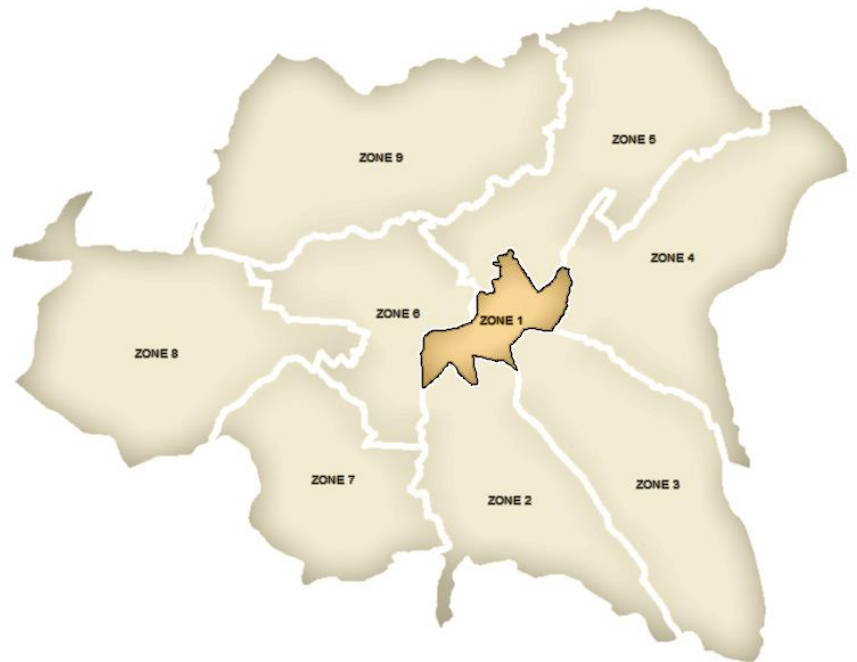


ZONE-1

ZONAL DEVELOPMENT PLAN



DRAFT

2015



MUSSOORIE DEHRADUN DEVELOPMENT AUTHORITY

CONSULTANT

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Note:

- Zonal Development plan is a broad land use document. Due to small scale of map only important land use are proposed in the plan. The classification of land uses are in details when compare to master plan.
- Proposal of reconsidered land use are based on policy, it is not based on individual land ownership and “*Sajra* maps”.
- Classified land use are kept into important land use classes as per the guidelines of UDPFI in accepted Dehradun Master plan -2025
- Proposed Zonal Development plan is prepared based on latest high resolution satellite image and GIS maps retaining originality to the maximum possible extent.
- It is natural to exists difference in the diagram of different land uses, size of sites, dimension of features; routes etc. between map and GIS based recent base maps in the master plan 2025
- The boundaries have been modified for different sites of large size represented in the GIS based map. Existing sites of small size whose clear drafting is not possible on the level of zonal development plan has not been marked on the map. On the field site’s boundary will be assumed as per original ground position.

- Keeping in view those parameters of base maps and records of forest land obtained from the forest department are of same type so forest boundary has been drawn correctly to the possible extent.
- In any important land use class, in the case reserved forest are found on the ground then related place will be considered under forest area. In the case boundary of any forest area shared by the private land or vice versa land use will be fixed after the confirmation of the forest department as per the need
- Because of unavailability of map related to the boundary of cantonment, the boundary of cantonment has been shown as it is in the Master plan 2025.
- Proposed commercial region on important routes have been discussed along with their considered average depth, route name and proposed route rights and have been listed in the appendix of the report of the Master Plan.
- The alignments of the proposed routes /expressway have been kept as it is to the possible extent but existing routes have been kept as per their alignment in the GIS based maps.
- The described river-drainage in the Master plan report whose both side 10-10 meter land has to be kept aside for afforestation not been shown in the Master Plan map this provision will be ensured through bylaws.
- If any error is found in the map as per above described provision then it will be interpreted as drafting error and a modification in the Master plan.
- All those episodes of land use change which has been depicted in the master plan map in the expectation of issuance of notice will be assumed under corresponding use only after the completion of the process of the act.

1. INTRODUCTION

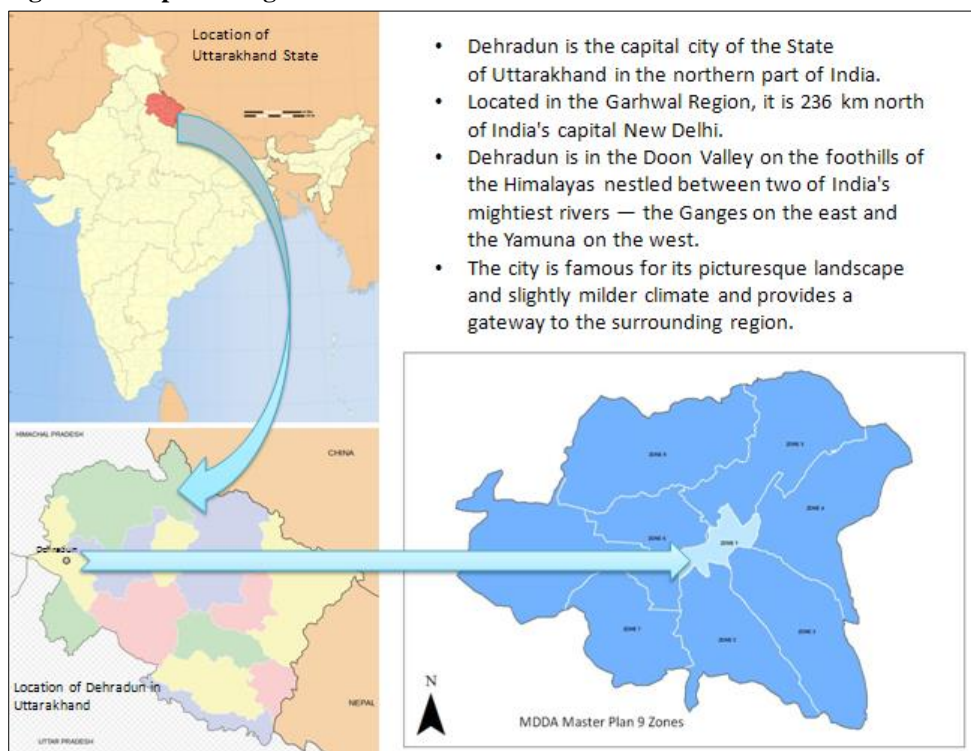
1.1 Introduction:

Mussoorie Dehradun Development Authority (MDDA) area includes Dehradun Urban Agglomeration, Mussoorie Municipal area, Dehradun Cantonment, FRI, Census Towns and surrounding 185 Revenue Villages in Dehradun District. The limits of this development area coincide with the Dehradun District Boundary in the north, forest area in the south and west, and river Song in the east.

Mussoorie Dehradun Development Authority (MDDA) has timely initiated the exercise for the preparation of Zonal Development Plans for 9 Zones as defined in the approved Dehradun Master Plan 2025 (amended). Master plan area spread over an area of about 360 Sq.km. having a population of 9.37 lakhs as per 2011 census and the master plan was prepared for Dehradun City only.

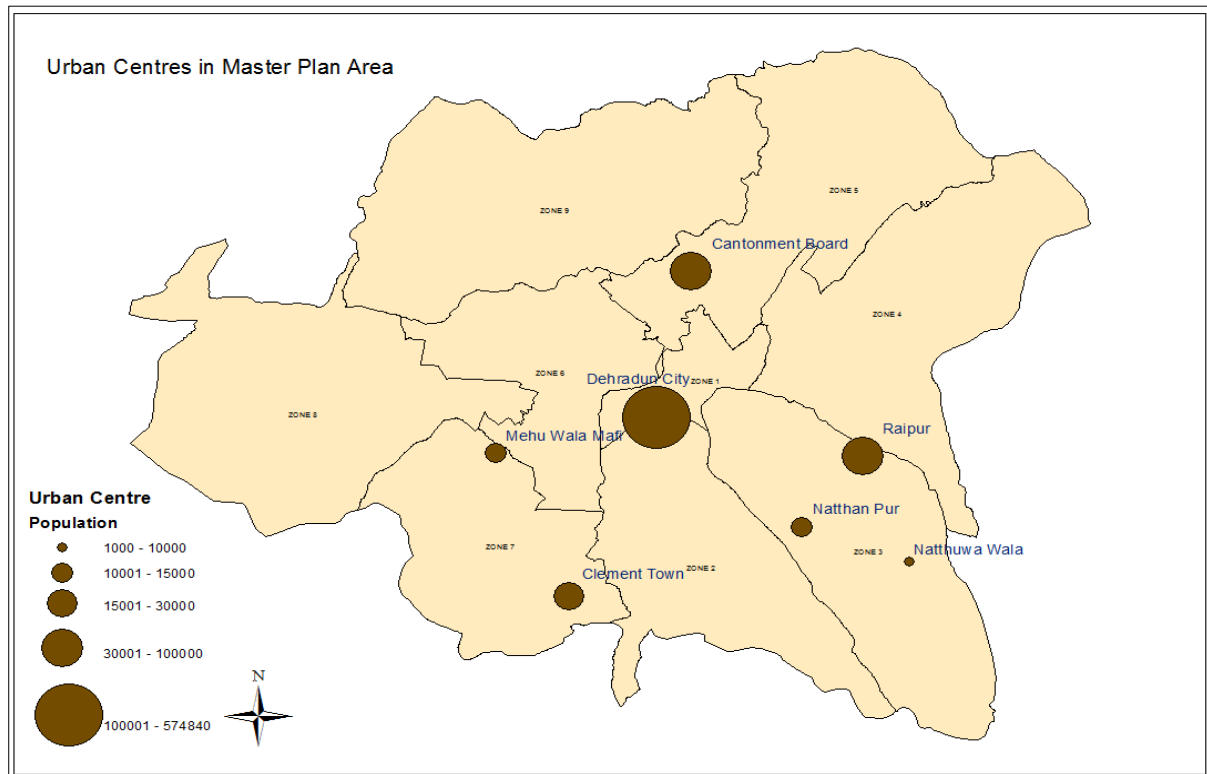
Dehradun lies at 30.3180° N, 78.0290° E, foothills of the Himalayas which makes its climate moderate i.e., neither too hot nor too cold. The scenic beauty all around makes Dehradun location more attractive. This zone is situated between Lat Long values at - NW - 30°20'52.68"N 78°0'43.34"E & SE - 30°18'23.75"N 78°3'57.63"E.

Figure 1 : Map showing the Zone-1 location in MDDA



1.2 Urban Centers:

Figure 2 : Map Showing the Growth Centers in MDDA



The MDDA master Plan region comprises major urban centers in it besides Dehradun Municipal Corporation. Other important urban centers are Dehradun Cantonment Board, Raipur, Clement town, Forest Research Institute, Balawala and Raipur etc. This entire region developed as multi-functional as clusters of this region are around the institutions and along the major state and national highways.

1.3 Approach and Methodology

Extensive primary survey starting with the reconnaissance survey to understand the physical, social and economic structure of the study area has been taken up. This study also gives an idea of history, heritage, the level of development, status of existing infrastructure both physical, social and living environment of the region. Under this process, recent High Resolution Satellite Data from NRSC/ Master Plan and digital Revenue cadastral maps (Sajra) will be collected from MDDA and other respective departments which will be further carried out for inventory process. Field survey will be carried out for base map updation as well as for land use data collection.

The attributes of each feature will be collected by maintaining a unique ID, where the corresponding feature is represented by the same ID in the digital data. Finally, existing land use map was prepared based on the UDPFI guidelines and data will be analyzed for report.

Detailed proposed land use map was prepared at the zonal level without changing the approved master plan proposals. Comprehensive analysis of existing land use and master plan proposal, identifying the deviation from the ground to be analyzed and the proposals have been drawn up for the perspective period of 2025.

Proposals for conservation of forest and hill area, scenic spots have also been included. Outlook of various uses encompassing residential, commercial, industrial, educational and public and semi-public uses has been indicated in the form of a land use map both for existing and proposed development scenarios.

1.4 Dehradun Master Plan-2025:

The MDDA, Dehradun has been divided the Master plan area into 9 Planning Zones designated from '1' to '9' in the Master Plan for Dehradun-2025, The Master Plan covers the City of Dehradun, a few more urban centres and the surrounding rural areas. Master plan area spread over an area of about 360 Sq.km. having a population of 7.14 lakhs as per 2011 census. The planning zones as delineated by the MDDA in Master plan of the region comprise urban areas, revenue villages, developmental activities and natural boundaries as existed in Approved Master plan.

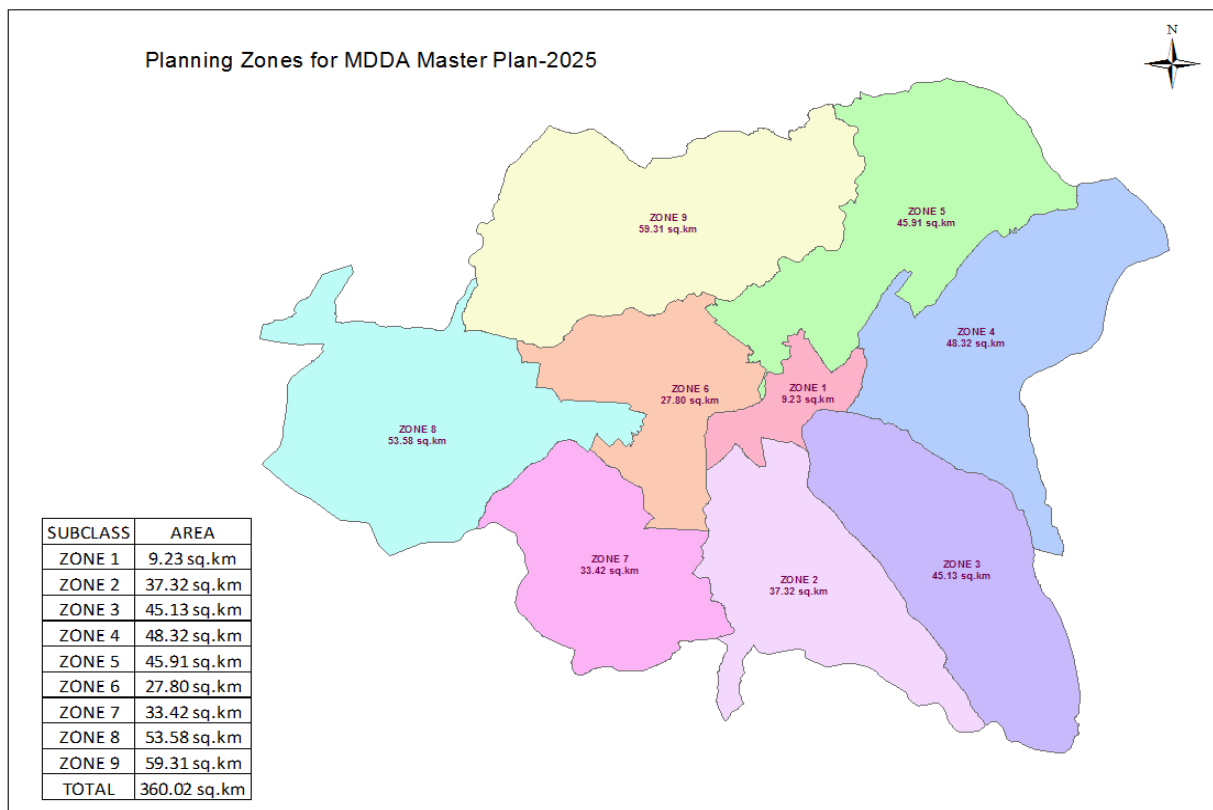
Dehradun is facing a many problems like housing shortage; tremendous pressure on the existing urban infrastructure and, problem of traffic congestion. In the changed scenario, MDDA has taken up various planning proposals-both short term and long term, to mitigate the existing problems and to adequately cope with future requirements of the Master Plan area. The Authority is entrusted with the responsibility of promoting and securing the development of all of the areas included in the development area according to a plan and, dispose of land and other properties to carry out development and other operations, to execute work in services and amenities and, generally, to do anything necessary or expedient for the purpose incidental thereto.

