 | Plot area @ footprint to plot ratio of 0.65 | 222 |

**Table 81: Stage Wise Residential Area Requirements for Abohar City (2011-2031)**

| Year | Projected Population in 000' persons | No. of Families | Net Land Required in Hectares (Assumed 1 family per plot) | Gross Land Required in Hectares |
|---|---|---|---|---|
| 2006 | 173 | 38444 | 853 | 1706 |
| 2011 | 192 | 42667 | 947 | 1894 |
| 2016 | 213 | 47333 | 1050 | 2100 |
| 2021 | 233 | 51778 | 1149 | 2298 |
| 2026 | 284 | 63111 | 1401 | 2802 |
| 2031 | 348 | 77333 | 1717 | 3434 |

Note:

- The number of households in the above table has been calculated on the basis of the assumed family size of 4.5 members per family for the year of 2031. It is further assumed one family per plot.
  - This assumed family size is based on the following assumptions:
    1. The family size in India has already reduced from 5.5 in 1991 to 5 in 2001.
    2. With the spread of literacy and development of health infrastructure, it is expected to reduce further up to 4.5 in 2031.
    3. Increase in Urban population in the future will result in small family size.
- Keeping in view the present character of the city and also future, it is assumed that most of the residential development will be in the shape of plotted development.
- The gross residential area has been calculated by adding 50% more area to net residential area for provision of roads, parks, convenient shopping area, health, educational and utilities etc.
  - The proposed residential area includes the requirements of the all the sections of the society. It also includes the housing needs of the urban poor.

**Commercial Use**

7.9. As given on page 152 of UDPFI guidelines, the area requirements for commercial activities have been calculated. As per the classification of towns given at page 7 of UDFPI guidelines which indicate that towns having the population up to 5,00,000 persons qualifies in category of middle size town. The projected population of Abohar city including fringe area for 2031 has been worked out to be 3, 48,000 which is just close to the category of 5 lac size of city, thus it is quite convincing that Abohar city would remain a medium size town. Therefore, the norms of medium size town have been taken for calculating area requirements for commercial use as per table below:

**Table 82: Area of Commercial Centers**

| Name of Centre | Area in sq. mts per 1000 persons | Number of shops |
|---|---|---|
| Cluster Centre | 220 | 1 for 110 persons |
| Sector Centre | 300 | 1 for 200 persons |
| Community Centre | 500 | 1 for 200 persons |
| District Centre | 880 | 1 for 300 persons |
| Total | 1900 | |

As per the figures given in the table above, 1900 sq mts. area for different categories of commercial areas has been proposed for 1000 persons thus 1.9 sq mts (say 2 Sq. Mts.) area is required per person. Therefore keeping in view the projected population of 3,48,000 persons for Abohar city and the urban fringe, the total area required for commercial activities of the city has been worked out as below:

**Table 83: Commercial area requirements of Abohar city**

| Sr. No | Name of Town | Projected Population | Commercial Area Required@ 2 sq. mtrs. per person |
|---|---|---|---|
| 1 | Abohar city | 3,48,000 | 69.60 say 70 hectares |

**Industrial**

7.10. Total projected industrial workers as per Table No. 76 for Abohar city is 13,319 say 13,400 for the year 2031, whereas the number of existing workers are 5127 say 5130.

- Existing (2001) = 5127 say 5130
- Projected (2031) = 13319 say 13320
- Additional Workforce = 8190
- Proposed Industrial Density = 100 persons/hectares
- Additional Area Required = 81.90 hect.say 82 hect.

For calculating the industrial use requirements the proposed land use structure standards cited in UDPFI guidelines on page no 143 are also considered, given below.

- Total existing industrial area of Abohar city. (Including Industrial Focal Point) 73.25 Hectare
- Industrial workers (2001) 5130
- Industrial workers density 70 persons/hectare

- Existing industrial use as a percentage of city area. (Includes Industrial Focal Point) 3.22%
- Norms and standards for percentage of Industrial use (as per UDPFI standards) 10-12%

As the existing industrial use is 3.22% of the total city area but the industrial workers density is 70 persons/ hectare which is low as compared to norms and standards due to the existence of large size industries of Cotton seed, Oil mills. Thus, workers projected on the basis of the figures of workers of 2001 census may not be sufficient. In order to accommodate such uncertainty and taking into account the vision of making Abohar a hub for Agro and Horticulture based industries for Malwa sub region, more areas are required for industrial use. As per above narration, 10 - 12% of the total urbanisable area is assumed to be required for industrial use in LPA, Abohar which needs bigger chunks of industrial areas at potential sites. Irrespective of above facts, the efforts have been made to work out the actual requirements of industrial area for Abohar city as follows:

**Table 84: Projected Urbanisable Area Requirements for Abohar City - 2031**

| Sr .No | City | Year | Gross Residential Land required | Urbanisable area required* | Industrial use requirement ** |
|---|---|---|---|---|---|
| 1 | Abohar | 2011 | 1894 | 4735 | 568 |
| | | 2016 | 2100 | 5250 | 630 |
| | | 2021 | 2298 | 5745 | 689 |
| | | 2026 | 2802 | 7005 | 841 |
| | | 2031 | 3434 | 8585 | 1030 |

**Note**:

*For calculating the Urbanisable area the residential use is assumed as 40% of the total urbanisable area.
**Assumed % age of industrial use is 12% for Abohar city and urbanisable area as per UDPFI standards.

**Recreational facilities**

7.11. As per PAPR Act 1995, about 45 % of the area of a colony is to be left for non saleable purposes out of which 10 % is to be left for public buildings. It has been found that normally 25-30% area is under circulation i.e. roads, pavements etc. Assuming the figure at 27% for roads, the remaining 8% has been considered for recreational, sports etc. By this formula if we have one hectare area of a colony then

800 sq.mt. are supposed to be provided for this category. Keeping in view the average size of plots as 222 sq.mts., about 25 plots can be adjusted in one hectare area (assuming 55% saleable area), which would accommodate about 25 families taking average size of one family as 4.5 members a total of 112.5 say 115 persons are estimated to live in one hectare. Therefore, by this calculation about 7 sq.mt., recreational area works as share of each person. However at city level approx. 2 sq.mt. per capita area is to be added for city level open spaces. Thus total 9 sq.mt. per capita area is required at city level for recreational facilities.

Total area required at city level = 5.86 lacs x 9 sq. mts.
= 527.4 hec
= 527 hec say

**Road Network and Termini Required**

**Network Required at City level**

7.12. As per the traffic volume survey conducted by D.T.P office Ferozepur, most of the city roads are having the traffic volume less than the carrying capacity of these roads. In absence of detailed traffic studies regarding growth of traffic during the past years, the IRC standards for calculating the vehicular traffic have been taken into account. According to which if reliable data is not available 7.5% growth per annum should be taken for national highways. In case of urban roads, growth rate of 7.5% is assumed whereas in case of other rural roads (out of urban area) rate of 6% per annum has been assumed. Since there are many factors which govern the growth of traffic volume thus the long term projections of traffic volume may not be factual, but taking into account above growth rate for projections, it is estimated that major roads of the city will be overloaded. The detailed traffic studies are required separately for mass transit system and road improvement plan. However on the basis of broad studies conducted, and for long term planning there is an urgent need for outer Ring Road along with existing bye pass connecting various radial roads for better efficient and free flow of traffic at the regional level. Besides this, the roads of lower hierarchy are required to be proposed for inter connection of ring road and existing main city roads.

**Road Network at Local Planning Area, Abohar Level:**

7.13. Besides the road network required at city level and the existing bye pass, there would be an ardent necessity to connect the regional roads with each other so that the

regional traffic may be diverted out of city. In addition to the city road network and the existing bye pass, an additional outa ring road is required at LPA, Abohar level which may link the regional roads such as Malout road, Sittogunno road, Hanumangarh road, Sri Ganganagar road, Hindumalkot road and Fazilka road.

In addition to the outer ring road, many other lower level hierarchy roads are required for better connectivity between proposed ring road, the existing bye pass and regional roads. Besides interlinking ring and radial roads, these lower hierarchy links provide access to interior areas and increase the scope of potentialities of these leftout pockets.

**Terminals Required:**

7.14. For the city like Abohar for which 3.48 lacs population has been projected for the year 2031, only one Bus Stand and one Truck Terminus of adequate size would be sufficient as per the UDPFI standards. Since no space norms have been given in UDPFI guide lines therefore area requirement have not been worked out. However an area of 15-20 hectares for Bus Stand and 25-35 hectares for Truck Terminus would be sufficient to accommodate all the components required as per the UDPFI standards.

**Land required for social infrastructure:-**

7.15. The land requirement of social infrastructure for Health, Police, Fire, Education and Recreational facilities for Abohar city and urban fringe is calculated as below:

**Table 85: Land requirement for Educational facilities (for 100000 persons)**

| | Norms (Persons) | No. of units | Area/unit (in hects.) | Total area (in hects.) |
|---|---|---|---|---|
| College | 100000 | 1 | 4 | 4 |
| Secondary School | 7500 | 13 | 1.6 | 21 |
| Primary School | 5000 | 20 | 0.4 | 8 |
| Pre-primary school | 2500 | 40 | 0.08 | 3.2 |
| **Total** | | | | **37** |

Area per person required in sq.mts. =3.7

Total area required 3.7 x 3.48 lacs = 128 ha.

**Table 86: Land requirement for Medical facilities (for 250,000 persons)**

| | Norms | No. of units | Area/unit (in hects.) | Total area (in hects.) |
|---|---|---|---|---|
| Hospital | 250000 | 1 | 4 | 4 |
| Intermediate (Category-A) | 100000 | 2.50 | 2.7 | 6.75 |
| Intermediate (Category-B) | 100000 | 2.50 | 0.6 | 1.50 |
| Dispensary | 15000 | 17 | 0.1 | 1.7 |
| Total | | | | 13.92 |

Area per person required in sq.mt. 0.56 Or Say 0.6

Total area required under medical facilities 0.6 x 3.48 Lacs = 20.88 say 21 ha.

**Table 87: Land requirement for Police. (For 100,000 persons*)***

| | Norms | No. of units | Area/unit (in hects.) | Total area (in hects.) |
|---|---|---|---|---|
| Police station | 100000 | 1 | 1.5 | 1.5 |
| Police Post | 50000 | 2.00 | 0.16 | 0.32 |
| | | | | |
| Total | | | | 1.82 (or 18200 sq. mtrs.) |

Area per person required in sq.mt. 0.18 Or Say 0.2

Total area required for police = 3.48 lacs x 0.2 = 6.9 say 7 ha

**Table 88: Land requirement for Fire Station 2 Lakh**

| | Norms | No. of units | Area/unit (in hects.) | Total area (in hects.) |
|---|---|---|---|---|
| Fire/Sub Fire station | 200000 | 1 | 1 | 1 |

Area per person required = 0.5 sq.mt

Total area required = 3.48 lacs x 0.5 = 17.4 say 17 hectares.

**Table 89: Land requirements for main public amenities**

| Sr. No. | Name of facility/Amenities | Land required (in hectare) |
|---|---|---|
| 1 | Educational | 128 |
| 2. | Medical & Health care | 21 |
| 3. | Police & Security(including Police line and Jail) | 7 |
| 4. | Fire Prevention | 17 |
| | Total | 173 |

## Space Norms and Standards

### Social Infrastructure and Public Utilities:

7.16. Basically UDPFI norms and standards have been followed for calculating the area requirements for different social infrastructure and public utilities however the Punjab State Govt. policies issued from time to time have also been adopted wherever these are applicable. There are three different sets of norms and standards taken into consideration, the comparative chart of these is given in **t**able below:

**Table 90: Comparative Statement of Norms and Standards for Social Infrastructure**

| Aspect | As per zoning regulations and sub-division clauses for Master Plan in Punjab/Govt. Policies | UDPFI Guidelines | Delhi Master Plan |
|---|---|---|---|
| Primary school | **Population:3,000-4,000**<br>No. of students: 600<br>Area<br>a) Old city (over 650 ppha) : 0.2 ha<br>b) Outer areas (less than 650ppha):0.5 ha | **Population: 5,000**<br>Number of students :500<br>Area per school:0.4 ha<br>Covered area:0.20 ha<br>Minimum play field area: 0.20 ha | **Population: 10,000**<br>Area:2000-4000 sq m |
| Senior Secondary School | **Population:12,000-20,000**<br>No.of students: 1000<br>Area<br>a) Old city (over 650 ppha) : 1.00 ha<br>b) Outer areas (less than 650 ppha):2.5 ha | **Population: 7,500**<br>Number of students :1000<br>Area per school:1.60 ha<br>Covered area:0.60 ha<br>Minimum play field area: 1.00 ha | **Population: 10,000**<br>Area:6000-8000 sq m. |
| College | **Population:30,000**<br>No.of students: 800<br>Area<br>a) Old city (over 650 ppha) : 2.50 ha<br>b) Outer areas (less than 650 ppha):5.00 ha | **Population: 1,25,000**<br>Number of students :1000-1500<br>Area per college:4.00 ha<br>Covered area:1.80 ha<br>Play field area:1.80ha<br>Residential/hostel area: 0.40 ha | **Population: 5,00,000**<br>Area: As per UGC Norms |
| University | N.A. | New University Area:60.00ha | sites in urban extension to be provided at city level<br>Area: up to 20.00 ha |
| Technical Education Centre | N.A. | Population :10,00,00<br>Area per centre 4.00 ha<br>Area per technical centre:2.10 ha<br>Area per ITI:1.40 ha<br>Area per coaching centre:0.30 ha | Population :5,00,000<br>Area : 4000 sq m |
| New Engineering College | Number of students :300<br>Area<br>a) Old city:(over 650 ppha): 1.00 ha<br>b) Outer areas (less than 650ppha):2.50 ha | 2 Number to be provided in urban extension<br>Number of students:1500-1700<br>Area per college:60.00ha | Population :5,00,000<br>Area: As per AICTE norms |
| Medical/Pharmacy College | Area :5 acres(Rural)<br>Area: 2.5 acres (Distt. Headquarter Corporation Limit) | 2 site of 15 ha each in urban extension including space for specialized general hospital. | Population: 10,00,00<br>Area :As per Medical Council of India /Regulatory body |
| Dispensary | Population :5,000<br>Area: 0.1ha | Population:15,000<br>Area :0.08 to 0.12 ha | Population:10,000<br>Area :800-2000 sq m |
| Primary Health Center | | | |
| Nursing Home | N.A. | Population :45,000-1,00,000<br>Capacity:25 to 30 beds<br>Area:0.20 to 0.30 ha | Population :50,000<br>Area:1000-2000sq m |
| General Hospital | Population :50,000<br>Area:2.5 ha | Population:2,50,000<br>Capacity:500 beds<br>Area for hospital :400 ha | Population:5,00,000<br>Capacity :501 beds and above |

| Aspect | As per zoning regulations and sub-division clauses for Master Plan in Punjab/Govt. Policies | UDPFI Guidelines | Delhi Master Plan |
|---|---|---|---|
| | | Area for resi accommodation :2.00ha Total area :6.00ha | Area :25,000-45,000sq m. |
| Veterinary Hospital | N.A. | N.A. | Population :5,00,000<br>Area:2,000sq m |
| Community Hall and Library | N.A. | Population :15,000<br>Area: 2,000 sq m | N.A. |
| Club | N.A. | Population :1,00,000<br>Area :10,000sq m. | Population:5,00,000<br>Area:5000sq m |
| Amusement park | N.A. | N.A. | Up to 10 ha |
| City level p ark | N.A. | N.A. | Population :5,00,000<br>Area 10acres |
| Neighborhood level park | N.A. | N.A. | Population 10,000<br>Area:10,000 sq m |
| Golf Course | N.A. | N.A. | Population :10,00,000<br>Area :10-30 ha |
| Sports Centre/Stadium | N.A. | N.A. | Population :5,00,000<br>Area :3-10 ha |
| Post and Telegraph Office | Population :10,000<br>Area :0.1 ha | N.A. | Population :10,00,000<br>Area :2,500 sq m |
| Religious Building | Population :15,000<br>Area :0.1 ha | N.A. | Population :10,00,000<br>Area :40,000 sq m |
| Old Age Home | N.A. | N.A. | Population :5,00,000<br>Area :1,000 sq m |
| Orphanage/ Children Centre | N.A. | N.A. | Population :5,00,000<br>Area :1,000 sq m |
| Multipurpose Ground (Exhibition cum fair Ground) | N.A. | N.A. | Population :1,00,000<br>Area :20,000 sq m |
| Burial/ Cremation Centre | N.A. | N.A. | Population :10,00,000<br>Area :10,000 sq m |
| Electric sub-station | Population :50,000<br>Area : 0.4 ha | N.A. | Population :5,00,000<br>Area :29,600 sq m |
| Police Post | N.A. | Population :40,000-50,000<br>Area :0.16 ha (area inclusive of essential residential accommodation) | Population :1,00,000<br>Area :1000 sq m |
| Police station/police Division | Population:50,000<br>Area:0.8 ha | Population:90,000<br>Area:15 ha<br>Area inclusive of essential residential accommodation 0.05 ha additional to be provided for civil Defence and home guards | Population :2,50,000<br>Area :10,000 sq m |
| Police Line | N.A. | Population:20,00,000<br>Area:4.00 to 6.00 ha | 1 for each administrative zone to be provided at city level<br>Area:2.0 ha |
| District jail | N.A. | Population :10,00,000<br>Area :10.00 ha | Population :25,00,000<br>Area :5.0 ha |
| Fire Station | N.A. | 1 fire or sub-station within 1 to 3 km to be provided for 2 lakh population<br>Area for fire station with essential residential accommodation :1.00 ha<br>Area for sub-fire station with essential residential accommodation :0.60 ha | 3 Fire Station for 5,00,000 population within radius of 5 to 7 km<br>Area: 10,000 sq m |

From the comparative table of norms and space standards as given above, the norms suggested by UDPFI Guidelines have been found more suitable for the preparation of Master Plan Abohar because of the following reasons:

- The norms and standards suggested by UDPFI Guidelines are more detailed and cover almost each physical and social infrastructure as compared to Present Master Plan Zoning Regulation /Govt. policies
- Norms and standards suggested by UDPFI Guidelines are more realistic and suit to local conditions such as prevailing development controls, availability of land, land prices etc.
- UDPFI Guidelines suggest different norms and standards for different category of towns like small and medium towns, large cities and hill areas which is not available in other guidelines.
- The Norms and standards of Present Master Plan Zoning regulation are not detailed and do not cover the whole of activities, hence are not being adopted.
- Norms and standards suggested by Delhi Master Plan have not been found suitable for LPA, Abohar because these norms are of higher level, formed especially for Mega city like Delhi, where development controls are very tight, population is more than 1.25 crores and the land is scarce and costly.

**Note:**

The norms and space standards as suggested by Punjab Govt. policies from time to time shall have the overriding effect on the norms and standards of UDPFI Guidelines adopted for the preparation of Master Plan, Abohar.

For the aspects which are not covered under UDPFI Guidelines, the norms and standards as suggested by Master Plan zoning Regulations shall be adopted and where these zoning regulations are also silent, only in that case, the norms and standards suggested by Delhi Master Plan shall be followed.

**Traffic and Transportation**

7.17. The norms and standards for Traffic and transportation as given in UDPFI Guidelines were discussed with higher authorities, following roads hierarchy has been adopted;

**Road hierarchy**

- **R-1** **200 feet wide**
- **R-2** **150 feet wide**
- **R-3** **100 feet wide**
- **R-4** **80 feet wide**

**Footpath**

The width of footpaths is listed as below;

Minimum width 1.5 m

Adjoining shopping frontage At least 3.5 m

Longer shopping Frontage Minimum 4.5 m

Width should be increased by 1m in business/ shopping areas

**Cycle Track**

The minimum width of cycle tracks should be 2m. Each additional lane, where required, should be one meter. The capacity of cycle tracks recommended is as below:

**Table 91: Norms and Standards of cycle tracks**

| **Width of Cycle Tracks** | **Width in meters** | **Capacity (Cycle /hr)** | |
|---|---|---|---|
| | | **One way** | **Two way** |
| Two lanes | 3 | 250-600 | 50-250 |
| Three lanes | 4 | >600 | 250-600 |
| Four lanes | 5 | | >600 |

**Passenger Car Units (PCU)**

**Table 92: Recommended PCU factors for various type of vehicles on urban roads**

| **Sr. No.** | **Vehicles** | **Equivalent PCU Factors Percentage composition of vehicle type in stream of traffic** | |
|---|---|---|---|
| | | 5% | 10% |
| Fast Vehicle | | | |
| 1 | Two wheeler motor cycle or scooter | 0.5 | 0.75 |
| 2 | Passenger Car, Pick up van | 1.0 | 1.0 |
| 3 | Auto rickshaw | 1.2 | 2.0 |
| 4 | Light commercial vehicle | 1.4 | 2.0 |
| 5 | Truck or bus | 2.2 | 3.7 |
| 6 | Agricultural Tractor Trailer | 4.0 | 5.0 |
| Slow Vehicle | | | |
| 7 | Cycle | 0.4 | 0.5 |
| 8 | Cycle Rickshaw | 1.5 | 2.0 |
| 9 | Tonga(House Drawn Vehicle | 1.5 | 2.0 |
| 10 | Hand – Craft | 2.0 | 3.0 |

*Source: IRC Code: 106-1990*

**Design Service Volume**

The design service volumes for different categories of urban roads are shown in the table given below;

Recommended Design Service Volume (PCU's per hour)

**Table 93: Design Service Volume for different road categories:**

| Sr. No. | Type of Carriageway | Total Design Service Volume for different road categories | | |
|---|---|---|---|---|
| | | Arterial | Sub-arterial | Collector |
| 1 | 2-lane (one way) | 2400 | 1900 | 1400 |
| 2 | 2-lane (Two way) | 1500 | 1200 | 900 |
| 3 | 3-lane (one way) | 3600 | 2900 | 2200 |
| 4 | 4-lane undivided(two way) | 3000 | 2400 | 1800 |
| 5 | 4-lane divided (two way) | 3600 | 2900 | - |
| 6 | 6-un divided ( two way) | 4800 | 3800 | - |
| 7 | 6-lane divided (two way) | 5400 | 4300 | - |
| 8 | 8-lane divided (two way) | 7200 | - | - |

**Parking**

- Group housing 2 ECS per 100 square meters covered area on all floors subject to maximum 3 ECS per dwelling unit.
- Commercial 3 ECS per 100 square meters covered area
- Institutional/ Hotel/ Hospital/Multi-media 1 ECS per 100 square meters of the covered area (if the project is covered under notification no. 17/171/5-Hg 2/311 dated 11 /01/08, otherwise the parking norms meant for commercial uses i.e. 3 ECS /100sq meters covered area shall apply.)

**Note:**

The E.C.S shall be counted as below:

- 23 sq. meters for open parking
- 28 sq. meters for parking under stilts on ground floor
- 32 sq. meters for parking in the basement

**Strategy for obtaining Land for public purposes**

7.18. 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 of public purposes. However where private land market is active, how to ensure land for public purpose 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 part. 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**.<br>Positive impact on land prices | **AA**<br>Arterial Road network | **AB**<br>Parks, play grounds, schools etc. |
| **B**.<br>Negative price or environmental impact invoking NIMBY response. | **BA**<br>Sewage Pumping Stations and treatment plants | **BB**<br>Solid waste disposal sites |

(In many cases necessity of a particular activity at the city scale is recognised e.g. solid waste disposal site or a slaughterhouse. But they are locally undesirable and invoke "Not in My Backyard" response.)

No single alternative needs to be used throughout the city. It may vary for example, in core areas vs 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.

**Through O.U.V.G.L. Scheme:**

7.19. 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 city is 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. But this may be unavoidable in certain cases – particularly 'A' category public purpose.

**Through T.D.R.:**

7.20. Alternative to monetary compensation could be award of Transfer of Development Rights either to remainder of the land or to a distant location. This could be in three generic cases viz.

Roads and Road widening: Development rights calculated at the FAR permissible in adjoining area may be allowed to be used in the remainder of the plot up to a limit. Development rights that cannot be so consumed can be transferred elsewhere in receiving areas. If FAR is related to width of the road, resistance to widening may get reduced.

Public purposes on open land or exclusive plots: Lands required for parks and playgrounds or exclusive uses like secondary school, fire station etc. can 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.

**Through PAPR Act 1995**

7.21. 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 Act.