The specific objectives the Authority strives to accomplish are as follows:

- To carry out the civic survey and prepare a comprehensive development plan for the development area under the jurisdiction of the Authority.
- To prepare zonal development plan for each of the zones into which the development area is divided.
- To promote and secure the development of areas situated in this urban region according to the Master Plans and zonal development plans.
- To control the use of land for various purposes by acquisition, development and disposal of land.
- To carry out development works such as roads, buildings, water supply, sewerage and other schemes within the development areas so as to provide infrastructure facilities within it, and
- To co-ordinate and regulate the activities of various agencies of the State, Central and Local authorities within its jurisdiction.

1.5 Regional Setting

Figure 3 : Map showing the Planning Zones in MDDA



Dehradun is very well connected to all the major urban centers in and outside the region. It is very well connected by roads and rails and also airstrips. It is only 235 kms away from the national capital Delhi. The nearest airport is situated 25km away from Dehradun at the outskirts of the town. Distances from some of the major urban areas are as in below table.

Table 1: Distance from major cities

City	Distance (in kms)
Delhi	235
Chandigarh	170
Haridwar	54
Mussoorie	34
Rishikesh	43
Agra	382
Shimla	221
Yamunotri	279
Nainital	297
Kedarnath	270

The city is very well connected by daily trains coming from Delhi, Calcutta, Mumbai, Varanasi, Lucknow and other places.

2. PROFILE OF MASTER PLAN AREA AND ZONES

2.1 Profile of Master Plan area:

As per data released by Govt. of India for Census 2011, Dehradun is an Urban Agglomeration coming under category of Class I UAs/Towns. Dehradun city is governed by Municipal Corporation and is situated in Dehradun Urban Region. MDDA established in 1984 with 185 villages and Dehradun Municipality and Other Census Towns. MDDA includes part of 3 blocks namely Raipur, Sahaspur and Khandoiwala. MDDA has prepared Master Plan for Dehradun area in 2005. Master Plan area divided into 9 zones on the basis of physical attributes, and all these zones are incorporated as a part of MDDA Zonal Development Plan preparations, which includes built up areas and non-built up areas. Presently Master Plan area comprise of Dehradun city, Dehradun Cantonment Area, Forest Research Institute (FRI), Clement Town, Raipur Town, other census towns and surrounding villages. Presently about 133 villages exists in Master Plan area as villages and others are converted or merged into urban areas.

2.2 Population

As per 2011 census total population of the MDDA Master Plan area is 9, 37,597. Out of this population 76% of the population i.e., 7, 25,000 live in urban areas, in that 61% comprises Dehradun Municipal Corporation and another 16% in Census Towns and remaining lives in rural areas i.e., villages. Urban area population includes 7 Census towns and Dehradun Municipal Corporation. Below are the names of the census towns.

Table 2: List of Urban areas and population in Master Plan area

Sl. No	Level	Name	Population
1	Municipal Corporation	Dehradun	574840
2	Census Town	Raipur	32900
3	Census Town	Cantonment Board	52716
4	Census Town	Clement Town	22557
5	Census Town	Mehu Wala Mafi	13475
6	Census Town	Natthan Pur	13905
7	Census Town	Natthuwa Wala	9206
8	Census Town	FRI	5601
TOTAL			725200

Source: Census of India 2011

Table 3 : MDDA Population Urban and Rural

Area	Population				2011	
	1981	1991	2001	2011	%	GR
Census Towns	69995	94534	124292	150360	16.04	20.97
Dehradun M.Corp	211563	270562	426674	574840	61.31	34.72
Other Villages	72776	115327	140467	212397	22.65	51.20
MDDA TOTAL	354334	480423	691433	937597	100.00	35.60

Source: Census of India 2011

2.3 Population Growth

The total population growth of MDDA Master Plan area is about 37.2% from 2001 to 2011, whereas Uttarakhand state growth is 18.8% only. It explains that after formation of state capital in 2000, the city attracted the population for various employment opportunities to live in. Whereas, other towns such as Raipur, Clement Town including FRI and Cantonments are grown at the rate of 20%, but villages in MDDA area are having high amount of growth rate i.e., 59% of growth rate. Villages surrounded by Dehradun city have grown with high growth rate due to land availability for residential, industrial, offices and education institutions.

Table 4: Population Growth Rate 1981 to 2011

Year	Growth Rate			
	MDDA	Dehradun M Corp	Census Towns	Other Villages
1981-91	30.07	27.88	35.05	21.43
1991-01	48.59	57.69	31.47	41.84
2001-11	35.60	34.72	20.97	51.20

Source: Census of India 2011

Table 5: Zone wise population 1981 to 2011

Zone No	Area in Sq.km	Proportionate Population			
		1981	1991	2001	2011
1	9.23	98764	135435	158384	163287
2	37.32	40363	68329	79936	140906
3	45.13	45607	60717	104159	157085
4	48.32	13555	19047	32055	47673
5	45.91	40487	47985	74115	96466
6	27.80	46010	53386	111188	158465
7	33.42	27307	40500	56301	84327
8	53.58	16213	21487	34314	42956
9	59.31	26024	33537	40981	46432
Total	360.02	354334	480423	691433	937597

Source: Census of India 2011

Table 6: Population Density in MDDA Master Plan area

Area	Area in Sq.km	Population-2011	Density
Dehradun Municipal Corp	31.08	574840	18495
MDDA Master Plan Area	360.02	937597	2604
MDDA- Excluding Municipal Corp	328.94	362757	1103

Source: Census of India 2011

While calculating the density zone wise, zone 1 having high density followed by zone-6 because these two zones having municipal area and zone 4, 8, 9 having low density due forest and hilly areas.

Table 7: Zone wise Population Density

Zone No	Area in Sq.km	Population	Density persons/Sq.km
1	9.23	163287	17691
2	37.32	140906	3776
3	45.13	157085	3481
4	48.32	47673	987
5	45.91	96466	2101
6	27.80	158465	5700
7	33.42	84327	2523
8	53.58	42956	802
9	59.31	46432	783
Total	360.02	937597	2604

Source: Census of India 2011 and Master Plan

2.4 Profile of Zone-1

2.4.1 Population

Zone-1 is most densely zone out of 9 zones. It is having city core area which includes wholesale markets, state level administrative buildings. As per 2011, census zone 1 population is 1,631,287 which come 17.4% of total MDDA population. Zone-1 comprising of 22 wards of Dehradun Municipal Corporation with area of 9.23 Sq.km which is derived based on superimposing of ward map on MDDA Master Plan zones.

Below table shows the ward names and population details-

Table 8 : Zone-1 Population according to wards

Sl.No	Ward No	Ward Name	POP_2001	Population-2011			Literacy-2011			Work_Force-2011		
				M	F	T	M	F	T	M	F	T
1	5	Aryanagar	7193	4007	3855	7862	3524	3228	6752	2066	576	2642
2	6	Dobhalwala	10114	4502	4133	8635	3846	3350	7196	2269	692	2961
3	7	Vijay Colony	10242	4427	4318	8745	3841	3436	7277	2165	668	2833
4	9	D.L Road	5869	3781	3484	7265	3131	2481	5612	1812	307	2119
5	10	Rispana	9719	3850	3423	7273	3135	2553	5688	2032	638	2670
6	11	Karanpur	10046	3535	3491	7026	3131	2944	6075	1871	521	2392
7	12	Bakralwala	4886	3621	3373	6994	3243	2878	6121	1841	630	2471
8	13	Chhkkuwala	9319	3290	3068	6358	2667	2389	5056	1838	502	2340
9	14	Indira Colony	5364	4535	4279	8814	3728	3111	6839	2317	549	2866
10	15	Clock Tower	7010	2798	2543	5341	2352	2109	4461	1608	433	2041
11	17	M.K.P	3381	1562	1502	3064	1370	1280	2650	883	279	1162
12	18	Kalika Mandir Marg	9645	2716	2610	5326	2377	2207	4584	1540	342	1882
13	19	Tilak Road	7937	4465	4222	8687	3793	3440	7233	2575	553	3128
14	20	Khurbura	6305	3941	3433	7374	2852	2462	5314	2170	374	2544
15	21	Shivaji Marg	7489	5546	4691	10237	3219	2275	5494	2987	632	3619
16	22	Indresh Nagar	5885	4258	3983	8241	3450	3003	6453	2364	614	2978
17	23	Dhamawala	10518	2704	2591	5295	2309	2101	4410	1615	325	1940
18	24	Jhanda Mohhala	9493	3556	3171	6727	3077	2701	5778	2126	392	2518
19	40	Reetha Mandi	4972	4029	3478	7507	3104	2385	5489	2270	150	2420
20	41	Lakhibagh	6684	2961	2646	5607	2414	1998	4412	1696	259	1955
21	54	Patel Nagar West	2810	5300	5013	10313	4526	4009	8535	2868	695	3563
22	55	Gandhi Gram	3503	5570	5026	10596	4376	3425	7801	2987	585	3572
GRAND TOTAL			158384	84954	78333	163287	69465	59765	129230	45900	10716	56616
Profile			Sex Ratio		922		Lit Rate		79%	Work Force		35%

Source: Census of India 2011 and 2001

2.4.2 Sex Ratio

Zone-1 sex ratio is 922, which is almost similar to Master Plan area. Male population is high due to its commercial and business activity attracts male population for employment.

2.4.3 Density

The density of Zone-1 is 17691 persons per sq.km, which is very high because this zone having city's core business areas and transport hubs and business centers and doesn't contains any forest areas or hilly areas. With development infrastructure such as piped water

supply, sewage systems and transport facilities such as railway and bus stations, residential zone is high demand.

2.4.4 Literacy Rate

Literacy rate for zone-1 is 79% which is similar to Master Plan area. Work force participation rate for this zone is also similar to Master Plan area i.e., 35%.

2.4.5 Population projection (Zone-1):

Master plan population projections have been done using Arithmetic Mean method and Geometric Mean method and finally Projections using geometric mean method was considered suitable for Master Plan of MDDA; hence for further land use and infrastructure Projections population projected in Geometric Method has been used for total Master Plan are population projections.

While projecting the zone wise population projections, growth rate calculations made with analysis of previous decade's growth trend as well the present land use analysis. The total projected population of 2025 of individual zones is matched with Master plan projections. In this scenario zone-1 is having least population growth and whereas zone 3 is shows highest population growth rate. Below table illustrates the zone wise population growth rate.

Table 9: Table shows population projections of MDDA Master plan zones

Zone	1981-1991	1991-2001	2001-2011	Proj GR	Remarks
1	37.13	16.94	3.10	5%	Reached Saturation and no vacant land for further development
2	69.29	16.99	76.27	45%	Medium growth rate due to area covered forest areas
3	33.13	71.55	50.81	72%	High growth rate due accessibility and vacant lands
4	40.51	68.29	48.73	35%	Medium growth rate due to this zone covered Forest areas
5	18.52	54.46	30.16	45%	Medium growth rate due to this zone covered Forest areas and rivers
6	16.03	108.27	42.52	30%	Medium growth rate due covered FRI and defense areas
7	48.31	39.01	49.78	60%	High growth rate due accessibility and vacant lands
8	32.53	59.7	25.18	30%	Medium growth rate due to covered with Hilly areas, agriculture lands and forest areas
9	28.87	22.19	13.30	30%	Medium growth rate due to this zone covered forest areas and rivers
MP	35.90	37.92	38.20	31%	As per Master Plan (MP)

Based on the above population growth for each individual zone, below table explains the projected population for all zones.

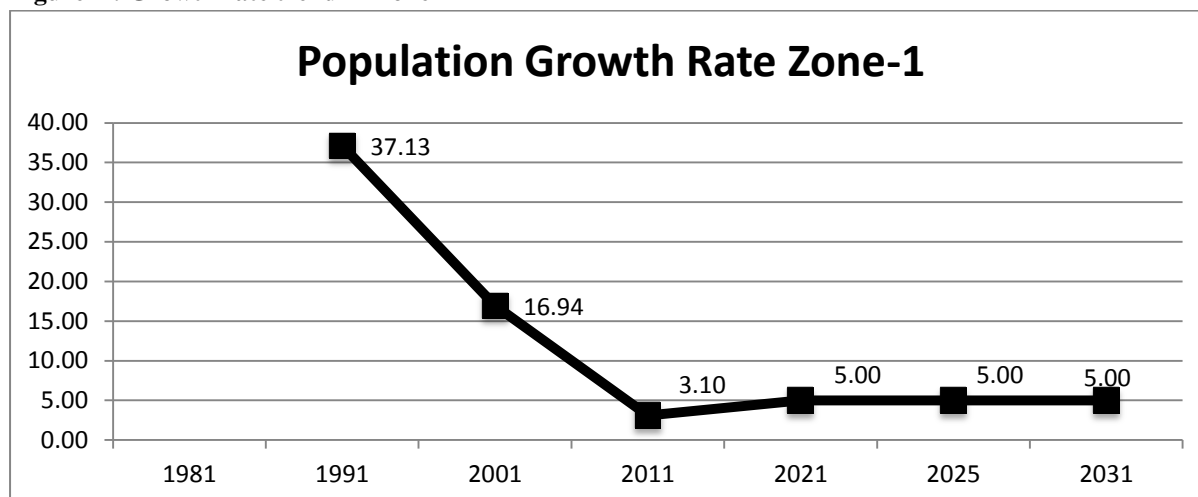
Table 10 : Projected Population of all zones

Zone No	Area in Sq.km	Proportionate Population			
		2011	2021	2025	2031
1	9.23	163287	171451	174880	180024
2	37.32	140906	204313	241090	296255
3	45.13	157085	270186	348000	464720
4	48.32	47673	64360	73370	86886
5	45.91	96466	139875	165053	202819
6	27.8	158465	206005	230725	267806
7	33.42	84327	134924	167306	215878
8	53.58	42956	55843	62544	72596
9	59.31	46432	60361	67605	78470
Total	360.02	937597	1307319	1530572	1865453

While doing population projection for zone-1, it is observed that only 3% growth has happened in last decade i.e., 2001 to 2011 and 1991 to 2001 it has 16% growth. The low growth can be seen due to various reasons that the area is already developed and population density has reached the saturation stage, and zone has dedicated areas of commercial establishments and government offices.

Zone 1 area is mostly developed and there is no vacant land for further development. So considering these factors, the population growth rate is for this zone based on the trend, zone functions, land availability, and not followed the traditional ways of projections as this zone almost reached the saturation stage. Only 5% growth rate is expected basis of natural growth, vertical developments and additional urban renewal developments by central and state government schemes. 180024 is the expected zone-1 population by 2025 year.

Figure 4 : Growth rate trend in Zone- 1



2.5 Economic Profile of Zone 1

Major landmark features falling in this zone are Indian Institute of Remote Sensing, Archaeological Survey of India, Water work Department, Forest Survey of India, CPWD Office, Municipal office, Fire Station & quarters, Tehsil & DSO office, BSNL office, LIC office, Customs central exercise office & quarters, Forest department quarters & office, District Court, other important place marks are like Clock tower, Police ground, PWD Go downs, MLA quarters, District Magistrate quarters, Gandhi park, Pavilion ground, Parade ground, Railway station, Agarwal Dharmashala, Gurudwar, Dharbar and Jail. It is because this area already developed and there are less vacant places available for further development of this zone.

Dehradun is famous for the Tibetan market and its selling of attractive items. Approximately, 60-70 shops are there where the main products sold include woolen, carpets, local Garhwali paintings, local jewelry, woodcrafts, artifacts, brass statues, and many items made of bamboo and cane. Workers in secondary and tertiary sectors are increasing as industries and trade and commerce is getting developed at a fast rate in Dehradun.

3. INFRASTRUCTURE

Infrastructure is the term used for the basic services and facilities which are integral part of urban development. It is the backbone of any settlement. So the quality of infrastructure is a good indicator of quality of life of people. It has also got a strong relation with the growth and development of the region.