**Through Land Pooling or Town Planning (Development) Schemes:**

7.22. As pe 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 provision of the Master Plan or for providing amenities where the same are not available or are inadequate, frame the Town

Development Scheme and land for various amenifies 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 94: Strategy for Obtaining Land for Public Purpo*se***

| **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** |
|---|---|---|---|---|---|
| **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 to be market driven and present response is said to be not so encouraging. | Comprehensive Land Pooling Policy is required to be framed. | Locational disadvantages in certain cases. |
| | Landowners' resistance | Landowners' resistance | | 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 |
|---|---|---|---|---|---|
| | 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. | |
| | | New concept difficult to be implemented. | | New concept difficult to be implemented. | |
| | | Could also be used for heritage conservation. | | | |

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 detail zone plans.

**Proposed Land Use Plan**

7.23. After going through the detailed studies conducted by the office of DTP Ferozepur pertaining to LPA, Abohar and discussions held at different levels i.e. with S.H.U.D, Chief Town Planner and Think Tank and further based on analysis, assumptions and projected population of LPA, Abohar, the Proposed Land Use Plan 2031 has been prepared, in which different landuse zones have been earmarked such as residential, commercial, industrial, rural and agricultural etc.

After examining the various possibilities and taking into account the pattern suggested in Urban Development Plans Formulation & Implementation (UDPFI) Guidelines

published by Ministry of Urban Affairs & Employment, Government of India, New Delhi, the aforesaid land use categories have been adopted for the proposed landuse plan. The other concerned aspects of these different landuses have been detailed out in the following sub-heads. The issues, guidelines and controls mentioned below may be read with Zoning Regulation Specified later in the chapter

However, the lands which come under the optimum utilization of vacant Govt. Lands (OUVGL) scheme of the state Govt., the use of such lands/sites shall be determined by the Govt. later on at any appropriate time, irrespective of their existing / proposed landuse.

The sites on which various projects have been approved or whose change of landuse has already been permitted by competent authority/govt., such sites shall be deemed to be adjusted as sanctioned/permitted**.**

As discussed earlier in the chapter the existing pattern of city structure has been broadly adopted while preparing proposed land use plan of LPA, Abohar, in which pattern of continuous growth of Abohar city spreading over adjoining area has been kept in view. while formulating proposed land use plan and proposed road network of LPA, Abohar as shown in proposed land use plan of LPA, Abohar Drg. No DTP (F) 26/2009 Dated 14-07-2009. The details of proposed areas are given in Table below

**Table 95 : Break-up of Major Proposed Landuses LPA, Abohar-2031**

| Sr. No. | Proposed Landuse | Urbaniseable Area* | | Total LPA, Abohar | |
|---|---|---|---|---|---|
| | | Area in Hact. | %age | Area in Hact. | %age |
| 1 | Residential | 7538 | 64.98 | 9734 | 12.14 |
| 2 | Commercial | 109 | 0.94 | 177 | 0.22 |
| 3 | Industrail (includes warehousing) | 1475 | 12.71 | 1496 | 1.87 |
| 4 | Rural and Agricultural | - | - | 65829 | 82.12 |
| 5 | Desiganted Areas | | | | |
| | i) Traffic & Transportation | 1740 | 15.00 | 2199 | 2.73 |
| | ii) Utilities | 164 | 1.42 | 165 | 0.21 |
| | iii) Government, Public, Semi-Public | 508 | 4.38 | 508 | 0.63 |
| | iv) Recreational Areas | 66 | 0.57 | 66 | 0.08 |
| | **Total** | **11600** | **100%** | **80174** | **100%** |

*Urbanisable Area excludes the area proposed to be retained as predominantly 'Rural and Agricultural'

It would be observed that the area requirements calculated earlier are considerably less than the areas allocated in the proposed land use plan. It needs to be appreciated that farmland incrementally acquires potential for physical growth as the road network and other infrastructure developes. Consequently all the fringe areas are neither converted to urban use nor are they developed at the same density at any given point in time. The proposed land use plan apart from the area requirement based on the norms, takes cognizance of this fact. As a result some of the fringe areas may not be converted to urban use till 2031.

**Planning Zones**

7.24. It is proposed that the Master Plan preparation will be followed up by more detailed zonal or sector plans. The whole LPA, Abohar is divided into 27 Planning zones. These planning zones numbering are also shown on proposed land use plan Drg. No.DTP (F) 26/2009 Dated 14.07.09.

**Residential:**

7.25. The projected population of Abohar city and the villages falling in urban fringe works to be 3, 48, 000 persons by the year 2031 which is little less than three time than the number of 2001 census figures, therefore the rise in demand for residential areas is inevitable.In order to accommodate the projected population within the limits of proposed urbanisable area of Abohar, the proposals have been made on the pockets which have been identified as most potential and suitable for residential purpose. Besides this, the rural settlements falling in LPA, Abohar are proposed to expand around its existing built up areas (Abadis) upto 200 metres from phirni.

Almost all the area within the existing byepass except areas under other existing uses has been identified for residential purposes. Besides this, other pockets, within the existing bye pass and the proposed Outer ring Road such as on the north side, south east side and north west have also been proposed for this purpose.

The total area proposed for different uses is termed as proposed urbanisable area which works to be 11600 hectares. The spatial extent of different use zones has been shown in the Proposed Land Use Plan Drg. No. DTP (F) 26//2009 dated 14.7.09. The total residential area proposed is 7538 hectares that is 64.98% of total urbanisable area. However, at LPA, Abohar level a total area of 9734 hectares (including urban

and rural) has been proposed for residential use which is 12.14% of total LPA, Abohar area as given in table no. 95.

**Proposed Density Gradient LPA, Abohar – 2009-2031**

7.26. The existing density pattern of Abohar city (ward wise) is studied earlier in chapter of population growth and characteristics. Before proposing density gradient for different zones, it is essential to analyse the existing density gradient of Abohar city as given below:

**High Density Zone**: There are ten wards having density more than 250 persons/ hectare, are considered as high density zone in which the density varies from 291 persons/hectare of ward no. 15 to as high as 566 persons per hectare of ward no. 27.

**Medium Density Zone**: There are seven wards having density in range of 100-200 persons per hectare, are considered medium density zone in which density varies from 135 persons per hectare of ward no. 21 to 201 persons per hectare of ward no. 11.

**Low Density Zone:** There are fourteen wards having population density less than 100 persons per hectare are considered as low density zone in which density varies lowest 13 persons per hectare of ward no. 8 to 96 persons per hectare of ward no. 16.

**Table 96: Overall net residential density of all the zones of Abohar City:**

| | **High Density Zone** | **Medium Density Zone** | **Low Density Zone** | **Abohar City** |
|---|---|---|---|---|
| Total Population | 38814 | 28417 | 57208 | 124339 |
| Number of Wards | 10 | 7 | 14 | 31 |
| Total area ( Hectares) | 110.14 | 161.70 | 2000.16 | 2272 |
| Gross density (Person/Hectares) | 352 | 176 | 29 | 55 |

**Table 97: Proposed Density Gradient for LPA, Abohar 2031**

| **Density zone** | **Proposed Residential density** | **Proposed Areas** |
|---|---|---|
| High Density (RD1) | More than 250 persons per hectare | Density populated zone comprised inner zone of the city (ward 15,18,19,20,22,23,27,28,29 and 31) |
| Medium Density (RD2) | 100-250 persons per hectare | Moderately populated residential area of the city i.e.Outwards such as part of ward No. 6,11,14,17,21,24 and 26 and area falling between the MC limit and the Bye pass has been proposed for medium density zone |
| Low Density (RD3) | 100 persons per hectare And below | All the remaining proposed residential areas except above two density zones. |

In Case of high density zone it is considered that there will be redensfication of existing inner parts of the city. The Medium density zone and low density zones are sparsely developed and large vacant area available for the development. In lieu of that it is proposed to increase the density of these zones as compare to existing one.

The areas zoned for residential use are not derived from affordable densities but are based on potential for growth. A large proportion of the areas of these density zones particularly on the periphery may remain undeveloped by 2031.

**Commercial:**

**General Business**

7.27. The studies reveal that the existing Central Business District (C.B.D) comprising of Old Mandi, Sadar Bazar, comprising of Gali No. 6, 11, 12, 13 is very congested where the lack of parking facilities and inadequate approach etc are the major problems Therefore to serve the additional population of the city more new commercial areas are proposed to be developed in the new expansions. It has also been kept in view that Abohar will continue to function as a larger regional centre and will serve the larger area than its LPA. No new commercial area like district centre has been proposed but this may be considered at the time of preparation of zonal plans. However, the existing wholesale grain market will function as such on the present site and the existing fruit and vegetable and timber market will be shifted to the grain market

**Informal Sector**

7.28. It is felt that organized sites for informal sector are required to be created near the main city functions such as Railway Station, Bus stand, Hospital, Major institutions, Courts and other transport nodes etc. It is suggested that the organized well planned sites for rehri markets shall be proposed in the new planned colonies and provided for in the detailed zonal plans.

**Policy for existing areas**

7.29. With a view to make informal sector, an integral part of the planning process and keeping in view the National Policy on Urban Street vendors, the following provisions are proposed to be made for the informal sector:

The location/concentration of present stationary informal units shall be considered on case to case basis and steps for relocation/improvement shall be taken. It should be

ensured that such activities do not spill over on the road network in the right of way. The Govt. /concerned local agency would coordinate to achieve the objective.

The areas of informal sector shall have suitable public conveniences and solid waste disposal arrangements.

Formulation of guidelines for schemes would include 'Hawking' and 'No Hawking' zones. Specific areas would be earmarked for stationary and mobile street vendors by the concerned local authority.

The local authorities would take up new design of stalls, push-carts and mobile vans of various sizes and with cleaning facilities, giving due consideration to urban design requirement of specific area, where informal shopping is being permitted.

No informal unit should be permitted along/near the intersection in order to avoid traffic congestion and accidents.

**Planning norms for informal trade**

7.30. As already stated informal sector is proposed to be made an integral part of planning process. Accordingly, the informal sector trade would be incorporated in the planned development in various use zones. The provision of informal sector trade units should be ensured at the time of sanction of building plans/layout plans as per the norms given in the table abelow:

**Table 98: Planning Norms for Informal Sectors**

| Sr. No. | Use zones/use premises | No. of informal shops/units |
|---|---|---|
| i | Retail trade: | |
| | Metropolitan city centre, district centre, community centre, convenience shopping centre | 3 to 4 units per 10 formal shops(to be provided in informal bazaar/service market components) |
| ii | Government and commercial offices | 5 to 6 units per 1000 employees |
| iii | Wholesale trade and freight complexes | 3 to 4 units per 10 formal shops |
| iv | Hospital | 3 to 4 units per 100 beds |
| v | Bus terminal | 1 unit for 2 bus bay |
| vi | Schools | |
| | Primary Secondary/ | to 4 units |
| | Senior secondary/integrated | 5 to 6 units |
| vii | Parks | |
| | District parks | 8 to 10 units at each major entry |
| | Neighbourhood parks | 2 to 3 units |
| viii | Residential | 5 unit/1000 population |
| ix | Industrial | 5 to 6 units per 1000 employees |

**Industrial**

7.31. Taking into account the vision of LPA, Abohar to transform Abohar as Industrial hub focused on Agro and Horticultural industries, an area measuring 1475 hectares in the urbanisable zone is proposed for small, light, medium and large scale industrial zone adjoining the existing industrial focal point of the city. The proposed area is between Abohar-Ganganagar railway line, Existing bye pass and Kandhwala road. While preparing this zone, the wind direction is also kept in view.

**Warehousing and Godowns:**

7.32. Keeping in view the vision for LPA, Abohar there is likely hood of development of many types of industries related to agro and horticulture, therefore there would be great demand of land for the wholesale and bulky material marketing like godowns, warehousing etc. A sufficient area has been proposed for godowns and warehousing along the Kandhwala Road adjoining the proposed industrial land use zone. This site has the approach from the exiting Kandhwala road and the existing bye pass.

**Rural and Agricultural Zone:**

7.33. With the intention of preserving the basic character of agriculture, the remaining of the rural area, which has not been proposed for other uses, will be retained as Rural and agricultural zone. Out of total area of 80174 hectares of LPA, Abohar 65829 hectares have been retained as rural and agriculture, which is 82.12 % of total LPA as shown in proposed land use plan Drg. No. DTP (F) 26/09 Dated 14-07-2009

**Traffic and Transportation**

7.34. Transport network and proposed land use need to be considered in an integrated manner. For Master Plan of LPA Abohar, extensive road network has been proposed taking into account the connectivity requirements. The entire network may develop in phases as the traffic demand builds. However, it is emphasized that landuse proposals of Master Plan may be reviewed as the road network actually develops.

The concurrent planning of urban and rural growth in LPA, Abohar and the Transportation system is required to provide an integrated, safe and efficient system for transportation of people and goods. The system is intended to meet the projected travel

demands in that area. The road and rail sector occupy the significant roles in the transport sector in LPA, Abohar.

Entire LPA, Abohar and Abohar City will be served by well structured and well defined road hierarchy in order to cater the traffic needs of the city population and arising from living areas to work areas and vice versa. This would include redefining of existing road network and the network to be created in the areas proposed to be brought under urbanization. Keeping in view the future shape and size of Abohar urban area, there is a need to create/ propose an efficient network in the shape of ring and radial roads. Some of these links could be used to provide fast means of public transport system thereby reducing the reliance on private mode of transport. This would be distinctly beneficial in reducing congestion and air pollution. Some routes have been identified for this purpose which is as follows:

- Malout Road because of Proposed Bus Stand.
- Sitto Gunno Road because of new living areas and institutional areas.
- Fazilka Road because of existing work areas and living areas.
- Sri Ganganagar because of new work areas.
- Ring Road due to providing connectivity among all the radial roads.

However their final alignment is to be decided at approporiate time and after conducting detailed feasibility studies.

**Proposed Road Network:**

7.35. The proposed road network for LPA, Abohar has been developed in concurrently with the proposed land use pattern as shown in the Plan, Drg. No. DTP (F) 26/09 Dated 14.7.09. In order to provide relief to the city roads and keeping in view the existing roads and the increased volume of traffic in future, the concept of ring radial road pattern has been followed. A new ring road immediately encircling the existing bye pass has been proposed. The existing roads have been adopted as radial roads. Efforts have been made to follow existing roads wherever available. The vast areas falling within the ring and radial roads have been proposed as shown in Drawing No. DTP (F) 26/09 dated 14.7.09. The following hierarchy of roads has been proposed:

| | |
|---|---|
| R-1 | 200 feet wide |
| R-2 | 150 feet wide |
| R-3 | 100 feet wide |
| R-4 | 80 feet wide |

**Outer Ring Road**

7.36. Looking forward for the year 2031 and keeping in view the proposed city structure of LPA, Abohar, a outer ring road having a right of way of 200 feet has been proposed. This outer ring road provides connectivity among various existing regional roads and proposed zonal roads. This outer ring road also envisages to define the proposed land use.

This proposed Outer Ring road starts from Fazilka road near Abohar – Fazilka Railway line overbridge under construction and then interconnecting the various existing local and regional roads like Malout road, Sittogunno road, Hanumangarh road, Kandhwala road, Sri Ganganagar road, Hindumalkot road and again meeting to Fazilka road towards city side near under construction railway overbridge on Abohar – Fazilka railway line. The starting and meeting points of this proposed outer ring road on Fazilka road have been staggered so as not to construct any additional overbridge on Abohar –Fazilka railway line. While proposing this outer ring road, the existing physical features and revenue boundaries of the villages have been taken care of. The alignment of this outer ring road has been shown in Proposed land use plan Drg. No. (F) 26/09 dated 14/07/09. The length of this proposed outer ring road is approximately 41.1kms.

**Existing Roads**:

7.37. The existing roads like Malout road, Sittogunno road, Hanumangarh road, Kandhwala road, Sri Ganganagar road, Hindumalkot road and Fazilka road, have been proposed as third hierarchy roads (R-3) with the recommendation of widening upto minimum of 100 feet R.O.W. where required. Most of these roads are having R.O.W near 100 feet. It is also proposed thast roads of this hierarchy may also be carved out at the time of preparing zonal plans. It is further proposed that roads of further lower hierarchy than above would be carved out while preparing zoning plans of the proposed zones.

No new road or widening of the existing village link roads has been proposed outside the proposed urbanisable area**.**

**Zonal Roads**

7.38. Besides the outer ring road, many new roads of 150 feet right of way have been proposed to serve the new proposed urbanisable area. These proposed roads also

connect the existing bye pass, other existing roads with proposed outer ring road. The proposed road network as explained above has been shown in Proposed Land Use Plan Drg.No.DTP (F) 26/09, dated 14-07-2009.

It is proposed that tree plantation along the main roads such as R1, R2, R3 and R4 may be done in consultation with the landscape Architects, Horticulture department and Forest Department. The selection of trees should be in such a manner that the greenery of trees and blooming of flowers may be seen throughout the year. The list of trees and typical cross section of main roads is attached at Annexure 5 & 6 respectively.

**Proposals for Urban Roads:**

7.39. The study of existing city road network reveals that most of the existing roads are not overcrowded as these are carrying less volume of traffic than their respective capacity. However, in future, some of these roads may become overcrowded due to increase in traffic volume. Although, there is no possibility or scope of widening of Right Of Way (R.O.W.) of some of these roads in thickly built up areas of the city, but still some measures of road engineering can be adopted for improving the capacity of these roads, as per the guidelines for capacity enhancement of Urban Roads in plain areas published by the Indian Road Congress. Some of the measures that could be considered for enhancement of capacity of roads are as under:

- Prohibiting on–street parking of vehicles, and simultaneously developing off–street parking facility;
- Segregating the bi-directional traffic flow through central verge/median wherever it is possible;
- Provision of segregation of slow moving vehicles such as animal drawn carts, rickshaws/ tongas etc.;
- Imposing restrictions on the movement of animal drawn /other slow moving vehicles, and/ or heavy commercial vehicles on these roads during selected periods, specially the peak hours;
- Reduction of roadside congestion through control of abutting land–use and roadside commercial activity;
- Provision of adequate facilities for pedestrians and cycles wherever it is possible;
- Banning certain conflicting movements at major intersections, particularly during peak hours;
- Controlling the cross traffic and side–street traffic by regulating the gaps in medias; and

- Improving traffic discipline such as proper lane use and correct over taking, through appropriate road markings, education and publicity.

The following urban roads in LPA, Abohar have been identified and proposed for adopting the traffic engineering measures.

**Proposed roads for capacity enhancement in Urban Areas -2031**

- Malout road (From Malout Bye pass chowk to intersection of this road with Hanumangarh road)
- Fazilka road (From Fazilka Bye pass chowk to intersection of this road with Hanumangarh road)
- Sitto Gunno road (From Sitto Gunno Bye pass chowk to intersection of this road with Hanumangarh road)
- Hanumangarh road (Hanumangarh Bye pass chowk to intersection with Malout – Fazilka road)
- Sri Ganganagar road (From Sri Ganganagar Bye pass chowk to upto Railway crossing)
- Bus Stand road(From Malout – Fazilka road junction to railway crossing)
- Azimgarh road (From Railway crossing to Bye pass)
- Kandhwala road(From Sri Ganganagar road junction to Bye pass)
- Old Fazilka road (From railway crossing to Abohar –Fazilka road)
- Hindumalkot road (From Abohar – Fazilka road junction to Bye pass)

**R.O.B's and R.U.B's**

7.40. There are three Railway Over bridges presently under construction in the city. In order to ensure the smooth flow of regional and local traffic over the existing and proposed road network of LPA, Abohar more R O.B's and R.U.B's are proposed. The list of these in order of priority is given as below:

| | |
|---|---|
| R.O.B Hanumangarh road | (U/C) |
| R.O.B Malout road | (U/C) |
| R.O.B. Fazilka road | (U/C) |
| R.O.B. Ganganagar road | (Proposed) |
| R.O.B. Bye pass Abohar – Bathinda railway line | (Proposed) |
| R.O.B. Bye pass Abohar – Ganganagar railway line | (Proposed) |
| R.O.B Sittogunno road | (Proposed) |
| R.O.B. Bus Stand road | (Proposed) |

R.O.B. Proposed Ring Road-Sri Ganga Nagar Railway Line (Proposed)

R.O.B. Proposoed Ring Road-Bathinda Railway Line (Proposed)

Also some railway under sbridges are proposed along Abohar-Fazilka railway line and proposed zonal roads.

**Designated Areas**

**Terminals**

**Bus Terminal:**

7.41. The Existing bus stand is located in the center of the city and at present is over crowded. In order to provide relief to city roads the site measuring an area of 20 hectare for new bus stand for inter city traffic has been proposed near the intersection of Malout road with the existing bye pass. While proposing this site,the volume of bus traffic, which is maximum from Malout side and Sittogunno road, has been kept in view. However, the designated site for bus stand is proposed to be partly used for local bus stand, workshop and part of site can be used for commercial purposes.

**Truck Terminal:**

7.42. As already stated in the part related to Traffic and Transportation study, no truck stand is functioning in the city. So a site having an area of 35 hectares has been proposed along the bye pass in the proposed industrial land use zone and also adjoining the whole sale and godown land use zone thus serving both the use zones efficiently.

**Utilities**

7.43. The existing utilities like water works, Electric Grid stations, etc. which are available wthin the boundaries of LPA, Abohar are proposed to be retained as such. However, additional sites for water works and electric grid stations will be proposed at the time of preparation of zonal plans. As far as the existing sites of sewerage disposal and garbage disposal are concerned, theses are not ideally located and need to be shifted. Therefore, an area of 104 hectares on the western side of the city between the Sri Ganganagar railway line and Hindumalkot (Killianwali) road has been designated for public utilities (Sewereage Disposal and Garbage Disposal). While designating this site, the slope of the city which is towards this side and the Abul Khurana drain has been kept in view so that this site serves the purpose efficiently. Besides this, lower level utility sites will also be made part of the colonies to be approved under PAPR Act 1995.

**Government, Public & Semi-public**

7.44. As it has already been discussed in earlier part of the report, there are several categories of designated areas such as Public & Semi-public uses existing in the Abohar city and LPA, Abohar. All these designated areas have been proposed to be retained as such. However, an area of 210 hectares on the eastern side of Bye pass adjoining the Khalsa College and Central Research Institute for citrus fruit has been designated for this purpose as institutional area. This will fulfill the needs of higher level of public and semi public institutes. Also Govt land, Govt. and semi Govt. offices existing in the LPA, Abohar will be retained as such.

**Recreational Areas:**

7.45. Under this category a strip of 100 mts on both sides of the existing bye pass is designated as restricted area where no activity related to building will take place. However different trees as notified by Govt. will be planted on these strips. Existing parks, open spaces and stadiums and other recreational areas will be retained as such.

**Heritage Conservation**

7.46. There is no heritage building or Precient in LPA, Abohar declared as protected monument under the "The Punjab Ancient & Historical Monuments and Archaeological sites and Remains Act, 1964". This act provides for the Preservation of Ancient and Historical Monuments and Archeological sites and Remains other than those of national importance, for the regulations of Archeological excavation and for the protection of sculpture carvings and other like objects which are in existence for not less than 100 years. Study regarding identification of such buildings in the city has been conducted but sufficient record regarding this subject could not be found. However one site named "Panj Pir" is found to be more than 100 years old and has a historical significance as the history of the city is related to this site of Panj Pir. As a part of proposal of Master Plan, Abohar and under the legal provisions of Punjab Regional and Town Planning and Development (Amendment) Act, 2006 the site of Panj Pir may be considered for conservation.

**Zoning Regulations**

7.47. Chapter XI of the Punjab Regional and Town Planning and Development Act, (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” as defined by the Act means the 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.

7.48. It would have normally been expected that a Master Plan includes regulations dealing with all facets of “development”. However since formal Master Plans were not available, Government has instituted many regulations on state-wide basis to govern key facets of development such as sub-division and layout of land under PAPRA, FAR, ground coverage, parking, building design and construction etc. It is therefore proposed to retain these regulations along with their enforcement authorities and practices in this Master Plan. Some of the key regulations currently in force are reproduced below for general information.

**(A) Residential (plotted)**

1. Minimum area of colony

| Category | High Potential Zone (I & II) | Medium Potential Zone (I & II) | Low Potential Zone (I & II) | Low Potential Zone III |
|---|---|---|---|---|
| Residential Plotted | 75 Acres | 50 Acres | 10 Acres | 10 Acres |
| Group Housing | 10 Acres independent | 10 Acres independent | 5 Acres independent | 5 Acres independent |

In category Low III within Municipal Limits any area of land can be developed as a colony and instructions of Memo No. 17/17/01-5HG2/1640 dated 18-06-09 shall also apply.