Physical infrastructure is very important for growth and development of a city. Some of the major aspects that are covered under this are water supply system, drainage and sewerage network.

3.1 Water Supply

In the year 1885, the first piped water supply was introduced from Kolukhet springs situated about 25 km. away from Dehradun. This was a gravity flow system. Subsequently, more surface water sources were tapped and more area was covered under gravity flow in the northern part of Dehradun. Main sustainable source of water for Dehradun is ground water which meets about 77% of its total supply. Rest 23 % drawn from the various sources of surface water.

In the year 1999, the status of the Dehradun town was up graded from Nagar Palika to Nagar Nigam (Municipal Corporation) by inclusion of nearby villages within the extended limit.

Due to the intermixing of urban and rural area into Municipal Corporation, it created imbalance of water supply status as the criteria for urban water supply for Dehradun was 200 LPCD whereas in the adjoining rural areas, the criteria was only 40 LPCD and 70 LPCD depending upon the status of the water supply either through public stand posts or through private house connections.

Zone 1 is falling under city core area. The calculations always should be always based on combining residing and floating population. This zone has mixed type of pumping methods and per capita supply is 70-135 LPCD.

3.2 Sewerage and Sanitation

Sewerage system was introduced in Dehradun in 1921, which mainly consisted of surface drains, water flush latrine and short length intercepting sewers. Since, then it has been extended to various parts of the town. There is no sewerage and sanitation facilities in the surrounding villages of the Dehradun city which come under the planning area. At present, around 50 % of the population is covered with sewerage system. The probable reason was the

effectiveness of septic tank and soak pit systems due to the higher depth of water table (80-100 m) and the availability of sandy-gravel strata. The collected sewage is used for sewage farming or discharged directly to Rispana or Bindal Rivers.

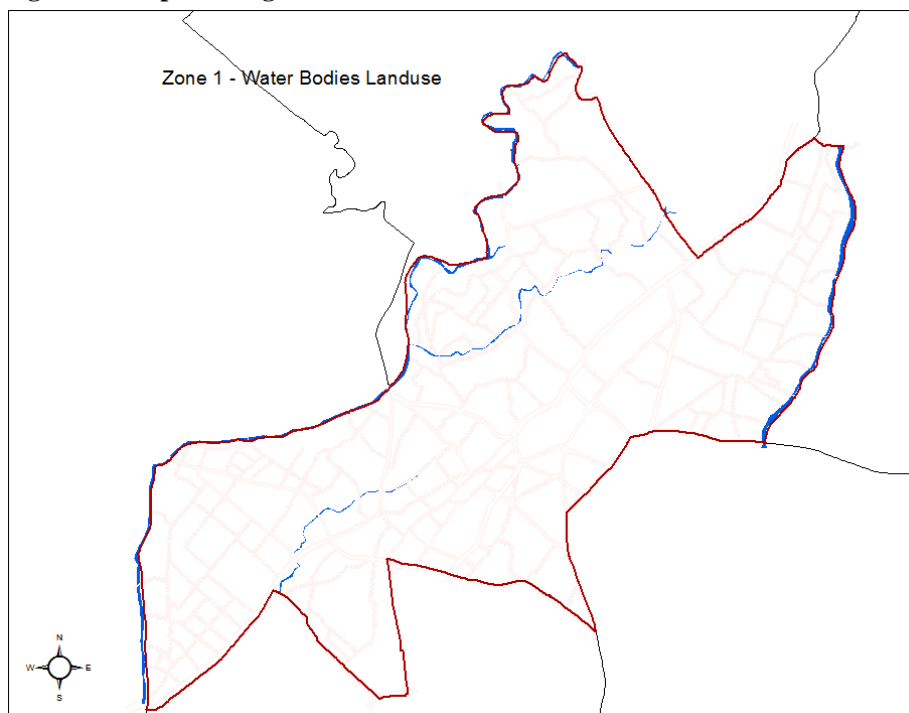
Due to development in economic and social status of inhabitants and rapid increase in population of the town in last five years, the public demand for health sanitary condition has been gathering mass attention for the last few years. The construction of new sewerage systems and STP are therefore an urgent need of today.

Zone-1 has high pressure on sewerage system. The existing population as well floating population requires more demand on sewerage and sanitation facilities. Presently approximately more than 80% of the area covers with sewerage system.

The treatment of sewerage is essential to check the decay in the environment as well as to provide hygienic conditions for the population. Besides the sewerage from households, the waste from industries also needs attention. The sewerage is estimated at the rate of 80% of the water supply in any area.

3.3 Drainage

Figure 5 : Map showing the drains location in Zone-1



Major portion of the city is having open drainage, where the sides of the roads and planned

drainage facilities in some parts of the city. There is no drainage facility in the surrounding villages of the Dehradun city which comes under the planning area.

Although the natural topography of the city helps in gravity drainage, there are pockets of water logging; besides, natural drainage courses require rehabilitation, as they are choked with disposed solid waste and encroached upon, particularly by the urban poor.

Due to hilly terrain, Dehradun City has a natural drainage pattern with sufficient gradients to drain off storm water easily in to the two main natural drainage channels passing north to south i.e. Bindal River and Rispana River.

Zone-1 has surrounded by these two rivers. This zone drainage is fully depends on these rivers only. Due to high density in this zone, roads become very narrow, disturbing the water flow. Some of the areas, sewage lines merging the drainage resulted the pollution of rivers.

3.4 Solid Waste Management

Municipal solid waste (MSW), also called urban solid waste, is a waste type that includes predominantly household waste (domestic waste) with sometimes, addition of commercial wastes collected by a municipality within a given area. Recent study shows that composition of waste by Dehradun.

Existing solid waste collection system mainly comprises of (i) collection from the doorstep by means of hand-carts/cycle-rickshaw and (ii) collection through community bins/containers. Municipal Corporation sweepers and sanitary workers engaged by the Mohalla Swachhata Samities sweep solid wastes from the streets. They accumulate the collected waste into small heaps and subsequently loaded manually or mechanically on to the solid waste transportation vehicles for onward transportation to the disposal site.

The existing solid waste disposal site is located at Dateda Lakhond on Sahashradhara Road and at a distance of about 7 km from the town. The site (area approx. 4 ha) is being used for last 3 years. DNN has identified 15 acres of land at Selaqui, located at a distance of about 22 km from the city for future solid waste disposal.

Zone-1 area comprises of major market areas, business establishments and hospitals. Generation of waste from this zone is more compare to other zones. Special measurements

have to take care for this zone, as this zone has high resident density as well as high floating population. Dehradun is not only capital city; it has its own tourist importance in this region, so cleanness of city very important in order to attract the tourists.

3.5 Social Infrastructure:

Development of Social Infrastructure facilities play an important role in the community development and are expected to provide a cohesive living condition for the population in Zone 1 area. Social Infrastructure facilities are essential to satisfy the immediate requirement of inhabitants and provide community needs such as education, health facilities etc. considering the development of the town. Social Infrastructure facilities include Education, Public Health, Recreational, Market and Other facilities.

Social Infrastructure facilities support many welfare activities especially for the urban poor and economically weaker sections. Therefore strengthening this function so as to provide satisfactory level of services becomes top priority for the municipal authority.

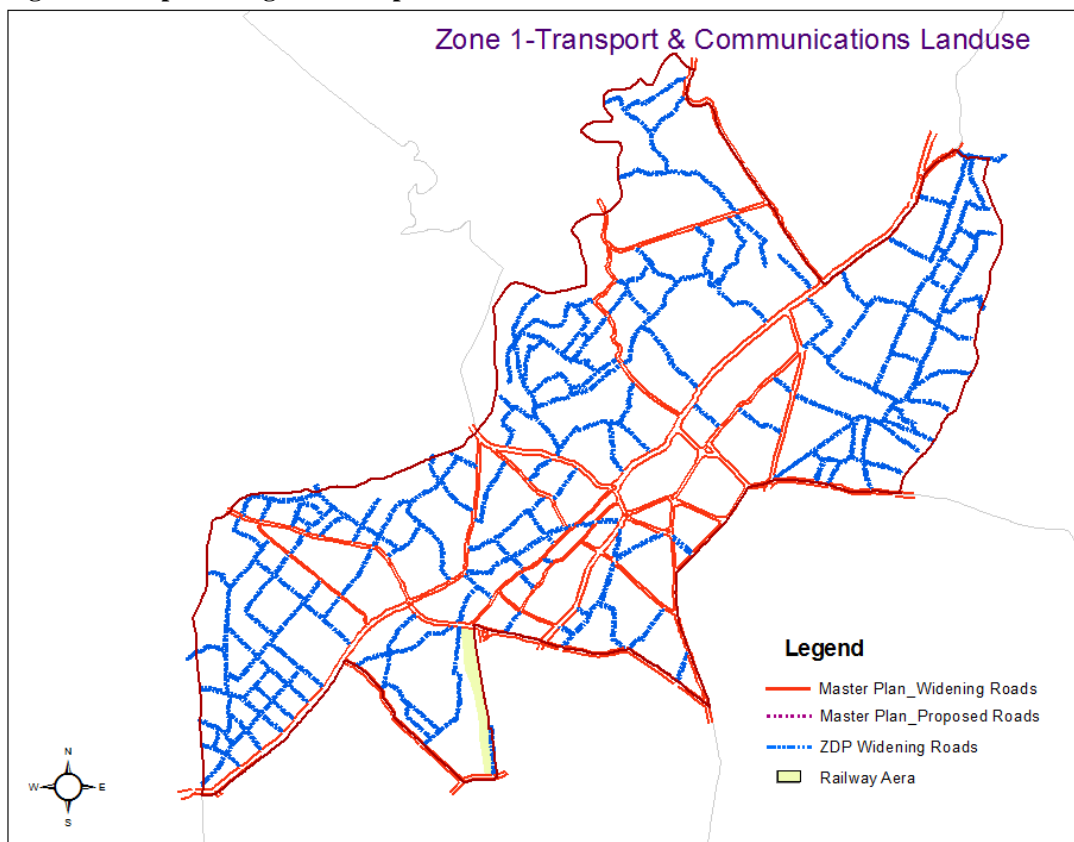
4. TRAFFIC AND TRANSPORTATION

Dehradun is state capital and hub of many national level institutions and centre for trade and commerce of surrounding region. Being the gateway to the Himalayan region of the State, Dehradun attracts large number of tourists on their onward journeys to different hill destinations as well city level tourist spots. Thus, a large volume of traffic is generated/ attracted from/to the city. Dehradun is well connected by rail, road and air.

4.1 Road Network

Dehradun city has basically radial pattern originating from city core (i.e. Clock tower). Rajpur road, Haridwar road, Saharanpur road and Chakrata road are forming the major travel corridors which originate from the city core. NH-72 passes through the city connecting Rishikesh and Haridwar in the east to Himachal Pradesh in the western side. NH-72A connects the city with Saharanpur in the S-W and Roorkee in the south. Other important roads in the city are Kaulagarh road, Raipur road, and Sahastradhara road, Kanwli Road, New Cantonment Road, Subhash Road and East Canal Road.

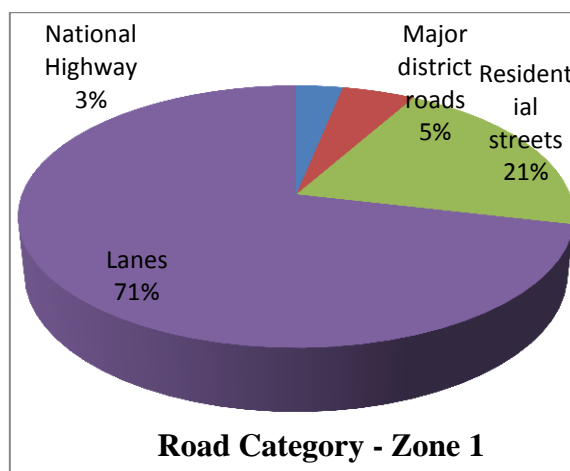
Figure 6 : Map showing the Transportation network in Zone-1



The traffic carrying capacities are low due to limited widths, intense land use and encroachments.

Table 11 : Existing roads by category wise

Category	Length in km
National Highway	6.48
Major district roads	10.17
Residential streets	41.53
Lanes	145.01
Total	203.19

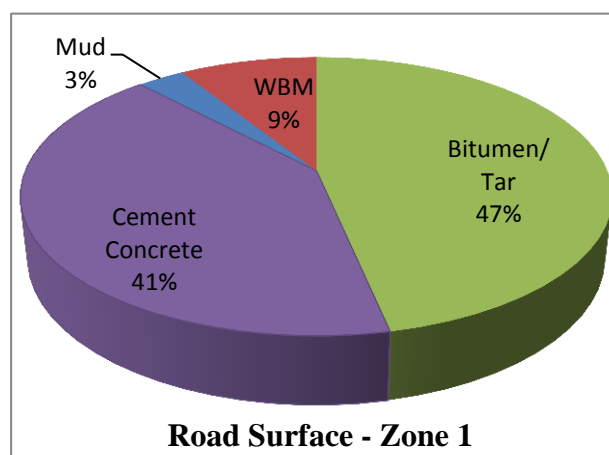


Source: Existing Master Plan and ZDP- 2015

Total roads by category wise in Zone-1 are divided into National Highway, Major district roads, Residential streets and Lanes. 69% portion of the roads is small lanes, 22% of the roads are residential streets, 5% covers major district roads and 4% is under National Highway.

Table 12 : Existing roads by surface wise

Category	Length in km
Bitumen/Tar	99.51
Cement Concrete	88.03
Mud	6.54
WBM	19.11
Total	213.19



Source: Existing Land use map-2015

Zone 1 roads are almost covered with bituminous topped (BT). At present the total length of roads in Zone 1 is about 213.19 km of which 47% of roads are bituminous topped (BT), 41% of roads are cement concrete roads, 3% of roads are mud roads and 9% are WBM roads.

4.2 Public Transport System:

Uttarakhand Transport Corporation has a fleet of 430 buses in Dehradun for intracity and inter-city travels. UTC buses mainly serve long distance as well as medium distance inter-city trips from ISBT and few from near Railway Station. Private Buses also make long and medium distance intercity trips from different parts of the city. Presently they operate from Parade Ground, near Clock Tower. Long distance private buses do not have any authorized off- Street parking or terminals. So they are seen to occupy the carriageway of roads causing problems to traffic movements.

In addition to this, more than 300 tourist buses also come to the city daily during the peak tourist season. About 300 City Buses operate all around the city on 15 routes. Mini buses and Tempos / Vikrams are permitted on fixed routes and fixed fare basis (fixed by RTO) for intra-city trips within the city, while auto rickshaws are permitted within 25km of radius in the city without any fixed rate. Mini buses and tempos do not have proper terminal facilities or amenities for passengers.

4.2.1 Bus Terminals

Uttarakhand Transport Corporation (UTC) has bus terminal and Inter State Bus Terminal (ISBT) located on Saharanpur-Haridwar Road junction and another one at near the Railway Station. Apart from UTC terminals, a private bus terminal for medium and long distance buses is also operating from Parade Grounds. There are about 800-850 bus schedules that originate daily from these terminals. These terminals are inadequate to handle the bus traffic and over the years, the terminals had witnessed growth in buses as well as passenger traffic resulting in congestion and inefficient operation. In addition, about 300 tourist buses also come to the City daily during the peak tourist season.

4.2.2 Goods Terminals:

Dehradun City is an important centre of trade and a transshipment node for goods exported to the hill areas of the State. The trade in the City has followed two main channels; one between the valley and the plains and, the other between valley and hills. Lime is the main export of the Dehradun District. Being a major transportation head, the exchange of agricultural and industrial products in the region is controlled by the City.

The major wholesale and retail markets are located in the centre of the city. The major commercial activities take place along Saharanpur Road, Chakrata Road, Haridwar Road and

Rajpur Road. The commercial activities have developed in a ribbon form along the roads resulting in various traffic and transportation problems. Ashlay Hall, Gandhi Road and Pipal Mandi are among other important commercial areas.