2. Maximum area under residential and commercial - 55%
subject to the condition that commercial shall not exceed 5% of total area
3. Minimum area under institutional / pubic buildings - 10% of total area
4. Minimum area under parks/open spaces, roads & parking lot - 35% of total area

**Note:** -F.A.R., height and ground coverage for individual residential plots within municipal areas, building byelaws of Municipal Council shall be applicable and

outside municipal council limit, the building bye-laws of respective Development Authority shall apply. However saleable area (residential and commercial) shall not exceed 55%.

**(B) Group Housing**

| | | |
|---|---|---|
| 1. | Minimum area required | 4000 square meters (within M.C. limits)<br>10 acres (outside M.C. limits) |
| 2. | Maximum ground coverage | 40% |
| 3. | Maximum F.A.R | 1:1.75 |
| 4. | Basement | Multi level basement will be allowed behind the building in the zoned area except in set backs provided it is proposed for parking purposes only and satisfy the public health and structural requirements. |
| 5. | Maximum height | There shall be no restrictions on the height of building subject to clearance from Air Force Authority and fulfillment of other rules such as set backs, distance between building etc. however, structural safety and fire safety requirements as per N.B.C. shall be compulsory. |
| 6. | Stilts | Stilts under the building will be allowed to enhance up to 3 meters beyond the building block except in the setbacks, provided it is used for parking only. No construction shall be allowed on the extended portion of the stilts. Stilts used for parking shall not be counted towards F.A.R. |
| 7. | Minimum Frontage | 20 meters |
| 8. | Open spaces and organized parks | Minimum 30% of the area of the site shall be used for landscaping. The organized park area shall be 15%. |
| 9. | Parking | 2 ECS per 100 square meters covered area on all floors subject to maximum 3 ECS per dwelling unit. |
| 10. | Dwelling Density | 40-80 units/acre<br>However, for social housing, the dwelling density may be increased up to 120 units per acre. |
| 11. | Community facilities | Area for community facilities such as community centre, reception hall, crèche, library, maintenance store etc shall not be less than 2.5%. |
| 12. | Fire Safety | As per BIS norms. |
| 13. | Lift and Stair cases | As per the rules of Development Authority. |
| 14. | Structural stability | Building shall be made structurally safe to withstand any natural disaster and shall be designed by a qualified structural engineer as per the provision of N.B.C. |

**(C) Commercial**

| | | |
|---|---|---|
| 1. | Minimum area required | 4000 square meters (within M.C. limits)<br>2 acres (outside M.C. limits) |
| 2. | Minimum frontage | 30 meters |
| 3. | Maximum F.A.R. | 1:1.75 |
| 4. | Maximum height | There shall be no restrictions on the height of building subject to clearance from Air Force Authority and fulfillment of other rules such as setbacks, distance between building etc. However, structural safety and fire safety requirements as per N.B.C. shall be compulsory. |
| 5. | Maximum ground coverage | 40% |
| 6. | Minimum parking | 2 ECS per 100 square meters covered area as per Govt. Letter No. 17/17/01 – 5HG2/1648 |
| 7. | Basement | Multi level basement will be allowed behind the building in zoned area except in setbacks provided it is proposed for parking purposes only and satisfy the public health and structural requirements. |
| 8. | Minimum approach road width | 80 feet |

**Note:**

F.A.R., height, ground coverage, parking etc. within M.C. limits shall be governed by Municipal Council building bye laws.

The E.C.S. shall be counted as below:

- 23 square meters per open parking
- 28 square meters for parking under stilts on ground floor
- 32 square meters for parking in the basement

For group housing stand-alone projects, minimum width of approach road shall be 60' but the promoter shall leave space from his own land for widening it to 80 feet and the space so left shall be public space. In the planned colony, group housing shall not be on a road less than 60’ wide.

**(D) Institutional/Hotel/Hospital/Multi-media center:**

| Components | Institutional | Hotel | Multi media | Hospital |
|---|---|---|---|---|
| Minimum plot size. | 5000 square meters | 5000 square meters | 5000 square meters | 5000 square meters |
| Minimum frontage | 200 feet | 200 feet | 200 feet | 200 feet |
| Minimum width of approach road | 40 feet | 80 feet | 80 feet | 80 feet |
| Maximum F.A.R. | 1:1 | 1:3 | 1:1 | 1:1 |
| Maximum ground covered | 40% | 50% | 40% | 40% |
| Parking | 1 ECS per 100 square meters of the covered area if the project is covered under notification no. 17/171/5-Hg2/311 dated 11-01-08, otherwise the parking norms meant for commercial uses i.e., 3 ECS / 100 square meters covered area shall apply. | | | |

7.49. In view of the above the zoning regulations proposed under this master plan are essentially concerned with the control of land use. The proposed land use plan includes following land use zones

- Residential
- Commercial
- Industrial
- Warehousing and Godowns
- Rural and Agricultural

In addition specific designations have been shown in respect of proposed arterial road network, existing rail network, transport termini, public utilities and institutional etc.

7.50. As explained earlier since sub-division of land and design and construction of buildings is being controlled by well established regulations and concerned competent authorities, zoning regulations under the Master Plan are seen as the reference point for these agencies to ensure that the development permitted by them is in compliance with the Master Plan.

**The zoning regulations proposed for adoption in LPA Abohar are presented below**

## LPA Abohar Master Plan

## Zoning Regulations

Department of Town and Country Planning, Punjab being the planning agency designated under section 57 of the Punjab Regional and Town Planning and Development Act, (Amended) 2006 for the Local Planning Area, Abohar 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 Act, (Amended) 2006 hereby makes following Zoning Regulations as a part of the Master Plan prepared for the Local Planning Area, Abohar.

### 1. SHORT TITLE, SCOPE, EXTENT & COMMENCEMENT

#### 1.1. Title

These Regulations shall be called the Zoning Regulations for Local Planning Area, Abohar 2009 (hereinafter referred to as "these Regulations").

#### 1.2. Scope of the Regulations

The scope of thse regulations is limited to defining permissible land uses in various land use zones depicted in the proposed land use plan forming part of the Master Plan. Other aspects of "development" such as sub-division and layout of land or intensity of development measured through FAR, ground coverage, parking requirements, building design and construction etc. will be governed by other acts and regulations promulgated by Government from time to time. Competent Authorities under such regulations shall ensure that the developments permitted by them are in conformity with these regulations.

#### 1.3. Jurisdiction

These Regulations shall apply to all "development" in the Local Planning Area, Abohar declared under section 56 of the Punjab Regional and Town Planning and Development Act, (Amended) 2006 *vide* notification no 12/18/08–4 HGI/7892 dated 15-12-2008.

**1.4. Date of Coming into Force**

These Regulations shall come into force on the day on which the designated Planning Agency publishes the final Master Plan along with these regulations in the *Official Gazette* after obtaining the approval of the State Government under sub section (5) of section 70 of the Punjab Regional and Town Planning and Development (Amended) Act, 2006.

**Till such approval, the Authorities in considering the application of for permission for development shall have due regard to the draft proposals including these regulations.**

**2. DEFINITIONS**

For the purpose of these zoning regulations, the following definitions, unless the context otherwise requires, shall apply:

i. **"Act"** means the Punjab Regional and Town Planning and Development (Amended) Act, 2006 (Punjab Act No. 11 of 1995).

ii. **"Government"** Means the Government of the State of Punjab.

iii. **"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.

iv. **"Planning Agency "** means the Department of Town and Country Planning, Punjab designated as such under Section 57 of The Punjab Regional and Town Planning and Development Act, (Amended) 2006 for Local Planning Area Abohar.

v. **"Existing Land Use Plan"** Means the Plan showing the different land uses existing at the time of preparation of the Existing Land Use Plan of Local Planning Area, Abohar and as indicated on Drawing No. DTP (F) 25/2009 dated 13-07-09.

**vi.** **"Local Planning Area"** means the Local Planning Area Declared under section 56(1`) of The Punjab Regional and Town Planning and Development Act, (Amended) 2006 vide notification No 12/18/08–4 HGI/7892 dated 15-12-2008.

vii. **"Non-Conforming Building or use"** means use in respect of any land or building in the Local Planning Area, the existing use of which land or building is contrary to the prescribed land use.

viii. **"Proposed Landuse Plan"** means the plan showing the proposed any admissible uses of different areas and Land use zones covered in the Local Planning Area, Abohar and as indicating on Drawing No. DTP (F) 26/2009/ Dated 14-07-09.

ix. **"Sector Plan"** means the detailed plan of a part of Mater Plan as delineated in the master plan and approved by the Chief Town Planner, Punjab showing all or any of the following:-

- Layout of Plots, Streets, Roads Public open spaces, parking areas.
- Area temporarily or permanently prohibited for the building operation.
- Uses Permitted in respect of each or a group of plots into which the land may be shown to be divided.
- Any other detail provided in the Lay-pout plan.

x. "**Zoning Plan"** means the plan of area or part thereof or supplementary layout plan approval by the Chief Town Planner and maintained in the office of Competent Authority showing the permitted use of land and such other restrictions on the development of land as may be prescribed in the zoning regulations, for any part or whole of the area such as sub-division of plots, open spaces, streets, position of protected trees and other features in respects of each plot, permitted land use, building lands, 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 hereafter.

xi. **"Knowledge Park":** Such parks in residential land use zones can have only such activities which are absolutely non –polluting, non hazardous Environment friendly, free from noise& vibrations, having no polluting effects on air and water and causing no nuisance whatsoever. Uses in such parks will be determined by Chief Town Planner, Punjab.

xii. **"Farm House**" Farm house means a building allowed on a holding of agricultural land for residential and agricultural activity of the land holder. The total floor area of such farm house shall not exceed 2 per cent of the area of holding or 200sq.m.whichever is less.

xiii. **"Atta Chakki":** Atta Chakki is categorized as service industry where:

- Grinding of only food grains is carried out through the process of crushing under the load rotational movement of two plates or blocks.

- The maximum electric load does not exceed 20 kW.
- The Atta Chakki shall be used for grinding food grains supplied by the consumers only and no sale/ purchase of food grains/ flour be carried out by the Atta Chakki owner at commercial level.
- The Atta Chakki shall only be permitted on roads having minimum 13.5 m Row.

xiv. "**House Hold Industry"** House Hold Industry means house hold occupation/ Industry conducted only by family members/persons residing in the dwelling with or without power and not contrary to the provisions of the Water Pollution (Prevention and Control) Act 1974 Air pollution (prevention and Control) Act 1981 and Environment (Protection) Act 1986.

xv. **"Cottage Industry":** Industrial units employing less than 10 workers, not creating excessive traffic and not omitting fumes, noise and effluents injurious to the existing sewers and not contrary to the provisions of the Water Pollution (Prevention and Control) Act 1974, Air Pollution(Prevention and Control ) Act 1981 and Environments (Protection) Act 1986.

xvi. **"Micro, Small and Medium Enterprises engaged in manufacture or production of goods"** have the meaning assigned to them in clause (a) of sub-section (1) of section 7 of Micro, Small and Medium Enterprises Development Act 2006 of Government of India

xvii. **"Large Industries":** Large Industries are the industries in which the investment in fixed assets in plant and machinery is more than Rupees 10 crores.

xviii. **'Public and Semi Public activities":** Public and semi public activities means governmental/ semi governmental offices, educational, medical institutions, recreational and entertainment facilities, cultural and religious institutions etc.

Terms and phrases used, but not defined in these regulations, shall have the same meaning as assigned to them in the Act.

## 3. LAND USE ZONES

The proposed land use plan incorporated in the Master Plan of Abohar LPA depicts the following land use zones

1. Residential
2. Commercial
3. Industrial
4. Warehousing and Godowns
5. Rural and Agricultural

## 4. LAND USE CLASSES

For the purposes of these Regulations various land uses are grouped into following land use classes**.**

| Sr.No. | Land Use Class | Use Class Code |
|---|---|---|
| 1 | Housing | A |
| 2 | Trade and Commerce | B |
| 3 | Manufacturing | C |
| 4 | Transport, Storage & Warehousing | D |
| 5 | Offices | E |
| 6 | Education, Training and Research Institutes | F |
| 7 | Healthcare facilities | G |
| 8 | Recreation, Entertainment | H |
| 9 | Public utilities and services | I |
| 10 | Agriculture, forestry and fishing | J |

## 5. USE PROVISIONS IN LAND USE ZONES

Following table describe the land use classes and their further sub-classes permitted in various land use zones. The shaded cells in the table indicate that the use is generally permissible. A number in the cell indicates the conditions listed at the end of the table subject to which the use is permissible.

| LAND USE ZONES AND PERMISSIBLE LAND USES | | | | | | | |
|---|---|---|---|---|---|---|---|
| USE CLASS | | LAND USE ZONES | | | | | |
| Sub Code | Description | Residential | Commercial | Industrial | Warehousing | Rural and Agricultural | |
| | | | | | | Abadi deh and 200 m around Phirni | Rest of Rural and Agricultural |
| A | **Housing** | | | | | | |
| A1 | Residential houses in the form of plotted development, group housing, farm houses for customary residence including household industry. | | | | | | **1** |
| A2 | Old age homes, Orphanages, Hostels for students, working women etc. | | | | | **2** | **2** |
| A3 | Service apartments, Hotels including Star Hotels, Motels, Guest Houses, Dharamshalas, Lodging Houses | | | | | | |
| A4 | Jails, asylums, reformatories and the like | | | | | | |
| A5 | Residences for watch and ward staff, residences for industrial workers/ management | | | | | | |
| A6 | Housing not classified above | | | | | | |
| **B** | **Trade and Commerce** | | | | | | |
| B1 | Retail trade including markets for fruits and vegetables, meat and fish; super markets | | | | | | |
| B2 | Department stores, Malls including super market, retail trade, restaurants and multiplexes | | | | | | |
| B3 | Personal and community services like laundry, hair dressing, beauty parlors, tailoring, coaching classes, cyber cafes, Atta Chakki, Repair of Household Appliances, Bank Branches, ATM | | | | | | |
| B4 | Wholesale trade with storage of commodities | | | | | | **3** |
| B5 | Filling Station ** | | | | | | |
| B6 | Kerosene Storage/Gas Godown and storage of fire works*** | **6** | | | | | |
| B7 | Gas Distribution (without storage of cylinders)*** | | | | | | |
| B8 | Trade Fares, Exhibition and Conventional centers | | | | | | |
| B9 | Showroom of Mills/ Factory Retail Outlets | | | | | | |
| B10 | Trade not classified above | | | | | | |
| **C** | **Manufacturing (NIC Section C)** * | | | | | | |
| C1 | Manufacture of food products (NIC Division 10) | | | | | | |
| C2 | Manufacture of beverages (NIC Division 11) | | | | | | |
| C3 | Manufacture of textiles (NIC Division 13) | | | | | | |

| LAND USE ZONES AND PERMISSIBLE LAND USES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| USE CLASS | | LAND USE ZONES | | | | | | |
| Sub Code | Description | Residential | Commercial | Industrial | Warehousing | Rural and Agricultural | | |
| | | | | | | Abadi deh and 200 m around Phirni | Rest of Rural and Agricultural | |
| C4 | Manufacture of wearing apparel (NIC Division 14) | | | | | | | |
| C5 | Manufacture of leather and related products (NIC Division 15) | | | | | | | |
| C6 | Manufacture of wood and products of wood and cork, except furniture; (NIC Division 16) | | | | | | | |
| C7 | Manufacture of paper and paper products (NIC Division 17) | | | | | | | |
| C8 | Printing and reproduction of recorded media (NIC Division 18) | | | | | | | |
| C9 | Manufacture of coke and refined petroleum products (NIC Division 19) | | | | | | | |
| C10 | Manufacture of chemicals and chemical products (NIC Division 20) | | | | | | | |
| C11 | Manufacture of pharmaceuticals, medicinal chemical and botanical products (NIC Division 21) | | | | | | | |
| C12 | Manufacture of rubber and plastics products (NIC Division 22) | | | | | | | |
| C13 | Manufacture of other non-metallic mineral products (NIC Division 23) | | | | | | | 4 |
| 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) | | | | | | | |
| C20 | Manufacture of other transport equipment (NIC Division 30) | | | | | | | |
| C21 | Manufacture of furniture (NIC Division 31) | | | | | | | |
| C22 | Other manufacturing (NIC 32) | | | | | | | |
| C23 | Repair of machinery and equipment (NIC Division 33) | | | | | | | |

| LAND USE ZONES AND PERMISSIBLE LAND USES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| USE CLASS | | LAND USE ZONES | | | | | | |
| Sub Code | Description | Residential | Commercial | Industrial | Warehousing | Rural and Agricultural | | |
| | | | | | | Abadi deh and 200 m around Phirni | Rest of Rural and Agricultural | |
| C24 | Milk Chilling(independent plot), Pastuerization plant, Cold Storage*** | | | | | | | |
| C25 | Rice Shellers, Processing of Farm Products, Brick Kilns, Lime/ Charcoal Kilns*** | | | | | | | |
| C27 | Cottage Industry, Repair of Household Articles, Cycles and scooters | | | | | | | |
| C28 | I.T. Parks, Knowledge Park & Industrial Park | **8** | | | | | | |
| C29 | Cement, Sand and Concrete Mixing Plant(Batching plant), Bitumen, Sand, Concrete Mixing Plant(Hot Mix Plant)*** | | | | | | | |
| **D** | **Transport Storage and Warehousing** | | | | | | | |
| D1 | Warehousing and storage activities for transportation (NIC Division 52) and Loading & unloading yard | | | | | | **5** | |
| D2 | Rail and Air Freight Terminals | | | | | | | |
| D3 | Truck Terminals | | | | | | | |
| D4 | Bus Terminals, Auto-Rickshaw/ Taxi Stand | | | | | | | |
| D5 | Warehousing, Logistic Park, Storage & Godowns, Freight complex, Container Yards | | | | | | | |
| **E** | **Offices** | | | | | | | |
| E1 | Publishing of books, periodicals and other publishing activities (NIC Group 581) Software publishing (NIC Group 582) | | | | | | | |
| E2 | Motion picture, video and television programme production, sound recording and music publishing activities (NIC Division 59) | | | | | | | |
| E3 | Broadcasting and programming activities (NIC Division 60) | | | | | | | |
| E4 | Telecommunications (NIC Group 61), Govt/ Semi-Govt / Private Business offices | | | | | | | |
| E5 | Computer programming, consultancy and related activities (NIC Division 62) | | | | | | | |
| E6 | Information service activities (NIC Division 63) | | | | | | | |
| E7 | Finance, Banking and insurance (NIC Section K) | | | | | | | |
| E8 | Real estate activities (NIC Section L) | | | | | | | |
| E9 | Professional, scientific and technical activities (NIC Section M) | | | | | | | |
| E10 | Administrative and support services (NIC Section N) | | | | | | | |

| LAND USE ZONES AND PERMISSIBLE LAND USES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| USE CLASS | | LAND USE ZONES | | | | | | |
| Sub Code | Description | Residential | Commercial | Industrial | Warehousing | Rural and Agricultural | | |
| | | | | | | Abadi deh and 200 m around Phirni | Rest of Rural and Agricultural | |
| E11 | Public administration and defence; compulsory social security (NIC Section O) | | | | | | | |
| E12 | Professional Services like Lawyers, Accountants, Architects, Charted engineers | | | | | | | |
| **F** | **Educational, Training and Research Institutes** | | | | | | | |
| F1 | Pre-Primary Schools, Play schools Kinder Garten | | | | | | | |
| F2 | Primary Schools, | | | | | | | |
| F3 | Secondary Schools, Colleges, Vocational Training Institutes, | | | | | | | |
| F4 | Research and Training Centres, Universities, Centres of Advanced Education and training like IIM or IIT | | | | | | | |
| F5 | Educational, Training and Research Institutes not classified above | | | | | | | |
| **G** | **Health care facilities** | | | | | | | |
| G1 | Medical and Dental Clinics and Dispensaries | 7 | | | | | | |
| G2 | Hospitals (NIC Group 861) and Health Center | 7 | | | | | | |
| G3 | Nursing care facilities (NIC Group 871) | 7 | | | | | | |
| G4 | Residential care activities for mental retardation, mental health and substance abuse (NIC Group 872) | | | | | | | |
| G5 | Residential care activities for the elderly and disabled (NIC Group 873) | | | | | | | |
| G6 | Veterinary services | | | | | | | |
| G7 | Health care facilities not classified above. | | | | | | | |
| **H** | **Arts, entertainment, recreation, cultural and religious activities** | | | | | | | |
| H1 | Arts, entertainment and recreation (NIC Section R) and Multimedia | | | | | | | |
| H2 | Libraries, archives, museums and other cultural activities (NIC Division 91) | | | | | | | |
| H3 | Gambling and betting activities (NIC Division 92)e.g.Race Course | | | | | | | |

| LAND USE ZONES AND PERMISSIBLE LAND USES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| USE CLASS | | LAND USE ZONES | | | | | |
| Sub Code | Description | Residential | Commercial | Industrial | Warehousing | Rural and Agricultural | |
| | | | | | | Abadi deh and 200 m around Phirni | Rest of Rural and Agricultural |
| H4 | Sports activities and amusement and recreation activities (NIC Division 93) tot-lots, playgrounds, stadia, golf courses etc. | | | | | | |
| H5 | Places of worship | | | | | | |
| H6 | Marriage Palaces | | | | | | |
| H7 | Arts, entertainment and recreation activities not classified above | | | | | | |
| **I** | **Public Utilities and Services** | | | | | | |
| I-1 | Electricity, gas, steam and air conditioning supply (NIC Section D) | | | | | | |
| I-2 | Water collection, treatment and supply (NIC Division 36) | | | | | | |
| I-3 | Sewerage (NIC Division 37) | | | | | | |
| I-4 | Waste collection, treatment and disposal activities; materials recovery (NIC Division 38) and Carcass Disposal Site | **6** | | | | | |
| I-5 | Postal and courier activities (NIC Division 53) | | | | | | |
| I-6 | Police station | | | | | | |
| I-7 | Fire Station | | | | | | |
| I-8 | Public utilities and Services not classified above | | | | | | |
| I-9 | Cemeteries, Graveyards, Cremation grounds | | | | | | |
| **J** | **Agriculture, forestry and fishing (NIC Section A)** | | | | | | |
| J1 | Crop and animal production, hunting and related service activities (NIC Division 01) | | | | | | |
| J2 | Land Conservation and Preservation measures such as Storage, Check Dams and other water harvesting measures | | | | | | |
| J3 | Fishing and aquaculture (NIC Division 03) | | | | | | |
| J4 | Quarrying of stone, sand and clay (NIC Group 081) | | | | | | |
| J5 | Plant Nursery and Greenhouses related to Nursery, Floriculture | | | | | | |
| Notes: | | | | | | | |
| NIC | National Industrial Classification (All Economic Activities) 2008, Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India, www.mospi.nic.in | | | | | | |
| A | Shaded areas indicate that the use class is permissible in the zone | | | | | | |
| B | Shaded area with number /notation indicates the conditions attached | | | | | | |

| LAND USE ZONES AND PERMISSIBLE LAND USES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| USE CLASS | | LAND USE ZONES | | | | | | |
| Sub Code | Description | Residential | Commercial | Industrial | Warehousing | Rural and Agricultural | | |
| | | | | | | Abadi deh and 200 m around Phirni | Rest of Rural and Agricultural | |
| | Only farm houses permissible | | | | | | | 1 |
| | Old age homes and Orphanages only | | | | | | | 2 |
| | Wholesale trade in agricultural commodities only | | | | | | | 3 |
| | Only Manufacture of bricks, earthen pots, country tiles etc. | | | | | | | 4 |
| | Warehousing for agricultural commodities only. | | | | | | | 5 |
| | Only in Low Density Residential Zone | | | | | | | 6 |
| | 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 | | | | | | | 7 |
| | Only Knowledge Parks as defined at Sr. No. 11 | | | | | | | 8 |
| * All types of industries permitted in the designated land use zone are subject to the fulfillment of requirements of different departments. | | | | | | | | |
| ** The siting of petrol pumps shall be subject to instruction / guidelines of IRC/ MORTH/TCPO/Punjab govt. issued from time to time. | | | | | | | | |
| *** Subject to siting guidelines. | | | | | | | | |
| C | Minimum area required for Educational and Health care facilities shall be as prescribed by government or the accrediting authorities from time to time | | | | | | | |
| | All developments will be subject to Environmental Clearance wherever required. | | | | | | | |
| | Minimum width of the access road for all public places and involving “Assembly” occupancy shall be 18 m. | | | | | | | |

## 6. DESIGNATED AREAS

Following areas have been specifically designated in the proposed land use plan.

- Traffic and Transportation
- Utilities and Services
- Public & semi public (including Govt. & Semi Govt. offices)
- Government Land
- Forest Areas

## 7. USE PROVISIONS IN DESIGNATED AREAS

Following uses are permissible in the designated areas mentioned in 5 above.