As Dehradun has commercial and industrial importance though the city lacks any planned transport terminal due to which trucks are parked along the roads. Therefore, the loading and unloading activities and transportation of goods in trucks and handcarts often create traffic jams. A Transport Nagar has been planned along Saharanpur Road near the New Bypass Road Junction with provision for truck terminal.

4.2.3 Rail Network:

Dehradun is the last station for Northern railways in this region. Planning area covers around 20 Km of broad gauge lines which connect Dehraun city to Haridwar, Udham Singh Nagar, Ram Nagar, Haldwani etc cities of the state. According to MDDA survey, per day around 15000 passengers travel through the train and around 1/3rd of the goods transportation are done through goods trains from Dehradun city.

4.2.4 Air Network

The only airport of the state capital is located 26 km from the City at Jolly Grant. This airport connects the city to all metropolitan cities i.e. Bangalore, New Delhi, Mumbai and Chennai and also to other major cities like Jammu, Ranchi, Coimbatore, Ahmedabad etc in India through air services.

5. LAND USE

Zonal level existing land use map has prepared based on satellite image and ground survey. Digitized all buildings, roads, railway lines, water bodies, culverts, bridges, high/low tension lines drainage lines, layouts, parks, playgrounds, wetlands, etc. on geo-referenced satellite image and same updated with ground survey details such as usage of building, landmarks, heritage buildings, road widths, road material, condition of buildings, vacant lands.

5.1 Land Use Structure

The term Landuse means the function of a given area of land. Categories of land use include residential, commercial, industrial, public and semi-public, recreational, transport and communication, forest, agricultural use and water bodies. Land use coverage depends upon the population density, functional domination of the settlement, special development thrust, location of the settlement in a regional setting and workforce composition.

5.2 Land use pattern as per Master Plan 2025 and Zone-1

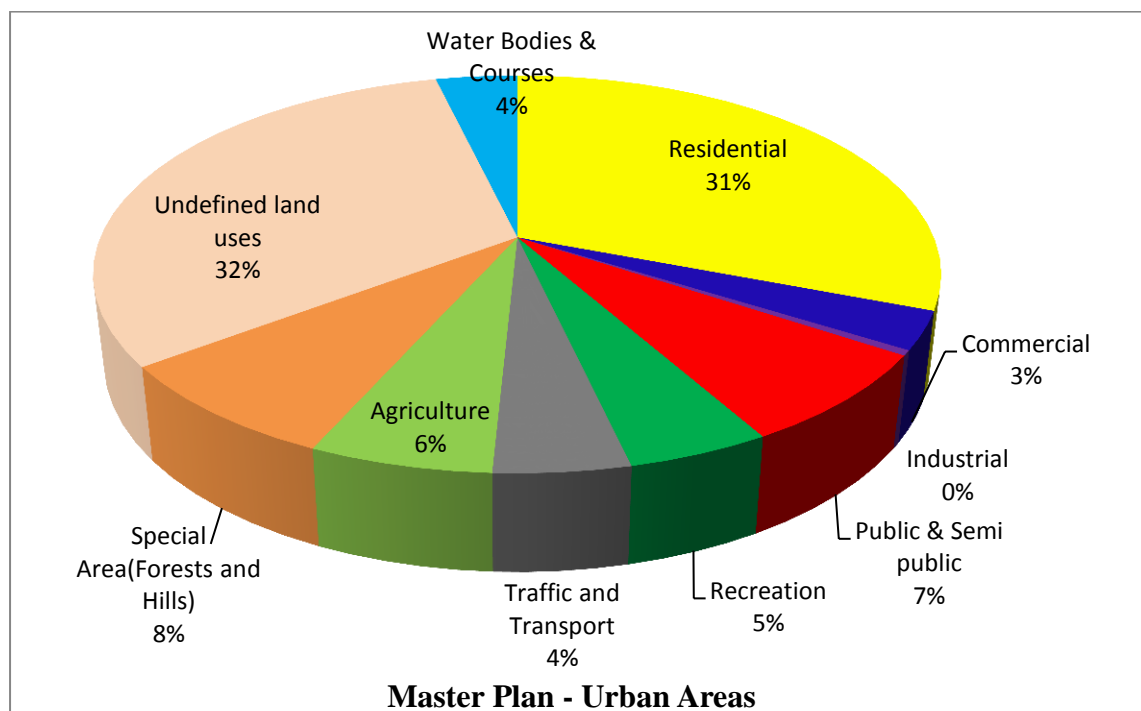
The quality of urban life and functional efficiency of a city is dependent on proper disposition of activities, inter-relationship it establishes between the work centers, living areas, community facilities and recreational areas. In order to conduct a systematic analysis of the problems regarding disposition of various activities expressed as land use, analysis has been done for various zones.

Table 13: Existing Land use as per 2025 Master Plan and Zone-1

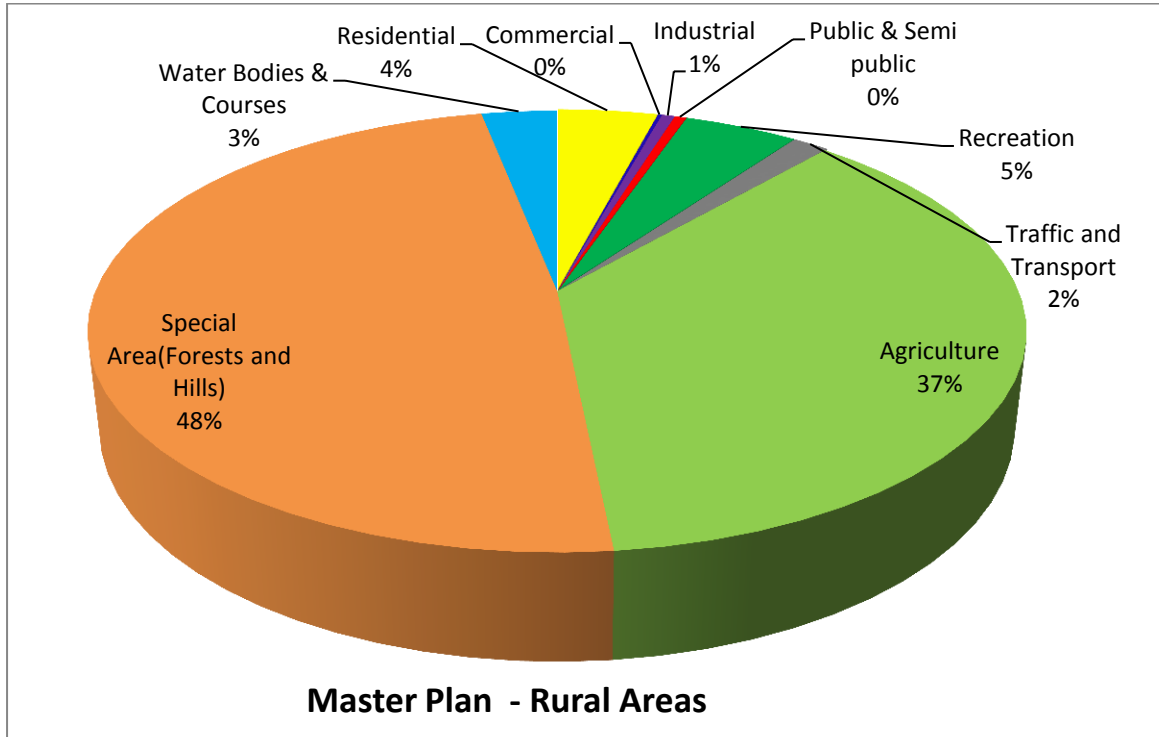
Sl. no	Land Use	MASTER PLAN						ZDP ZONE-1	
		Urban area		Rural area		Total		Area in Ha.	%
		Area (Ha)	%	Area (Ha)	%	Area (Ha)	%		
1	Residential	2989.30	30.80	1082.50	4.10	4071.80	11.30	504.63	54.70
2	Commercial	298.52	3.08	42.91	0.20	341.43	0.95	120.55	13.10
3	Industrial	40.50	0.42	142.94	0.50	183.44	0.51	1.40	0.15
4	Public & Semi public	723.73	7.46	124.59	0.50	848.32	2.36	143.58	15.60
5	Recreation	448.12	4.62	1236.00	4.70	1684.12	4.67	17.82	1.93
6	Traffic and Transport	425.18	4.38	396.78	1.50	821.96	2.28	110.94	12.00
7	Agriculture	571.76	5.90	9722.89	37.00	10294.70	28.60	9.35	1.01
8	Special Area(Forest s and Hills)	781.76	8.06	12774.30	49.00	13556	37.60	0.00	0.00
9	Undefined land uses	3058.82	31.50	0.00	0.00	3058.82	8.49	0.80	0.09
10	Water Bodies & Courses	360.58	3.72	818.67	3.10	1179.25	3.27	13.52	1.47
TOTAL		9698.27	100	26341.50	100	36039.80	100	922.61	100

Source: Master Plan 2025 and ZDP

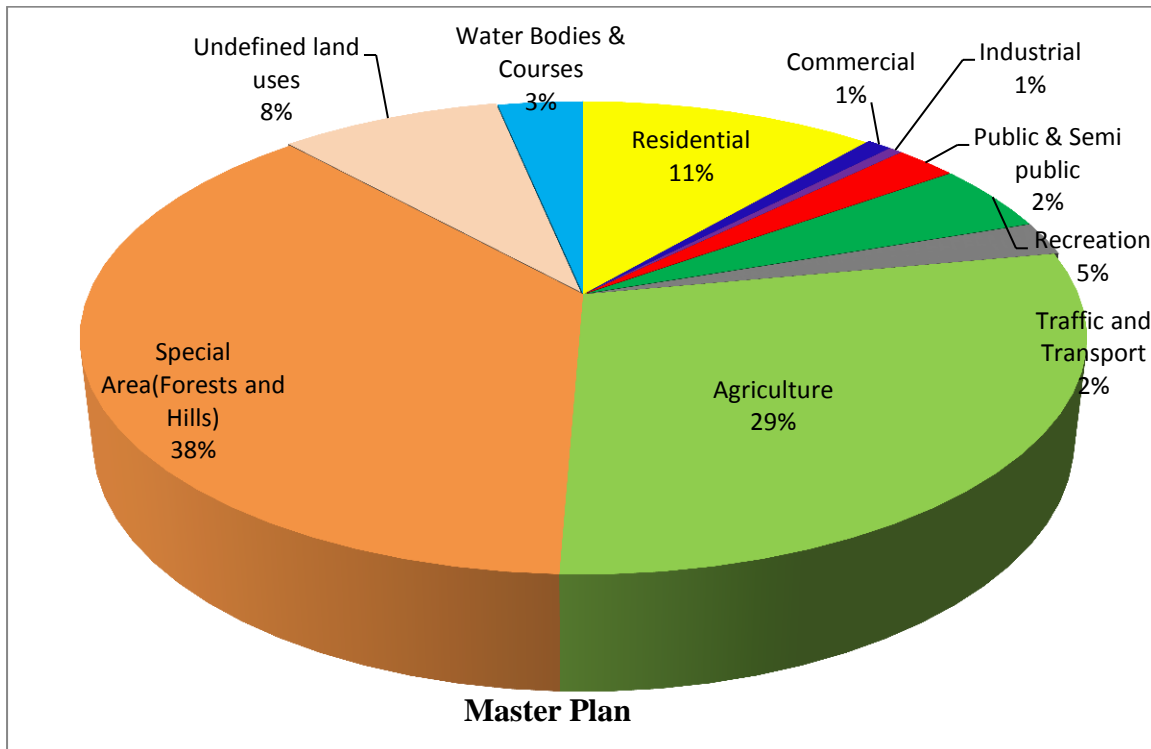
Master Plan -Urban Area



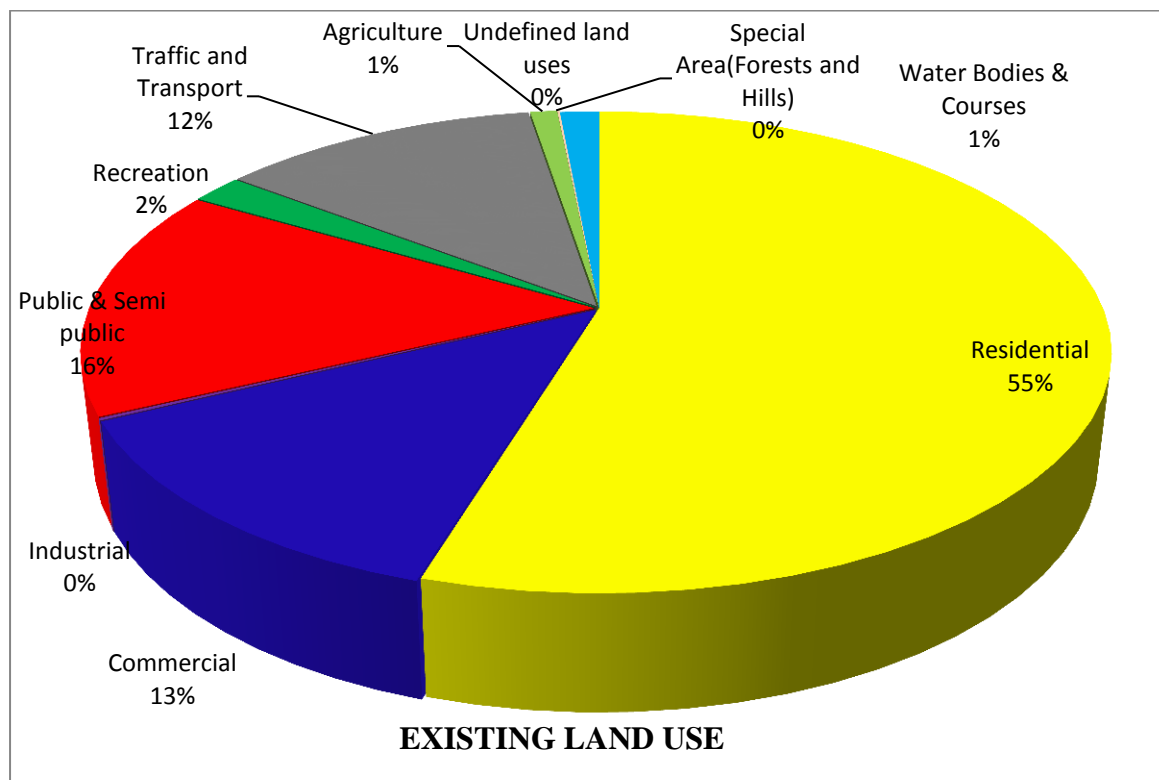
Master Plan- Rural area



Total Master Plan Area



Zone-1 Existing Land Use



The above pie-charts shows the land use distribution for whole MDDA Master Plan Region and in specifically with Rural and urban land uses. Land use segregation of rural and urban area is considered separately for comparing and analyzing each zone on the basis of major portion coming under urban or rural areas.

According to different characteristics of rural and urban areas much area difference in different types of land use can be seen. In urban areas major part of land is occupied by Residential with 31% and undefined land uses with 31.54% of Urban area whereas in rural areas major use of land comes under Hills and forest with 48 % and Agriculture land use with 37% of rural area.

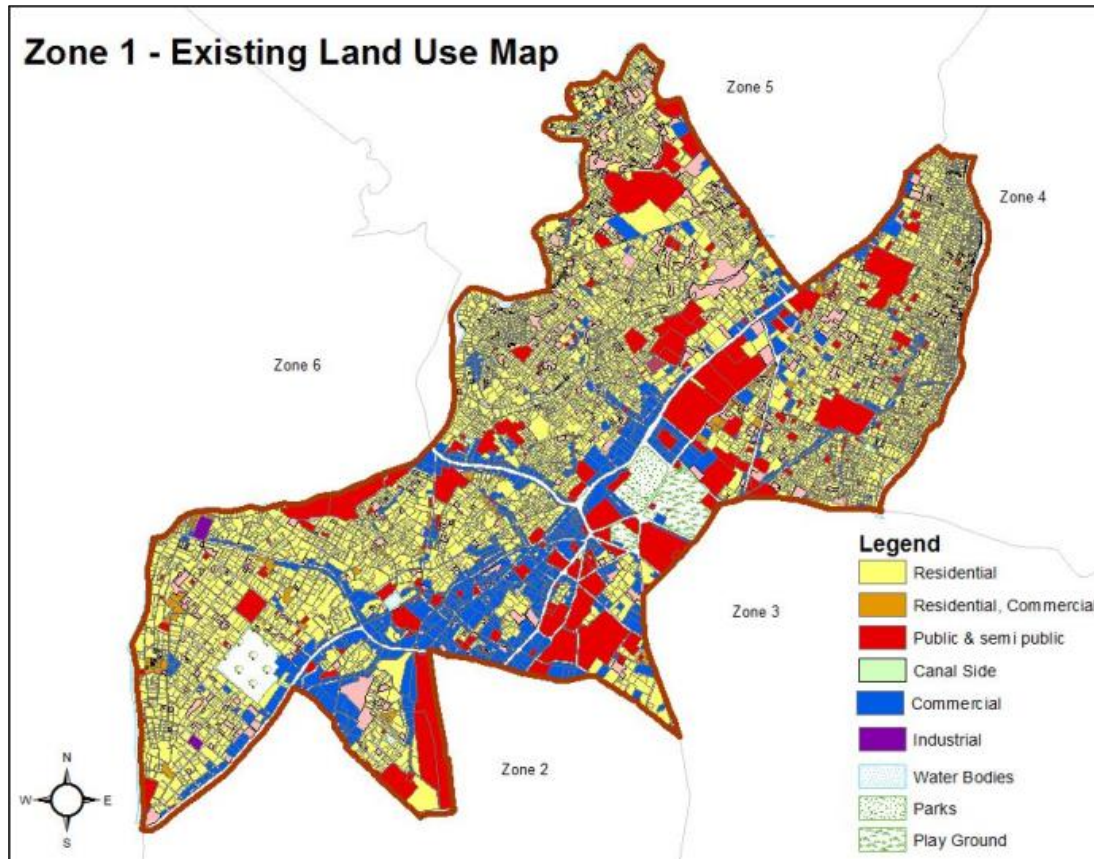
Combination of both the areas gives a different overall picture of the Master Plan region so the analysis is being done considering the local characteristics of a particular zone.

5.3 Zone-1 Existing Land use

The land use categories in the zonal development plans are adopted from the approved Master Plan for Dehradun, and they include broadly residential, commercial, industrial, public and semipublic places, parks and play grounds, traffic & transportation areas, hills and

forests, water bodies, open spaces, agriculture and others. In this zone major part of the area is under residential use where as in other zones Commercial and Public and semi-public use is predominant.

Figure 7 : Map showing the Existing Land Use



The quality of urban life and functional efficiency of a city is dependent on proper disposition of activities, inter-relationship it establishes between the work centers, living areas, community facilities and recreational areas. In order to conduct a systematic analysis of the problems regarding disposition of various activities expressed as land use, analysis has been done for various zones.

5.3.1 Distribution of Existing Land use scenario 2015

The predominant use across the zone is residential. For a comfortable living environment, a time tested use composition as evolved in the UDPI guidelines is desirable. For otherwise, though the impact by way of psychological stress and strains may be invisible, overtime, it will affect physical and mental health of a human being and more so of those occupied in economic activities like commercial, services, industrial, institutional and the like. For stress

relief and relaxation, recreational options, parks, and playgrounds do play the crucial role.

As discussed previous, this zone is the rather more intensively developed high density area forming the core of the city where from the city grew over decades. In order to arrive at a rationale for future spatial structure and Land use pattern, it is necessary to study the existing Land use to identifying the existing spatial structure. The existing developed area is substantially low in comparison to the planning area.

The land use planning for Zone-1 is based on the optimum land required for development to support economic and population growth. Sustainable land use principles are adopted and the objectives of the Master Plan are translated onto the land use plan that will chart the future growth for this zone. Overall, the main land use of this zone will be residential with 54.70 % of the total land and commercial of 13.07% and Public & Semipublic use is another major land use with 15.56% of the total land in this zone.

Residential: As mentioned in the above table it is clear that about 54.70% of total area is under Residential area by which we can determine that most of the area in zone 1 is under residential area and which is concluded as a grown urban center.

Residential Land use occupies 504.63 Hectare of area, which covers slum areas, apartments, residential colonies, Layout Areas and Plotted residential areas.

Commercial: Commercial use another major land use in zone-1 unlike other zones, with thickly developed area with all other zones has good access to these commercial centers. It occupies the prime position in the core of city. Commercial Land use occupies 120.55 Hectare constitutes 13.07 % of zone area. Commercial zone is mostly along the National Highway, Raipur road, Saharanpur road, Chakrata road and Gandhi road. Most of the district commercial centers are formed in central part of this zone and maximum percentage of market area (bazars) exists alongside of road. Due to high percentage of commercial centers present in this zone, it can be called as commercial hub for entire region.

Industries: There are no industries existences in this zone. Industrial Land use occupies 1.4 Hectare which constitutes 0.15 % of zone area with only two small scale industries are located in this zone.

Public and semi-public: One of the important categories of land uses in this zone is Public & semi Public and it excludes the education category. Public & Semi-public Land use

occupies 143.58 Hectare, which constitutes 15.56% of zone area. Historical places are one of the major land use which includes religious places like Temple, Ashram, Dharmashala and Dharbar.

Major educational centers such as Institutes and colleges of regional importance are located in this zone.

Traffic and Transportation: Transportation Land use occupies 110.94 Ha which constitutes 12.03% of zone area which is indicated in 3 subcategories.

1. Bus terminals/Parking Places
2. Existing Roads
3. Rail line/Railway Premises

Transport (Roads) is one of the important components, which comes under major land use category.

Roads are occupying major share in transportation & communication land use followed by railway line/railway premises and Bus terminals/parking. With 12.03% land under the use of traffic & transportation, the zone provides easy accessibility within the zones as this zone is abutting by two major roads- Saharanpur road and National Highway. The connectivity of the zone with other major centers such as Raipur in the east, Chakrata and Kaonli in the west are good.

Recreation: In this category, separate land use details calculated for Recreation such as open spaces, parks and playgrounds. Open spaces (vacant plots) between buildings are merged into open spaces category. Vacant plots in planned residential zones also considered in open spaces

Core part of zone has some beautiful parks for recreation purpose of pilgrims and local residents. Recreation Land use occupies 17.82 Hectare which constitutes 1.93% of zone area.

The Major developed Parks in this zone are Gandhi Park, pavilion ground, parade ground etc.

Water Bodies: In this zone two rivers are flowing namely Rispana River and Bindal River. The amount of land use under this category occupies 13.52 Hectare which constitutes 1.47% of the land in this zone. Agriculture land use occupies 9.35 Hectare which constitutes 1.01 %

of the zone area.

Undefined land uses: In this zone, Defense and Forest areas are not covered. Vacant lands which are not into any specific zone are considered into undefined land uses. This are is about 0.8 Hectare comprising of 0.09%.

5.4 Proposed Land use-Master Plan (2025) Vs ZDP-1

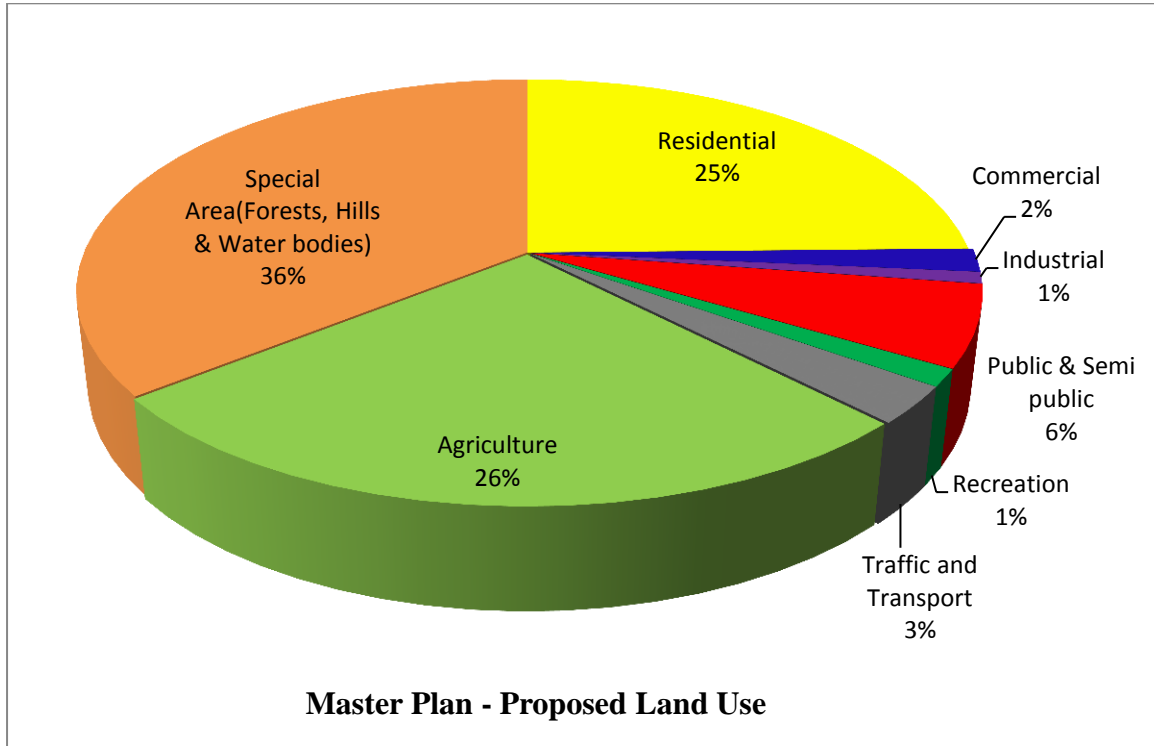
In the Master Plan 2025, the area under residential use zone has been enhanced to cover about 11% to 25%, taking into consideration the developmental potential in the future based on the trend in the past and present. In doing so, the uses in developed as ‘mixed’ with more than one use built over or expanded over basically original residential uses have been stream lined to the commercial units inserted in the residential units. The Master Plan recommended 1.7% of the zone area under commercial use, 6.1% of the zone area under Public and semi-public use, 2.8% under Transportation and 1.3% for Recreation.

In this proposed land use structure Public and semi-public use having major weightage. Being a capital city and hub for national level institutions, this land use plays key role in future development.

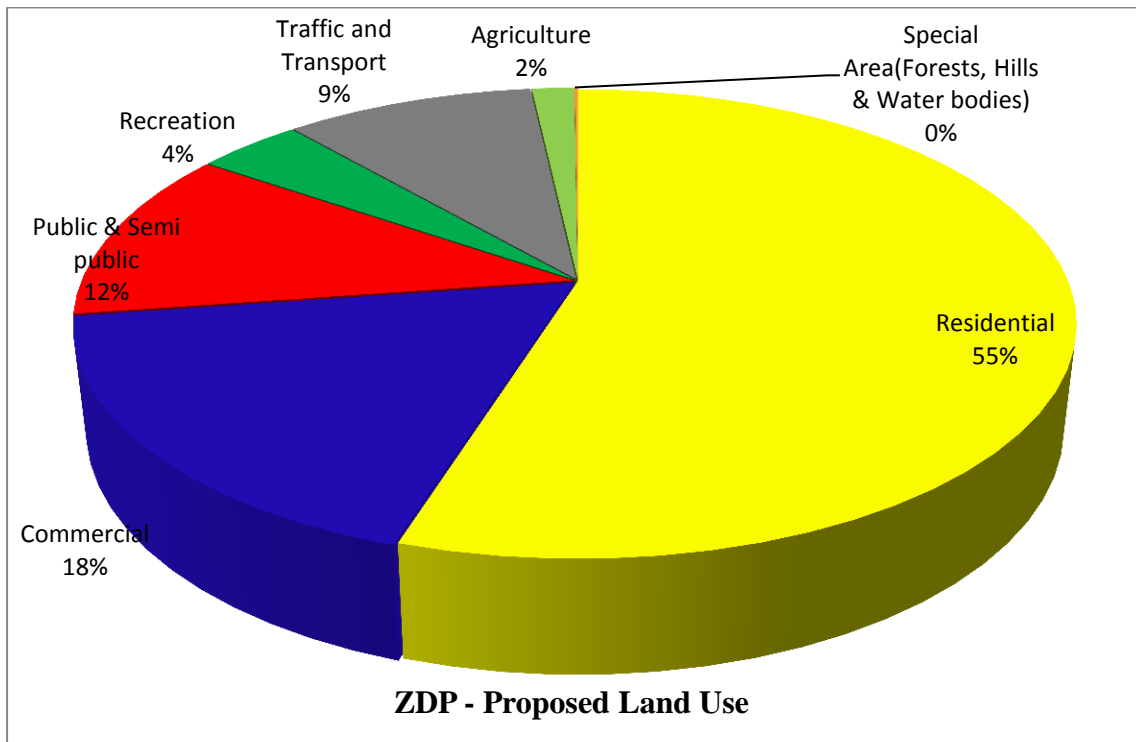
Table 14 : Proposed Land use as per Master Plan 2025 & ZDP Zone-1

Sl.no	Land use component	MASTER PLAN		ZDP ZONE-1	
		Area (Ha)	Percentage	Area (Ha)	Percentage
1	Residential	8887.07	24.68	506.32	54.88
2	Commercial	638.93	1.77	164.58	17.84
3	Industrial	310.47	0.86	0.00	0.00
4	Public & Semi public	2229.19	6.19	109.36	11.85
5	Recreation	470.58	1.31	37.18	4.03
6	Traffic and Transport	1027.53	2.85	88.87	9.63
7	Agriculture	9589.42	26.64	15.11	1.64
8	Special Area	12849.05	35.69	1.18	0.13
TOTAL		36002.24	100	922.6	100

Master plan 2025

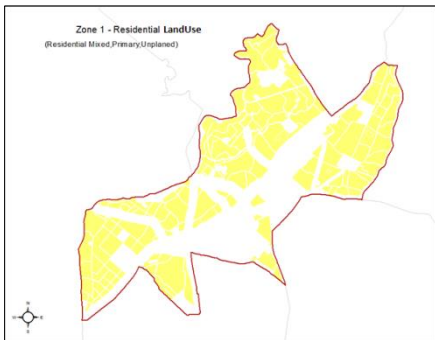


ZDP - Proposed



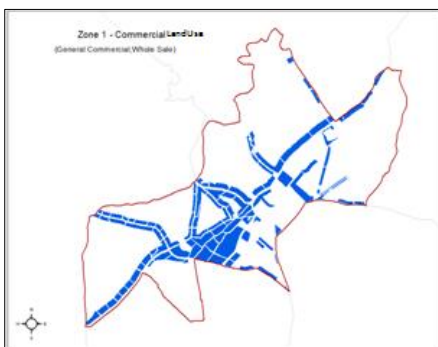
5.5 Proposed land use as per Master Plan 2025 Vs ZDP-1

A) Residential Use:



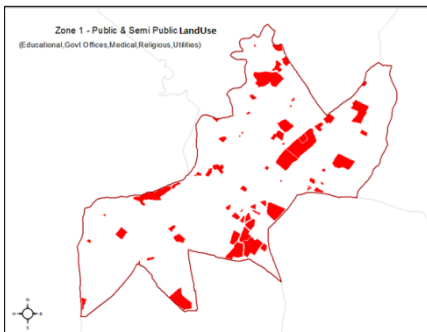
In the total Master Plan-2025 about 8887 Ha (24.68%) has been proposed for residential use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Residential area comprises of 506.32 Ha (54.88%).

B) Commercial use:



In the total Master Plan-2025 about 638.93 Ha (1.77%) has been proposed for commercial use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Commercial area comprises of 164.58 Ha (17.84%).