### 7.1. Traffic & Transportation: Permissible uses

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.

### 7.2. Utilities and Services : Permissible uses

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

### 7.3. Public and semi-public activities (including Govt. & Semi Govt. offices) : Permissible uses

Governmental and semi governmental offices, Governmental administrative centres, Secretariat, Educational- Cultural and Religious institutions including Theaters, Auditoriums etc. Medical Health Institutions, Community Centres, Club, Orphanage, Old Age Home, Banks, Police Stations etc.

### 7.4. Government Land: Permissible uses

All the uses related to Defense Services and any other use as decided by the Ministry of Defense. No other uses are permitted.

### 7.5. Forest Areas: Permissible uses

This area indicates all Reserved Forests as notified by the Forest Department. No activity other then Forest is permitted in this area unless expressly allowed by the Forest Department

## 8. SPECIAL CONDITIONS

8.1. The siting of Petrol Pump / Filling Stations shall be subject to instructions/guidelines of IRC/MORTH/TCPO /Punjab Govt. issued from time to time.

8.2. Minimum width of access road for warehousing uses shall be 80 feet.

8.3. All public and semi-public uses in residential zone shall be located on independent plots with minimum access of 80 feet.

## 9. EXCEPTIONS

9.1. Any use not listed above under a specific zone will not be permissible in the respective zone

**9.2.** Notwithstanding the above, the uses specifically provided for in the Sector Zoning Plans shall be permissible or as may be allowed by the Chief Town Planner, Punjab.

**9.3.** Uses determined by the Chief Town Planner, Punjab as compatible with uses permissible shall be allowed in respective zones.

**9.4.** Uses of land covered under Optimum Utilisation of Vacant Government Land (OUVGL) Scheme of the State Government shall be determined by the Government at any appropriate time not withstanding the provisionsof these Regulations.

**9.5.** Developments approved prior to coming into force of these Regulations shall be deemed to be in compliance with these Regulations.

## 10. RESIDENTIAL DENSITIES

Residential zone is divided into three sub zones viz. High Density Zone, Medium Density Zone and Low Density Zone and are shown on the Proposed Land Plan Drg. No. DTP (F) 26/09 Dated 14-07-2009. The maximum permissible net plot density in these zones shall be as shown in Table below:

| Sr.No. | Zone | Net Plot Density |
|---|---|---|
| 1 | High Density Residential Zone RD 1 | More than 250 persons/ha. |
| 2 | Medium Density Residential Zone RD 2 | 100 to 250 persons/ha. |
| 3 | Low Density Residential Zone RD 3. | Below 100 persons/ha. |

## 11. IMPLEMENTATION OF THESE REGULATIONS

11.1. All authorities competent to grant permission for layout or sub-division of land or construction of building or development of land in any other form shall ensure that the permitted development is in compliance with these regulations.

11.2. Land owners desirous of developing their land can obtain, by applying to the designated authority in writing and giving details of their land along with necessary maps, a list of permissible uses.

11.3. Similarly land owners proposing development of certain uses on their land can obtain a certificate of “Compliance with Master Plan” from a designated authority.

## Annexure 1 : Notification Regarding Declaration of LPA,Abohar

GOVERNMENT OF PUNJAB
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
(HOUSING-I BRANCH)

**NOTIFICATION**

Dated: 15/12/08

No.12/5/08-4HG1/1999 whereas it appears to the Governor of Punjab that to meet the challenge of rapid growth of Abohar City and to provide for a workable framework for comprehensive planned and regulated development, preparation of Statutory Master Plan of Abohar City is very essential. Hence in order to develop Abohar City and its surrounding in orderly manner and to prepare its Master Plan under "The Punjab Regional and Town Planning and Development Act. 1995", the Governor of Punjab is pleased to declare the Local Planning area of Abohar City within the meaning of sub section (1) of section 56 of the Punjab Regional and Town Planning and Development (Amendment) Act. 2006. The total area proposed for Local Planning area is 80424 Hectares which includes one urban settlements namely Abohar and adjoining 49 rural revenue estates. The schedule of boundary of Local Planning Area is as under:-

**NORTH:** Starting from point 'A' which is north-western corner of villages boundary of village Danewala Satkosi H.B. No:124, which is also the common meeting point of village boundary of village Roop Nagar H.B. No:126, Jandwala H.B. No:127 and Danewala H.B. No:124, then moving toward east along northern boundary of village Danewala H.B. No:124, Panj Kosi H.B. No:123, then along the western boundary of village Churiwala Dhana H.B. No:129 and Nihal Khera H.B. No:130, then along the northern boundary of village Nihal Khera H.B. No:130, Bazidlpur Katianwali H.B. No:137, Jhumianwali H.B. No:136, Dharangwala H.B. No:135, Kundal H.B. No:134, Bhangla H.B. No:149, Ramgarh H.B. No:150 and Gaddan Doab H.B. No:151 up to point 'B' which is the north-eastern corner of village boundary of village Gaddan Doab H.B. No:151.

**EAST:** Starting from point 'B' moving towards south along the eastern boundary of village Gaddan Doab H.B. No:151, Ramgarh H.B. No:150, Chanan Khera H.B. No:118, Baluana H.B. No:115, Malookpur H.B. No:60, Jodhpur H.B. No:59, Bhader Khera H.B. No:61 and Sardarpura H.B. No:62 which is also the district boundary of district: Mukatsar up to point 'C' which is situated on south-eastern corner of village Sardarpura H.B. No:62 and is also the common meeting point of district boundary of district Mukatsar and village boundary of Mehrajpur H.B. No:42 and Sardarpura H.B. No:62.

**SOUTH:** Starting from point 'C' moving towards west along the southern boundary of village Sardarpura H.B. No:62,

Chief Town Planner
Punjab, Chandigarh

Dotarianwali H.B. No:65, Rajanwali H.B.NO 64, then again moving towards south along the eastern boundary of village Wahabwala H.B. No:76, Rajpura H.B. No:75 touching the state boundary of Rajasthan , then towards west along the southern boundary of village Rajpura H.B. No:75, Sherewala H.B. No:77 and then along the western boundary of village Sherewala H.B. No:77, village Khatwan H.B. No:78, Kandwala Amarkot H.B. No:83, Patti Billa H.B. No:91, Daulatpura H.B. No:93 and Gidderwali H.B. No: 94 up to point 'D' which is situated on the south-western boundary of village Gidderanwali H.B. No:94 and is also the common meeting point of villages boundary of village Panjawa H.B. No:103, Gidderamwali H.B. No:94 and Tootwala H.B. No:102.

**WEST:** Starting from point 'D' moving towards north along the western boundary of village Gidderanwali H.B. No:94, Dewan Khera H.B. No:104, Koil Khera H.B. No:105, Haripura H.B. No:106, Danewala Satkosi H.B. No:124 up to point 'A' which is the starting point of schedule of boundary.

These boundaries have been shown on Drawing No. DTP(F) 23/08 Dated:18-11-08. All provisions laid down u/s 56(2) of The Punjab Regional and Town Planning and Development (Amended) Act 2006 and all the concerned rules framed under this act have been taken into consideration.

Place: CHANDIGARH.
Date.. 11-12-08.

(Arun Goel, I.A.S.)
Secretary to Government of Punjab.
Housing & Urban Development Department.

Chief Town Planner.
Punjab, Chandigarh

Endst. No. 12/18/2008-4HG1/ Dated, Chandigarh, the:

A copy along with spare copy is forwarded to the Controller, Printing & Stationary, Punjab Chandigarh with the request that this notification may be published in the official gazette (Extra ordinary) and 100 copies of the printed notification may be sent to the Government for record.

Additional Secretary
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ 7894 Dated, Chandigarh, the: 15/12/08

A copy is forwarded to the Chief Town Planner, Punjab, Chandigarh w.r.t. his letter No. 9190-CTP (PB)/SA-212 dated 26-11-2008 for information & necessary action.

Additional Secretary
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ Dated, Chandigarh, the:

A copy is forwarded to the Chief Administrator, PUDA, Mohali for information & necessary action.

Additional Secretary
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ Dated, Chandigarh, the:

A copy is forwarded to the Deputy Commissioner, Ferozepur for information & necessary action.

Additional Secretary
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ Dated, Chandigarh, the

A copy is forwarded to the Director Information Technology, Punjab with a request that this notification may kindly be published on the website of Government of Punjab.

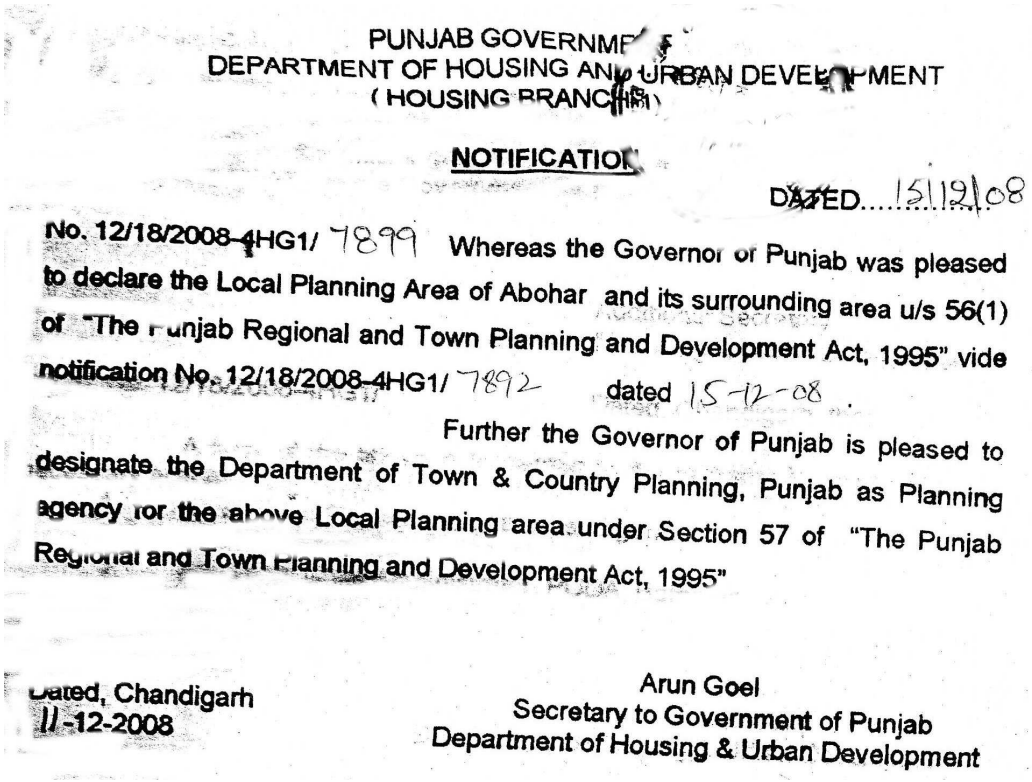
Additional Secretary
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ Dated, Chandigarh, the

A copy is forwarded to the Additional Chief Administrator, PUDA, Bathinda for information & necessary action.

Additional Secretary
Department of Housing & Urban Development

**Annexure 2 Notification Regarding Declaration of Planning Agency**



PUNJAB GOVERNMENT
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
( HOUSING BRANCH-1 )

**NOTIFICATION**

DATED....15/12/08

No. 12/18/2008-4HG1/ 7899 Whereas the Governor of Punjab was pleased to declare the Local Planning Area of Abohar and its surrounding area u/s 56(1) of "The Punjab Regional and Town Planning and Development Act, 1995" vide notification No. 12/18/2008-4HG1/ 7892 dated 15-12-08.

Further the Governor of Punjab is pleased to designate the Department of Town & Country Planning, Punjab as Planning agency for the above Local Planning area under Section 57 of "The Punjab Regional and Town Planning and Development Act, 1995"

Dated, Chandigarh
11-12-2008

Arun Goel
Secretary to Government of Punjab
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ Dated, Chandigarh, the:

A copy along with spare copy is forwarded to the Controller, Printing & Stationary, Punjab Chandigarh with the request that this notification may be published in the official gazette (Ordinary) and 50 copies of the printed notification may be sent to the Government for record.

Additional Secretary
Department of Housing & Urban Development

Endst. No. 12/18/2008-4HG1/ 7901 Dated, Chandigarh, the: 15/12/08

A copy of the above is forwarded to the following for information & necessary action:-

1. Chief Town Planner, Punjab, Chandigarh.
2. Chief Administrator, PUDA, Mohali.
3. Additional Chief Administrator, PUDA, Bathinda.