C) Public And semi Public use:



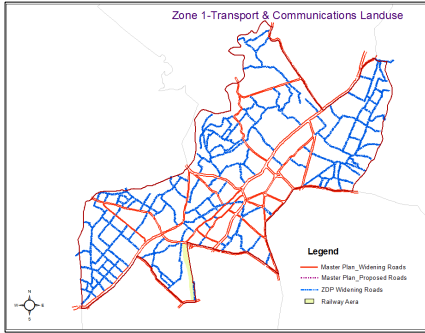
In the total Master Plan-2025 about 2229.19 Ha (6.19%) has been proposed for this use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Public and semi-public area comprises of 109.36 Ha (11.85%).

D) Recreation Use:



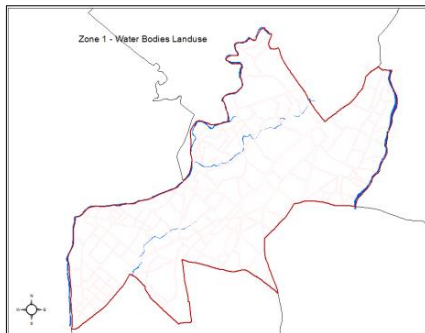
In the total Master Plan-2025 about 470.58 Ha (1.31%) has been proposed for this use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Recreation area comprises of 37.18 Ha (4.03%).

E) Traffic and Transportation Use:



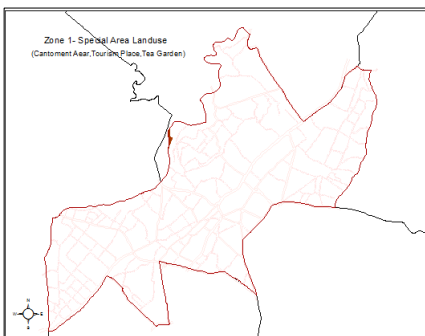
In the total Master Plan-2025 about 1027.53 Ha (2.85%) has been proposed for this use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Traffic and Transportation area comprises of 88.87 Ha (9.63%).

F) Agriculture Use (Category-Water body):



In the total Master Plan-2025 about 9589.42 Ha (26.64%) has been proposed for this use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Water body category area (Category in Agriculture area) comprises of 15.11 Ha (1.64%).

G) Special Area:



In the total Master Plan-2025 about 12849.05 Ha (35.69%) has been proposed for this use, where as in ZDP-1 of the complete Zone area of 922.6 Ha, Special area comprises of 1.18 Ha (0.13%).

Features of proposed Master Plan:

With a view to translate all the planning policies into development strategies, the Zonal Development Plan focuses on the following salient features.

- (i) A land use plan showing the Zonal Plan level uses.
- (ii) The plan indicates subdivision of entire urban area under into sectors / sub zones for the purpose of development. Each sector / sub zone contains multiple land use categories.
- (iii) The zone plan would be further subdivided into various residential pockets containing neighborhood level recreational and community facilities.
- (iv) As per Master Plan-2025, the identification of mixed uses area shall be done by the local body as per Mixed Use Regulations. The mixed use would be permissible on streets/stretches already notified by the competent authority. The mixed use areas will be shown in the local area plans.

5.6 Proposed Land uses under ZDP (Zone 1)

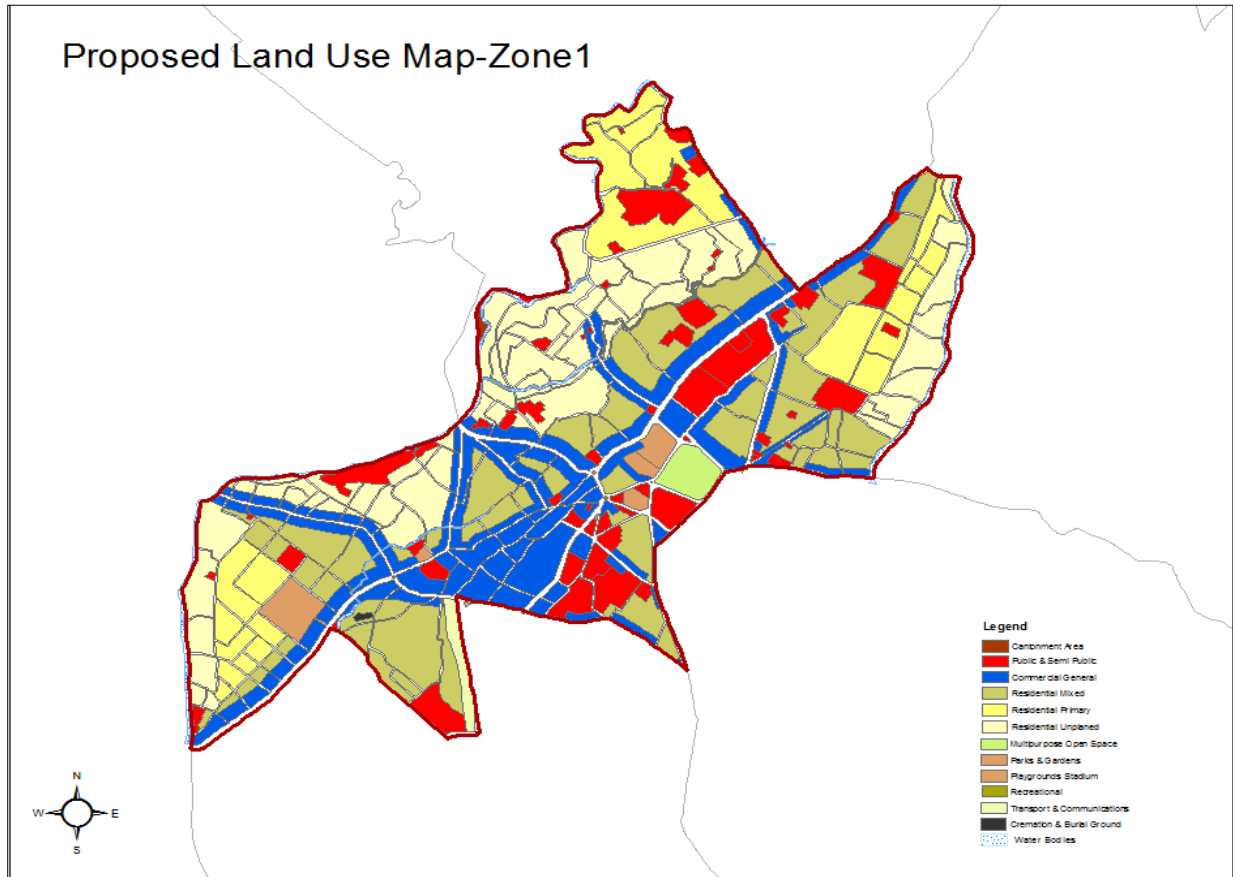
While detailing out the Master Plan area pertaining to Zone 1, the land use is explained with the help of categories used under zone development plans as per UDPFI Guidelines.

Table 15 : Zone-1 Proposed Land use as per ZDP

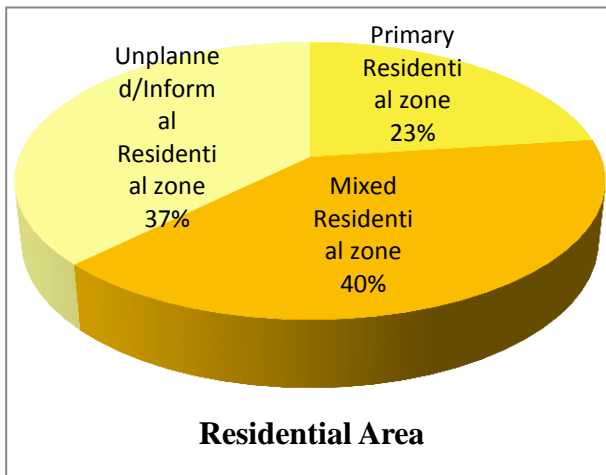
Category	Sub-categories	PLU_ZDP	
		AREA (Ha)	%
Residential	Primary Residential zone	116.22	22.95
	Mixed Residential zone	200.71	39.64
	Unplanned/Informal Residential zone	189.39	37.41
Sub Total		506.32	100
Commercial	General Commercial	164.58	100
Sub Total		164.58	100
Public & Semi-public	Public & Semi-public	109.36	100
Sub Total		109.36	100
Recreation	Playgrounds, stadium, Sports complex	3.84	10.33
	Parks & Gardens(Public Open Space)	14.70	39.54
	Multipurpose Open space(Maidan),Recreation	18.64	50.13
Sub Total		37.18	100
Transportation & Communication	Roads	82.07	92.35
	Railways	6.80	7.65
Sub Total		88.87	100
Agriculture	Water Bodies	15.11	100
Sub Total		15.11	100
Special Area	Cantonment Areas	1.18	100
Sub Total		1.18	100
Grand Total		922.60	

Source: ZDP Proposed Land use

Figure 8 : Map showing the proposed land use

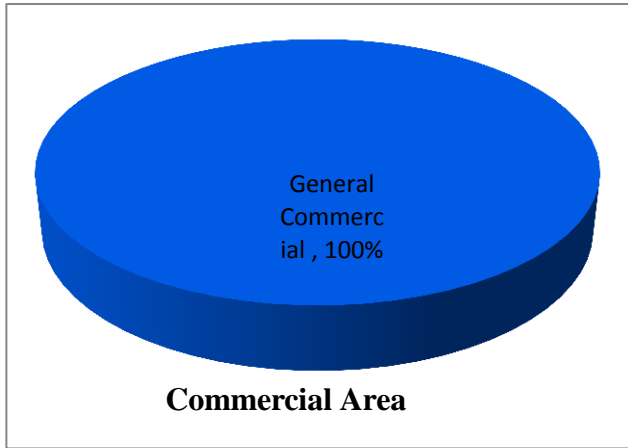


A) Residential Use:



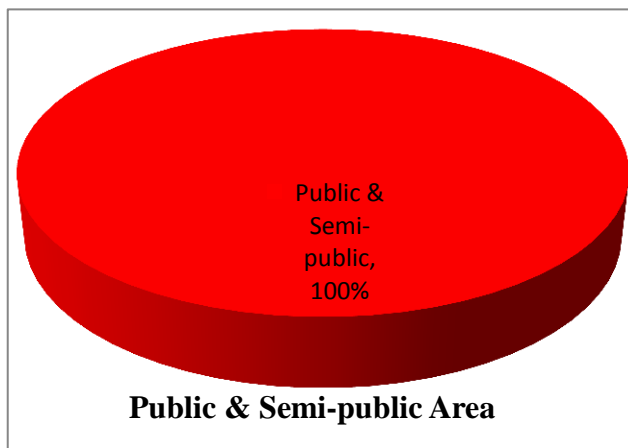
As per Zone-1 Proposed landuse, total 506.32 Ha area has been proposed for Residential use, in which Primary Residential area comprises of 116.22 Ha (22.95%), Mixed Residential area comprises of 200.71 Ha (39.64%) and Unplanned/Informal Residential area comprises of 189.38 Ha (37.41%).

B) Commercial use:



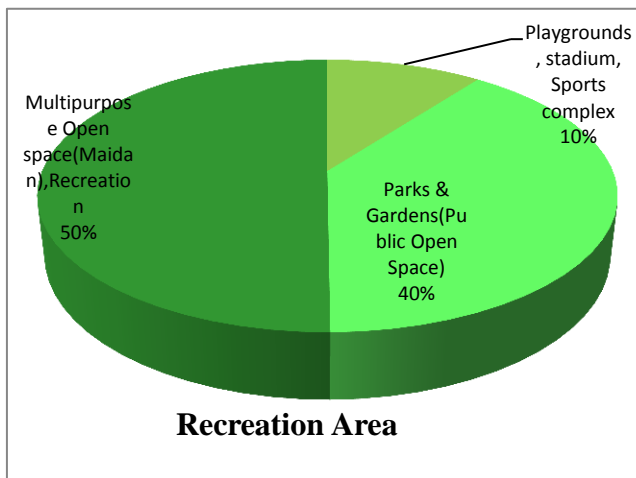
As per Zone-1 Proposed landuse, total 168.58 Ha area has been proposed for Commercial use, which is General commercial purpose.

C) Public And semi Public use:

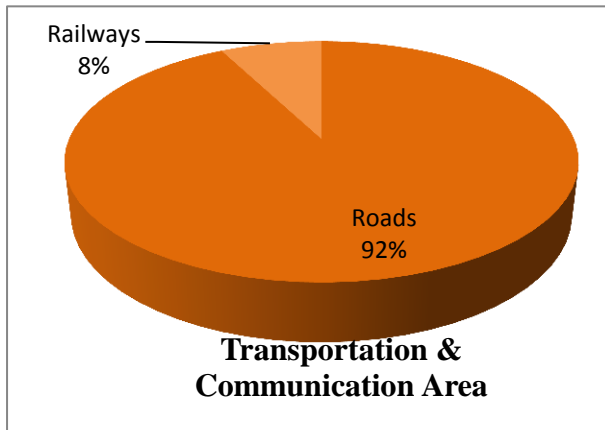


As per Zone-1 Proposed landuse, total 109.36 Ha area has been proposed for Public & Semi-public use.

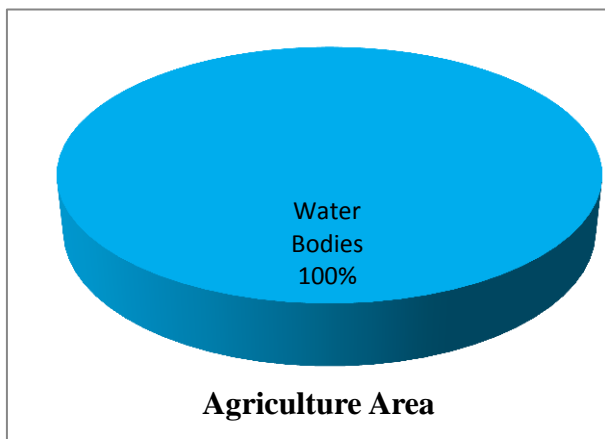
D) Recreation Use:



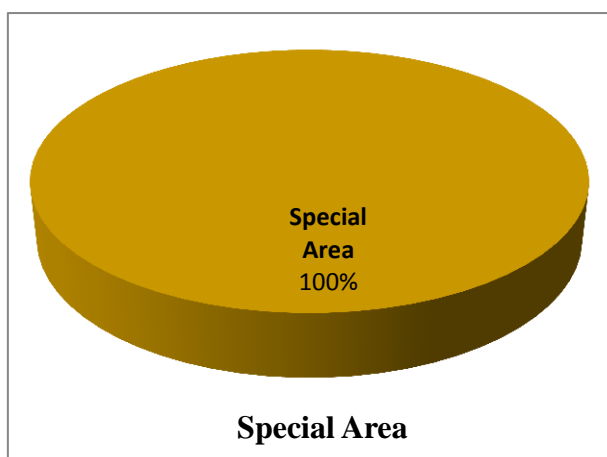
As per Zone-1 Proposed landuse, total 37.18 Ha area has been proposed for Recreation use, in which Playgrounds, stadium, Sports complex area comprises of 3.84 Ha (10.33%), Parks & Gardens area comprises of 14.7 Ha (39.54%) and Multipurpose Open space, Recreation area comprises of 18.64 Ha (50.13%).

E) Traffic and Communication:

As per Zone-1 Proposed landuse, total 88.87 Ha area has been proposed for Traffic and Communication use, in which Roads area comprises of 82.047 Ha (92.35%) and Railways area comprises of 6.8 Ha (7.65%).

F) Agriculture Use:

As per Zone-1 Proposed landuse, total 15.11 Ha area has been proposed for Commercial use, which comprises of complete water bodies of area 15.11 Ha (100%).

G) Special Area

As per Zone-1 Proposed landuse, total 1.18 Ha areas have been proposed for Special landuse, which comprises of complete Cantonment area of 1.18 Ha (100%).

Figure 9 : Map showing the road widening proposals

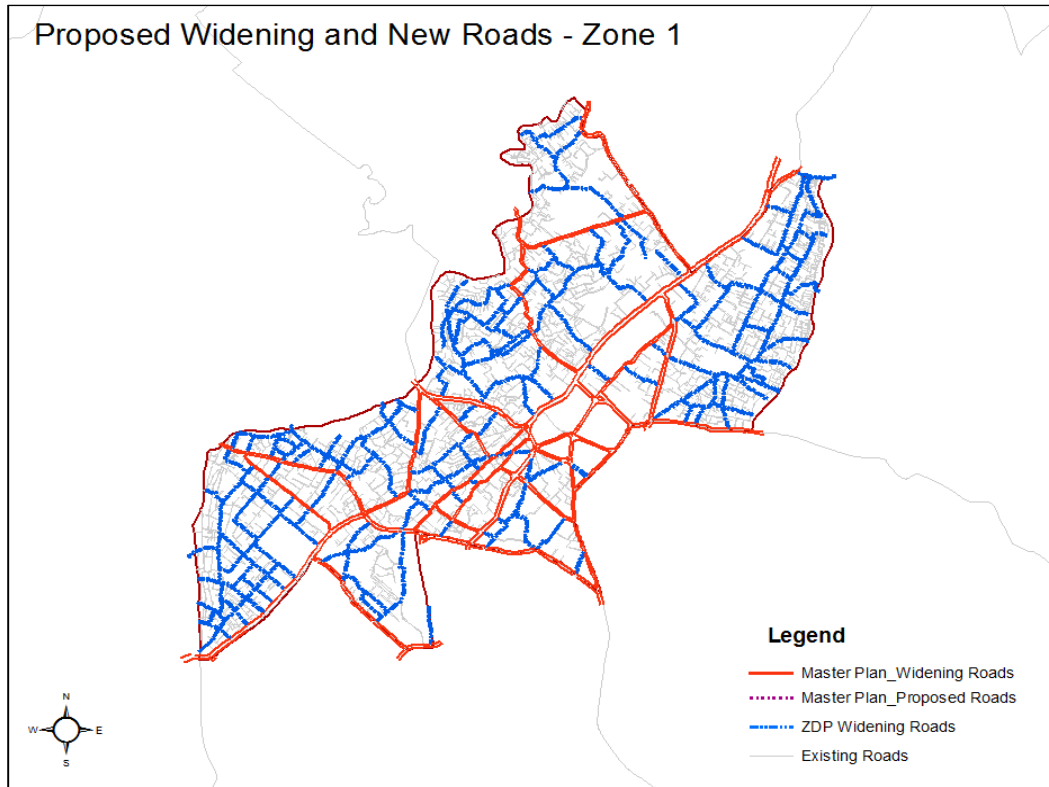
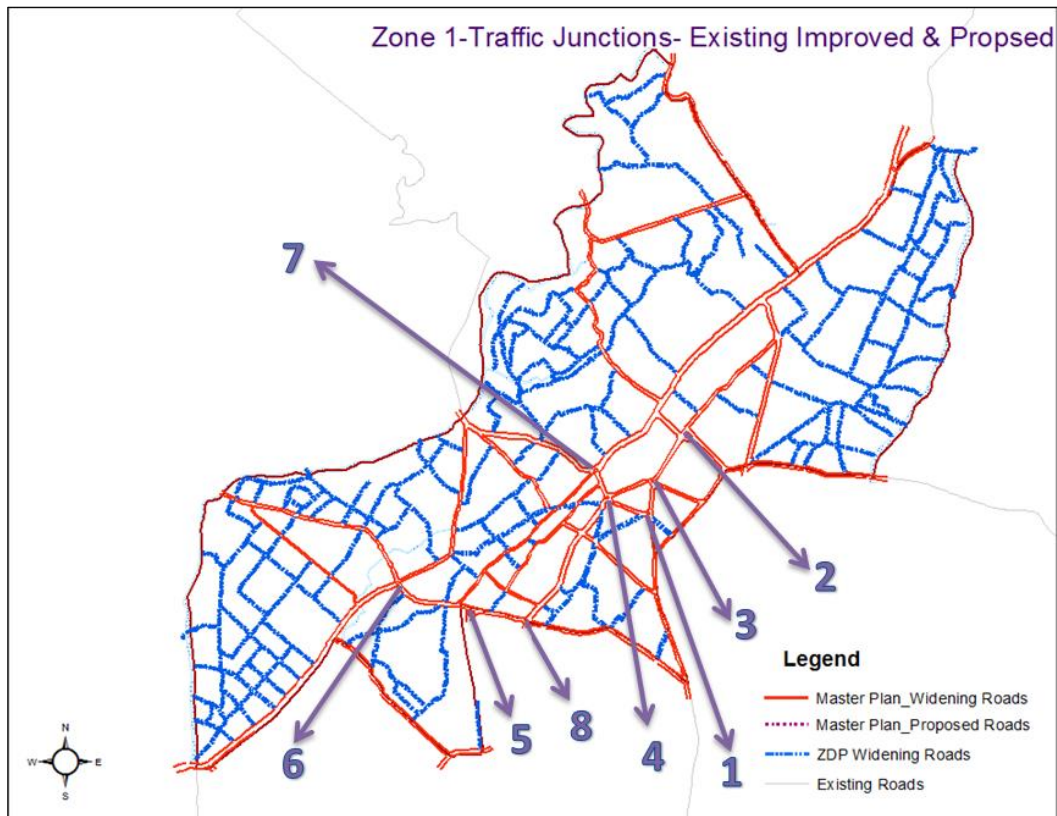
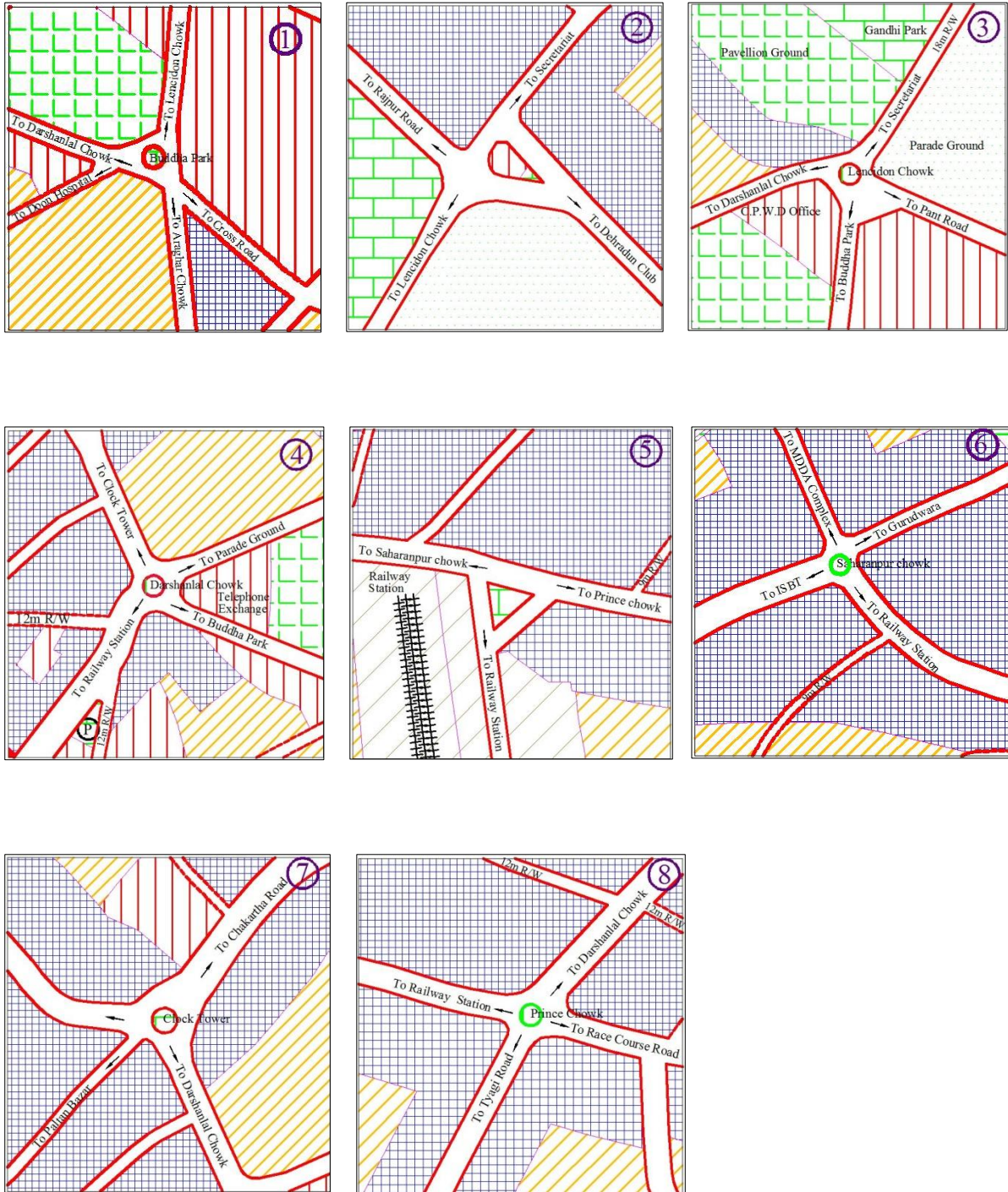


Figure 10 : Map showing the Traffic Junction Improved & Proposed



Detailed Traffic Junctions :



Below table shows the proposals on widening roads and there are no new roads proposed in this zone.

Table 16 : Zone-1 Road Widening Proposals

Zone 1: Proposed Road widening of Existing Road				Road Len (mts)	Prop RO W (mts)
Sl. No	From	Along	To		
1	Clock Tower	Rajpur Road	Dilaram Bazar	1820	33
2	Saharanpur Road	Patel Nagar Main Road ,National Highway 72	Saharanpur Chowk	1759	30
3	Prince Chowk	Gandhi Road ,Taxi Stand	Darshan Lal Chowk	947	30
4	Clock Tower	Krishna Palace, Chakrata Road	Bindal Bridge	530	30
5	Survey Chowk	Eastern Canal Road	Kay Marketing	1101	24
6	Drishti Eye Centre	Gandhi Park	Kwality Hotel	219	24
7	Drishti Eye Centre	Dehradun Club	Survey Chowk	354	24
8	Kaonli Road Junction	Kanwali Road, Lakshmi Guest House	Zone End Bindal Rao River	1329	18
9	Saharanpur Chowk	Guru Ram Rai Gurudwara	Bhandari Chowk	390	18
10	C.P.W.D Office Junction	Subhash Road	Araghar Chowk	327	18
11	Bhandari Chowk	Smartech Software Solutions, Punjab National Bank	Janpath Shopping Complex(Chakrata Road)	696	18
12	Tashildar Office	Doon Hospital, Amritkaur Road	Subash Road	743	18
13	Machhi Bazar	Ansari Marg	Dronacharya Institute Of Technology	696	18
14	Hotel President	Bakralwala	Kalidas Road	1245	18
15	Drishti Eye Centre	Secretariat	Momo Shop	882	18
16	New Cantt Road	Kalldas Road	Bindal Rao River	1365	18
17	Subhash Road	Pavalion Ground	Convent Road	335	18
18	Subhash Road	Tibetan Market	East Canal Road	226	18
19	Buddha Park	Cross Road	Convent Road	169	18
20	Buddha Park	Cross Road	Darshan Lal Chowk	306	18
21	28th Convent Road Junction	Forest Survey Of India	Subhash Road	694	12
22	Adhat Bazar Road	Raja Road	Paltan Bazaar Road	430	12
23	Police Station, Gandhi Road	Paltan Bazaar Road, Dhamwala Bazar	Clock tower	1247	12
24	Bhandari Chowk	Sabji Mandi,Moti Bazaar	Machhi Bazaar	730	12
25	Raja Road	Dispensary Road	Clock Tower	921	12
26	Other internal ZDP Roads			4544	12
27	Other internal ZDP Roads			48253	9

Source: Proposed Land use map Zone-1

5.7 Deviations

It is observed that below are the deviations found while preparing the ZDP existing land use maps when compare with approved Master Plan-2025. Below table shows the deviations on land uses.

Table 17 : Table shows the land use deviations

Differences - Master Plan & ZDP			
Slno	Master plan _2025	ZDP 2015	ZDP Proposal and Recommended to MDDA
Z1-A1	18m Prop Road	9m	With Change of alignment proposed 9m Road, based on Existing Road
Landuse Deviations			
Slno	Master plan _2025	ELU 2015	ZDP 2015
Z1-D1	Commercial	Commercial/Educational	Commercial/Educational
Z1-D2	Boundary Shape of - P& SP water sources area	Boundary Shape of - P& SP water sources area marked as per Ground reality	Boundary Shape of - P& SP water sources area marked as per Ground reality
Z1-D3	Boundary Shape of - Commercial area (Dehradun Club)	Retained the Commercial Boundary (Dehradun Club) as per ground reality	As per MDDA Suggestion - Retained the boundary as per Master Plan

6. ZONING REGULATIONS

6.1 Land Use Zoning Regulations

The Master plan consists of the land use plan as well as the regulation as contained in this chapter. At the draft notification stage, the procedural aspects and the minor components such as the size of drawings and the number of copies of plan to be submitted etc are omitted. The main provisions of the regulation are explained in a way that can be easily understood by the common man.

It is basic essential to control the constructed building and related activities under proposed different land-use to execute as per the embedded objectives in the Master Plan for the future development of Dehradun. The provision of different land use zone in Dehradun Master Plan has been done keeping in view its unique spatial position, expectations and desires of the running and future population. Only described use will be established in the reserved zone for different land use under Land use zone regulation. Essentially green area and a healthy mix of land use has been proposed along with provision of relevant use of residential, commercial, official, industrial and tourism related use.

The number of proposals made under each section in the report has not been totally converted into space requirement as the land parcel requirement of all this proposals may not become discernable on the map. The land use zones and different uses on each zone are included in the guidelines for implementation. Many of the important proposals particularly relating to residential services have been cost estimated and investment programme has been worked out.

6.2 Suggestive Development Regulations

For the directed development in present city structure and future pattern total Master Plan area has been divided in eight main land zone where as for important use same zone has been subdivided and regional authorities has been formed keeping in view the permissible-main, relevant and restricted use. The permission for building construction in proposed land use in Master Plan on 24 meter or wider road will be allowed only after leaving aside 4.5 meter or forward set back, whichever is more. More over even on different routes where multi-level market patterns are there and the permission of mixed commercial and residential building's row are concerned, the provision of leaving aside 4.5 meter open area or least essential forward set back whichever is more will be mandatory. After ensuring this only compound wall of any building can be made.

6.3 Land use Zone Categories

1. Residential Zone
2. Commercial Zone (Retail and Wholesale)
3. Manufacturing Zone
4. Public and Semipublic Zone.
5. Entertainment Zone.
6. Transportation and Communication Zone (Roads, Railways, Airports and Bus Depots and Truck Terminals)
7. Agriculture Zone
8. Special area Zone (Tourist, Tea garden and Forests)
9. Others (Cantonment area and water Bodies).

Along with above described provision in different zone regulation land uses have been classified in generally permitted use (with relevant use) and those uses which are allowed after the permission of the authority only. After the permission of authority, different uses will be considered under zonal regulation on the basis of optimum use on minimum land after fulfilling the parameters means there won't be any provision for relaxation. Hence, under zone regulation construction and development activities will be allowed according to the permissible described land use only.

Different described activities proposed under different land uses in the Master Plan has been classified in, "permissible", "permissible after acceptance of authority board", "restricted". Below said landuse class and their described provisions have been prepared on the basis of UDPMI guidelines.

6.3.1 Residential

Residential area- (Primarily Residential Area, Mixed Residential Area, Unplanned/Unorganized Residential Area)

Permissible use

In this Core Area - Residential building , group housing having max ht 12 mt, Multiplex, mall, Hotel, Lodge, guest house, farm house, hostel, Aanganwadi (child care centre), religious compound, ashram, charitable trust building, cultural building, inn, community centre, toilet, park.