Additional Secretary
Department of Housing & Urban Development

**Annexure 3: List of towns and villages included in LPA, Abohar**

| Sr. No. | Name of Village/Town | H.B. No. | Area in Hectares | Population 2001 | Remarks |
|---|---|---|---|---|---|
| 1 | Abohar MC | 121 | 2307 | 124339 | Includes partial area of Abohar and Alamgarh village |
| 2 | Abohar Rural | 121 | 4861 | 13441 | |
| 3 | Daulat Pura | 93 | 1453 | 2537 | |
| 4 | Patti Billa | 91 | 802 | 2335 | |
| 5 | Sappan Wali | 92 | 1776 | 3935 | |
| 6 | Killian Wali | 122 | 1697 | 4061 | |
| 7 | Saiyad Wala | 108 | 1758 | 5610 | |
| 8 | Dharam Pura | 82 | 1485 | 4188 | |
| 9 | Kand Wal Amarkot | 83 | 2352 | 5616 | |
| 10 | Kikar klera | 81 | 1528 | 4101 | |
| 11 | Amarpura | 79 | 1539 | 3733 | |
| 12 | Ramsara | 80 | 1810 | 4699 | |
| 13 | Kala Tibaa | 111 | 1632 | 3062 | |
| 14 | Raipur | 112 | 1467 | 3223 | |
| 15 | Kera khera | 114 | 1122 | 3536 | |
| 16 | Bahawal Basi | 113 | 1568 | 3583 | |
| 17 | Baluana | 115 | 2017 | 5112 | |
| 18 | Bhangla | 149 | 885 | 2067 | |
| 19 | Kundal | 134 | 1644 | 3812 | |
| 20 | Gobindgarh | 119 | 1808 | 6027 | |
| 21 | Patti Teja | 133 | 627 | 1248 | |
| 22 | Roheran Wali | 132 | 1571 | 3187 | |
| 23 | Danger Khera | 131 | 1609 | 5731 | |
| 24 | Burj Mohar Wala | 120 | 1021 | 3778 | |
| 25 | Alamgarh | 109 | 2323 | 5838 | |
| 26 | Chanan Khera | 118 | 1356 | 2990 | |
| 27 | Rajanwali | 64 | 1627 | 3097 | |
| 28 | Koil Khera | 105 | 724 | 1388 | |
| 29 | Danewala Satkosi | 124 | 1657 | 3365 | |
| 30 | Haripura | 106 | 1382 | 2720 | |
| 31 | Panj Kosi | 123 | 1690 | 3777 | |
| 32 | Khuian Sarwar | 107 | 1606 | 3980 | |
| 33 | Churiwala Dhaura | 129 | 1563 | 5979 | |
| 34 | Nihal Khera | 130 | 1425 | 4352 | |
| 35 | Bazidpur Katian wali | 137 | 1610 | 4478 | |

| | | | | | |
|---|---|---|---|---|---|
| 36 | Dewan Khera | 104 | 2250 | 4060 | |
| 37 | Jhumianwala | 136 | 1697 | 4341 | |
| 38 | Dharang Wala | 135 | 1540 | 4158 | |
| 39 | Ramgarh | 150 | 652 | 923 | |
| 40 | Gaddan Doab | 151 | 1092 | 1976 | |
| 41 | Malookpur | 60 | 1298 | 3232 | |
| 42 | Jodhpur | 59 | 865 | 1846 | |
| 43 | Bahader Khera | 61 | 1321 | 2514 | |
| 44 | Dhaban Kokrian | 63 | 2418 | 2849 | |
| 45 | Sardarpura | 62 | 1218 | 2777 | |
| 46 | Dotarianwali | 65 | 1754 | 2702 | |
| 47 | Khatwan | 78 | 1159 | 1447 | |
| 48 | Wahabwala | 76 | 1637 | 3207 | |
| 49 | Sherewala | 77 | 1343 | 2290 | |
| 50 | Rajpur | 75 | 1523 | 3111 | |
| 51 | Gidderanwali | 94 | 1355 | 2642 | |
| | | **TOTAL** | **80424** | **309000** | |

**Annexure 4: Growth Rate of Villages of LPA, Abohar 1981-2001**

| NAME | Population | | | Growth Rate | |
|---|---|---|---|---|---|
| | 1981 | 1991 | 2001 | 1981-91 | 1991-2001 |
| Abohar (M Cl) | 86334 | 107163 | 124339 | 24.13 | 16.03 |
| Abohar (Rural) | 5413 | 6827 | 13441 | 26.12 | 96.88 |
| Alamgarh | 3830 | 5293 | 5838 | 38.20 | 10.30 |
| Amarpura | 2341 | 3419 | 3733 | 46.05 | 9.18 |
| Bahader Khera | 1528 | 1970 | 2514 | 28.93 | 27.61 |
| Baluana | 3210 | 4038 | 5112 | 25.79 | 26.60 |
| Bahawal Basi | 2257 | 2981 | 3583 | 32.08 | 20.19 |
| Bazidpur Katianwali | 3031 | 4258 | 4478 | 40.48 | 5.17 |
| Bhangla | 1664 | 1815 | 2067 | 9.07 | 13.88 |
| Burj Mohar Wala | 1712 | 2985 | 3778 | 74.36 | 26.57 |
| Chanan Khera | 2078 | 2820 | 2990 | 35.71 | 6.03 |
| Churiwala Dhana | 3730 | 5068 | 5979 | 35.87 | 17.98 |
| Danewala Satkosi | 2568 | 3217 | 3365 | 25.27 | 4.60 |
| Danger Khera | 3556 | 4813 | 5731 | 35.35 | 19.07 |
| Daulat Pura | 1305 | 1873 | 2537 | 43.52 | 35.45 |
| Dhaban Kokrian | 2006 | 2442 | 2849 | 21.73 | 16.67 |
| Dharampura | 2704 | 3474 | 4188 | 28.48 | 20.55 |
| Dharangwala | 2659 | 3206 | 4158 | 20.57 | 29.69 |
| Dewan Khera | 3283 | 3431 | 4060 | 4.51 | 18.33 |
| Dotarianwali | 2135 | 2321 | 2702 | 8.71 | 16.42 |
| Gaddan Doab | 1812 | 1903 | 1976 | 5.02 | 3.84 |
| Gidderanwali | 1821 | 2316 | 2642 | 27.18 | 14.08 |
| Gobindgarh | 2510 | 3658 | 6027 | 45.74 | 64.76 |
| Haripura | 2242 | 2405 | 2720 | 7.27 | 13.10 |
| Jhumianwali | 3044 | 3908 | 4341 | 28.38 | 11.08 |
| Jodhpur | 1311 | 1531 | 1846 | 16.78 | 20.57 |
| Kala Tibba | 1820 | 2607 | 3062 | 43.24 | 17.45 |
| Kand Wala Amarkot | 4245 | 5125 | 5616 | 20.73 | 9.58 |
| Kera Khera | 2365 | 2965 | 3536 | 25.37 | 19.26 |
| Khatwan | 1240 | 1523 | 1447 | 22.82 | -4.99 |
| Khuian Sarwar | 2467 | 4033 | 3980 | 63.48 | -1.31 |
| Kiker Khera | 3063 | 3624 | 4101 | 18.32 | 13.16 |
| Killian Wali | 3152 | 3489 | 4061 | 10.69 | 16.39 |
| Koil Khera | 1105 | 1440 | 1388 | 30.32 | -3.61 |
| Kundal | 2774 | 2825 | 3812 | 1.84 | 34.94 |
| Malookpur | 2331 | 2712 | 3232 | 16.34 | 19.17 |
| Nihal Khera | 2805 | 3819 | 4352 | 36.15 | 13.96 |
| Panj Kosi | 2994 | 3413 | 3777 | 13.99 | 10.67 |
| Patti Billa | 1440 | 1901 | 2335 | 32.01 | 22.83 |

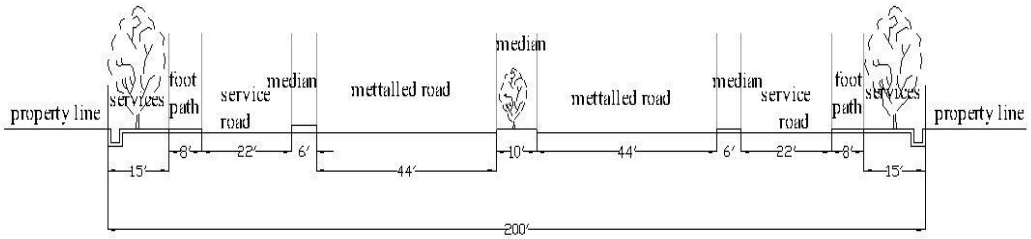
| | | | | | |
|---|---|---|---|---|---|
| Patti Teja | 828 | 995 | 1248 | 20.17 | 25.43 |
| Raipur | 2412 | 2952 | 3223 | 22.39 | 9.18 |
| Rajanwali | 2533 | 2997 | 3097 | 18.32 | 3.34 |
| Rajpur | 2675 | 2836 | 3111 | 6.02 | 9.70 |
| Ramgarh | 677 | 853 | 923 | 26.00 | 8.21 |
| Ramsara | 2751 | 3998 | 4699 | 45.33 | 17.53 |
| Roheran Wali | 1969 | 2709 | 3187 | 37.58 | 17.64 |
| Saiyad Wala | 3686 | 4579 | 5610 | 24.23 | 22.52 |
| Sappan Wali | 2324 | 3396 | 3935 | 46.13 | 15.87 |
| Sardarpura | 2220 | 2056 | 2777 | -7.39 | 35.07 |
| Sherewala | 1792 | 1995 | 2290 | 11.33 | 14.79 |
| Wahabwala | 2246 | 2822 | 3207 | 25.65 | 13.64 |
| Total | **207998** | **260799** | **309000** | | |

**Annexure 5: List of Trees recommended for Plantation on the Main Roads within Urban Limits/ Master Plan Areas**

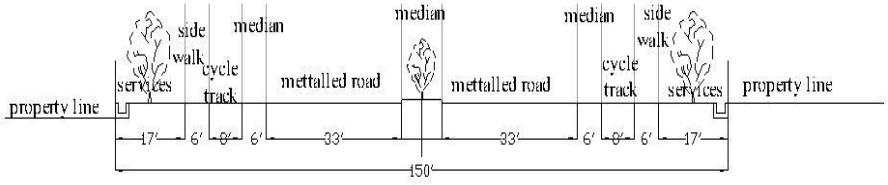
| Sr. No. | Name of tree (Botanical/ common ) | Description |
|---|---|---|
| 1. | Alstonia scholaris ( Chhatim) | Tall tree with columnar shape, Evergreen, very ornamental, bears greenish-white flowers in October- December. |
| 2. | Barringtonia acuitangula ( Smudar Phal) | Medium tree with spreading 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, evergreenwith columnar form, highly attractive and ornamental. Propagated by layers and cuttings. Flowers deep pink from January to April and from Septermber to Novermber. |
| 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, lealfless 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, lelafless 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. | Jacranda 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. | Putranjaniva 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. | Tabeuia Rosea | Small in height, golumnar 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. |

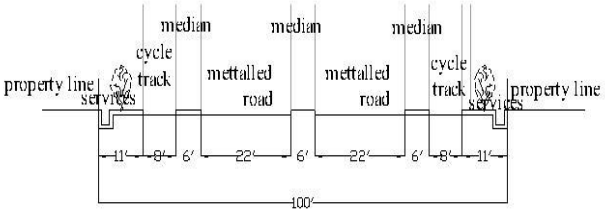
**Annexure 6:- Typical Road Cross Section of the Various Hierarchy of Roads.**



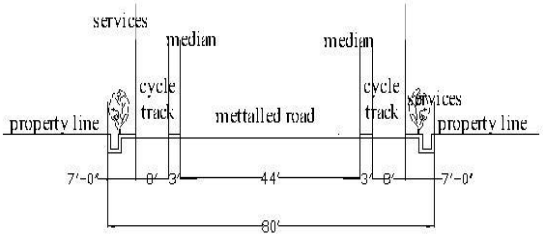

**MAJOR ARTERIAL ROAD**




**MINOR ARTERIAL ROAD**




**COLLECTOR ROAD (DIVIDED)**




**COLLECTOR ROAD (UNDIVIDED)**