In residential building professional office will be in maximum 20 square meter floor area (such as doctor's clinic, architect, chartered accountant, technical services advisor or land lord's own office etc.) Professional office in residential building will be in maximum 100

square meter or 25 percent of FAR whichever is less and should be on 12 meter wide road in plain area and on 7.5 meter wide road in mountainous area.

Retail shops (maximum in 50 square meter floor area), bakeries and confectionaries, medical clinic and dispensaries, Nursing home up to 20 beds or health centre, yoga centre, health clinic, pathology collection centre.

Educational building (up to inter college), library, research centre.

Inspection building , hotel, commercial institute, club, technical training centre, exhibition, art gallery, should be on minimum on 18 meter wide road and in maximum 1500 square meter land area or permissible land coverage FAR in residential area whichever is less .

Weekly market, hawkers/vendors/thela market, nursery, police chowki, taxi stand, tricycle auto stand, bus stop, community services and utilities related building (except services and storage yards) fire brigades, water supply, electricity ,sewer management , telephone, ATM, post office etc. infrastructural facilities and corresponding building.

Impact fee will be 5 percent of the land use change fees of the plot area and imposed on Guest House, petrol-diesel filling station, commercial complex/multy-storeyed commercial building, Hotel with minimum plot area 1500 Sq.m.

Permissible after acceptance of authority /board

Reception house, restaurant, auditorium, night house, petrol-diesel filling station, motor vehicle repairing workshop/ garage, in house industries (as per annexure-1) LPG gas agency; On 18 meter wide road ,land piece having 24 meter frontage and more than 1500 square meter hotel, mall, lodge having ht 12 mt will be permitted in this high density area upto 501-650 person/hect, physiotherapy centre, gymnasium / exercise work shop, yoga centre, primary clinic, bank, cinema hall, up to the limit as per considered land coverage or FAR or permissible land coverage in residential area or FAR whichever is less.

The market of retail things ,printing press, repair shop of house hold instruments, local bodies, state and central govt. and public sector offices, bus stand , sewage treatment plant / drainage, water treatment plant , cemeteries. Corresponding utilization for residential use which is essential for the development of the area and is equivalent to any of the above use.

Restricted use

Harmful, Heavy, big and largely extended industries ware housing, godown of perishable items, inflammable items, harmful objects, godown pertaining to turnkey yard, bus trucks repairing related workshop.

Slaughter house, dairy farm, mini dairy, hatcheries, animal husbandries, solid waste disposal

sites, whole sale market/mandi.

Sports training centre, stadium, shooting range, zoo, botanical garden, birds sanctuary, picnic spot; conference centre, addiction eradication centre, jail, child improvement home , hospital of infectious and mental disease, office and site of paramilitary force ,court, police line, forensic science laboratory , mortuary, post mortem house, crematorium, and other uses which is not equivalent to above described use.

6.3.2. Commercial use

Commercial uses will be classified under ,”permissible”, “permissible after acceptance of authority”, “restricted” such as retail market area ,commercial centre, whole sale trade and storage, use in mandi area etc.

Permissible use

Retail shop, bakery and confectionaries, shopping centre mall, multiplexes, local shopping centre, weekly market, hawkers, vendors, thela market, whole sale trade/mandi and retails shops are allowed along the road side with 20m depth from right of way or upto Single/Amalgamated Plot depth abutting the Master Plan roads.

In cases where portion of such Single/Amalgamated plot is falling outside the earmarked commercial zone but forms an integral part of a commercial building proposal, such non-commercial areas can be considered for commercial use after approval from Authority Board and payment of impact fee.

Commercial office , offices, bank and financial institution , trade and commerce centre, cinema hall, theatre, indoor stadium, auditorium, banquet hall, restaurant, hotel, guest house, residential building, group housing, boarding house, hostel; Information technology building, college, nursing home, medical clinic, diagnostic centre, pathology lab, research / training centre; Reception house, night house, library, religious site, art gallery, exhibition site, printing press, stock exchange, museum, police station, post office, bus stop, taxi stand, parking site, multi-level parking, park and open area, playground, recreation centre; Post office, centre/state/local bodies’ and public undertaking offices, telephone exchange, gas booking agencies, porting and down loading and uploading sites, weighing sites, cold storage. Fire brigade, , electricity supply sewer management, telephone, ATM, infrastructural facilities and corresponding building; Filling and service station, godown and storage house/service centre/garage/workshop.

Permissible after acceptance of authority /board

Polytechnic and higher technological institute, pollution less odor less light industries, ware housing, storage, godown of perishable items and inflammable substances, storage house, ,

bus and truck depot, junk yards, railway yards, station, athletics, stadium, religious building and hospital, and construction related to public utilities. All those uses which is essential for the area development and is according to the commercial use but not equivalent to above described use.

Restricted use

Heavy, harmful, polluting, industries with odor, extractive industries etc.; Poultry farm, animal husbandry, animal slaughter house, sewage treatment , dumping site, agricultural use, sand- gravel- stone quarrying activities, zoo, botanical garden, bird sanctuary, picnic spot; Game training centre, court, addiction eradication centre, jail, child improvement home, infectious disease hospital/research laboratory; Office of paramilitary force, forensic science laboratory and all other activities which are not equivalent to the above described use.

6.3.3 Industrial area

Different uses will be classified in ,”permissible”, ”Permissible after acceptance of authority/board”, “restricted” under industrial use such as small and service industries, other industries and special industrial region, institutes in information technology etc.

Permissible use

Industrial building, all the industries and information technology building / sites under permissible class, work related to public utilities, filing and service stations, parking , porting downloading and uploading sites, storage house, imperishable goods, nonflammable item’s storage/depot, storage site and its corresponding use , cold storage, ice industries, gas godown, bus depot and work shop, cinema hall, park, health centre, restaurant. Impact fee on Cinema hall, hotel, convention center, commercial center, academic institution.

Permissible after acceptance of authority/board

Except godown of fast perishable goods and inflammable substance, harmful industries, junk yards; Electricity centres, taxi stand, transport city/ truck depot, helipad, gas storage, sewage treatment plant, sewage farm, oil and LPG refilling plant, service station, workshop/garage; Govt. /semi govt./ private business/ commercial offices, bank and financial institutions, hotel, convention centre, refreshment house; Stadium, playground, religious building, dairy farm, sand, gravel, stone excavation related work, cemeteries, hospital.

Under industrial site residential building of essential worker/watchman, recreation centre, commercial centre, academic institution and all other activities which is permissible and not equivalent to above described activities.

6.3.4 Public and semi-public areas

In public and semi-public land use zone (PS) govt. / semi govt. /public office, Govt. land (whose use is not defined) academic and research, health and medication, social cultural and religious utilities and services, crematory sites, cemeteries, and other such related use are considered and allowed.

Permissible use

Government office, centre, state, local and semi Govt., public undertaking offices, essential use for government offices; Schools, college, universities and special academic institution, information technology building/site, research and development centre/institute, library; hospital, nursing home / health centre, medical store, clinic; social and cultural institution, social and welfare centre, religious building/site, building related to public use, community centre; habitat centre, convention centre, community centre, reception house; inn, museum, art gallery, exhibition centre, urban art, hawkers thela market; police station/ post, police line, jail, addiction eradication centre, child/women improvement house, court, fire brigade, and the related and subsidiary uses; Defense related site , bus /rail traveller terminal memorial, radio, radio wireless station , telecommunication centre, telephone centre, post office filling and service station; mortuary, post mortem house (dead body dissection house),cremation site/cemetery, solid waste dumping site (marked places in the Master Plan);

Permissible after acceptance of authority/board

In the site for the maintenance of public/semi-public activities, residential flats for essential workers and staffs, building and plots; special clinic, nursery school, polytechnic, cultural and religious site;

Commercial centre, professional office (such as doctor, lawyer, architect, chartered accountant, office of technical services advisor), hotel and restaurant, guest house, hostel Welfare centre, ampi-theatre/open air theatre, playground, entertainment club, LPG gas godown, gas filling depot Bank, post and telegraph office, water supply centre, electricity supply centre, sewage treatment work, service station, railway station/yard,bus/truck depot, helipad, storage/godown, animal slaughting house and other public utility building/site Solid waste dumping site (marked at other places in the Master plan) The uses corresponding to public and semipublic use which is essential for the development of the area and is equivalent to any of the above described use.

Restricted use

Heavy and large and harmful industries, junk yard, whole sale trade market, servicing and

repair workshop, agricultural production's processing and its sale related work, milk and poultry farm and all other activities which is not equivalent to above described use.

6.3.5 Entertainment use

Under the entertainment use zone (P) playground/stadium/sports complex, park/garden/open public area, and in multipurpose open area below described use/activities are allowed.

Permissible use

Local park, city park, playground, children park, botanical garden, zoo, aquarium, bird sanctuary, picnic spot, multipurpose special park, water park, amusement park, golf course, swimming pool, special entertainment and academic park, gymnasium, skating ring, planetarium, club, indoor stadium, outdoor stadium, shooting range, sports training centre, rope way terminal, library, public utilities and services such as police post, fire post, health centres for players/ worker.

Permissible after acceptance of authority/board

In the site building according to main permissible activities, subsidiary infrastructure and the residence for the worker, staff and watchman for maintenance of entertainment related activities. Scooter / taxi parking, centre for temporary commercial purpose such as trade fair, theatre, circus and other exhibition centre. Public meeting hall, restaurant, Caravan Park, sports stadium, open air theatre. Other corresponding uses which is according to entertainment use and is essential for the development of the area and is equivalent to any of the above described use.

Restricted use

Any other construction in open area, which is not corresponding to the entertainment purpose. All other activities which is not equivalent to the above described entertainment use.

6.3.6 Transport and communication use

Under transport and communication use road, rail, airport/ strip/helipad, bus depot ropeways , bus and truck terminal, transmission and communication services will be classified into , “permissible”, “permissible after acceptance of authority/board”, “restricted”.

Permissible use:

Road transport terminal (bus terminal and depot), goods terminal, rope way (along with terminal), parking area, necessary open area for circulation of vehicles, railway station, railway yard, ware housing, godown, airport/air strip/ helipad and corresponding establishment /building. Truck terminal, motor garage, workshop, filling and service station, denting and repairing shop and related services such as night house, boarding house, restaurant, booking office , construction related to transmission and communication, high

tension line, wireless centre, radio and television centre, microwave station, weather station and related offices.

Permissible after acceptance of authority /board

Driving school, tourism agency office, retail shops, inn, motels, primary health centre and other use and activities which is relevant for transport and communication and residence of essential worker/ watchman for maintenance of corresponding services. Other subsidiary use to transport and communication which is essential for the development of the area and is equivalent to any of the above described use.

Restricted use

All other activities under transport and communication which is not equivalent to the any of the above described use.

6.3.7 Agriculture and green zone

Under the agriculture and green zone use cultivable area, orchard – garden, forest covered, poultry and dairy farm, rural population, brick kiln, quarry region, water body, river/drainage, and below said use will be classified under , “permissible”, “permissible after acceptance of authority / board”, “ Restricted”.

Permissible use:

Single residential building inside habitation area boundary mentioned in the revenue records and daily use shops. Farm house and related buildings, agriculture, gardening, orchard, nursery, open picnic spot, wild life park/reserved forest, forest area, social forestry, dairy and poultry farm, animal husbandry , in house industries, storage , refining and selling centre, buildings related to public utilities and services, veterinary hospital. Impact fee on Eco-Resort, Motel.

Permissible after acceptance of authority /board

Agro-industries, brick kiln, sewage treatment work, electricity supply centre, sand, gravel, and stone related excavation work, polluting and harmful industries and their subsidiary service industries; Govt school, library, religious building; Slaughter house, repairing and servicing centre, saw machine; Milk freezing centre, pasteurization plant, food park (processing of produced objects, packing) grain mandi, fruit mandi, Hospital for infectious and mental diseases; Shooting range, zoo/zoo-logical park, botanical garden ,amusement park, vocational training center, cold storage, ware housing, godown, storage of explosive and inflammable material; Filling and service station, bus depot and work shop; Eco resort, motel, golf course, sanatorium;

All other use which is according to agriculture and green zone use, is essential for the

development of the area and is equivalent to any of the above described use.

Restricted Use:

Residential building heavy and harmful industries except agriculture and related use and those activities which is of objectionable and all other activities under agricultural use which is not equivalent to all of the above described permissible use.

6.3.8 Special Zone

a) Tourism Zone

According to the specialties' of the hypothesized planning area in the Master Plan ,special marked area under different use zone can be classified as conservation area, legacies, area of scenic importance. Building /sites of historical, legacy and archeological importance and natural sites of visual and scenic importance needs to be conserved maximum possible without any disturbance. At the same time, encouragement of tourism activities in this region needs to be kept in mind.

Permissible use

Tourist residence, Cottages, lodges, rest house, camping, hamlet huts, youth hostel, motel, hotel, mall, multiplexes, shopping area , spa, urban art, craft art centre, tourist village, sell and exhibition site, planetarium, aquarium, community building, cultural building, park, playground, science and adventure park, amusement park, museum, golf club, club house, gymnasium, skating ring, boating club, theatre, tracking institute, art gallery, yoga and health centre, bank, primary health centre, taxi stand, bus depot, rope way, parking, music centre, tourist office, transport booking centre, travelling agency's office, artificial water body. Impact fees on Hotel, Mall and Multiplexes.

Permissible after acceptance of authority/board:

Radio broadcasting centre, television studio and sound recording and dubbing studio, filling studio, water and electricity distributing office, information technology related building , telephone centre, post and wireless house, police check post. The uses according to the tourism which is essential for the development of the area and is equivalent to any of the above described use.

Restricted Use:

All other use under tourism use which is not equivalent to the above described permissible use.

b) Tea Garden:

Permissible Use:

Tea garden, garden, nursery, gardening, afforestation.

Permissible after acceptance of authority/board:

Tea processing building, maximum land coverage 250square meter along with height of pitched roof up to 12.5 meter. Other corresponding uses which is essential for the development of the area and is equivalent to any of the above described use.

Restricted Use:

All such activities under tea garden use which is not equivalent to any of the above described permissible use.

c) Forest

Permissible Use:

Retaining wall, breast wall, Plantation, nursery, social forestry, park, garden, Green buffer along patches of forest for permitting passive activity.

Permissible after acceptance of authority/board:

Development work related to land conservation, area for tourism development , charming sites, wild life sanctuary, picnic spot, camping site, development of scenic sites temporary building material, shelters for tourist made up by light weight building material, huts, construction of refreshment house, construction of footpath and roads, electricity, water supply , sewer, line or pipe laying for telephone.

Before taking the permission of the above said work no objection from forest department will be mandatory.

Restricted Use:

All other activities under the forest which is not equivalent to any of the above described use.

6.3.9 Other Zones

In cantonment and water bodies use are permitted in the zone.

a) Cantonment:

Permissible Uses/Activities

Cantonment area precincts it is necessary to obtain specific clearance from cantonment board, after consultation be cantonment committee before undertaking certain kinds of development and re development as specified in zoning regulation, or issued as specific guidelines. The Regulations allow special exemption from land use controls in the interest of cantonment.

Restricted use

All the developmental activities are prohibited in this zone.

b) Water Bodies

Water bodies Zone generally indicates all existing water rivers, lakes, tanks and kuntas as

indicated in the topographical sheets published by the Survey of India, the State Irrigation Department or revenue or other competent authorities. The boundary of the water bodies relate to the Full Tank Level as indicated in relevant maps, covering both perennial and non-perennial parts when such distinction exists. In Water Body zone no constructions is permitted in the water-spread and the buffer belt of minimum 30 meter around the FTL and maintain the 5 m green area of either side of the Major river/stream/canals and 3 m Green are of either side of minor river/stream/canals for permitting passive activity. The only exception is fishing, boating, and picnics along the banks. The only construction allowed is open to sky jetties for boating, platforms for fishing and rain shelters and snack bars each not exceeding 10 sqm in area not exceeding four in numbers around one water body.