GOVERNMENT OF
HIMACHAL PRADESH

DEVELOPEMENT PLAN FOR VARIOUS PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH

BAIJNATH-PAPROLA PLANNING AREA
DEVELOPMENT PLAN - 2035




Department of Town & Country Planning
Government of Himachal Pradesh

DEVELOPMENT PLAN
BAIJNATH-PAPROLA PLANNING AREA
KANGRA DISTRICT, HIMACHAL PRADESH

Prepared by:

Town and Country Planning Department

Government of Himachal Pradesh

Mission Statement: "Shaping Future"

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Executive Summary

Project Context

Himachal Pradesh is one of the leading hill States in India with a population of 68,64,602 persons as per 2011 Census. There are 54 Urban Local Bodies and 59 census towns in the State. Apart from these, there are 33 Planning Areas and 34 Special Areas notified under the provisions of the Himachal Pradesh Town and Country Planning Act, 1977.

In the wake of rapid urbanisation and economic growth, the Government of Himachal Pradesh (GoHP) intends to regulate the development process in its urban settlements, to ensure that these urban settlements continue to serve their purpose without causing inconveniences and difficulties to the population, and the administration. To achieve the same, the Department of Town and Country Planning has prepared this Development Plan.

Planning Area Profile

Baijnath Paprola is a notified Planning Area in Baijnath Tehsil of Kangra district of Himachal Pradesh state. The Planning Area is dissected by Binwa River, a tributary of Beas River. Chamba district borders with the Northern boundary of Baijnath Tehsil. Palampur Tehsil is located at the Western side and Jaisinghpur is located at South Western side of the Baijnath Tehsil. Multhan Tehsil borders the North-Eastern boundary and South Eastern side is bordered by Mandi District. Baijnath Paprola Planning Area is situated at the central portion of Baijnath Tehsil. The Baijnath Paprola Planning Area has 18 revenue villages out of which Baijnath and Paprola are considered as the urban centres which have been upgraded to Nagar Panchayat in 2015 consisting 12 revenue villages. The Planning Area has a population (2011) of 20521 which is distributed over an area of 1823 hectare.

Baijnath is famous for its 13th-century temple dedicated to Shiva which attracts a large number of tourists and pilgrims from all over India and abroad throughout the year. Makara Sankranti, Maha Shiv Ratri, Vaisakha Sankranti, Shravana Mondays, etc. are celebrated.

Baijnath-Paprola Planning Area is well connected by air, railways and roadways. The Planning Area is located just 50-60 km. away from the Gaggal airport. Baijnath is also connected with Pathankot and Jogindernagar through narrow gauge on the Kangra Valley railway line. The bus connectivity is good. HRTC buses and private buses run from Baijnath to all the major towns of Himachal and to National Capital Delhi as well.

Demographic Characteristics

The total population of Baijnath-Paprola Planning Area reside in the rural areas according to Census of India, 2011. There was no urban settlement in the planning area up to 2015. The Baijnath Nagar Panchayat has now been formed in 2015 which gives it a statutory urban character. Almost 45% of the total population in the Planning Area reside in Baijnath-Paprola Nagar Panchayat Area. The average household size of the planning area is 4.4, which is almost same as that of the district and state averages of 4.3 persons and 4.6 persons in 2011. The Planning Area has a decadal population growth of 6.90 % in the 2001-2011, a sex ratio of 976 females per 1000 males and literacy rate of 87 % as per Census 2011. The Planning Area constitutes of 23 % population belonging to Schedule Caste.

According to the Census of India, Baijnath-Paprola Planning Area had a population of 19,197 in 2001 which rose to 20,521 in 2011 registering a decadal growth rate of 6.90 % in 2001-11.

The projection method followed to forecast the probable increase of population in Baijnath-Paprola Planning Area up to target year 2035 is Compound Annual Growth Rate (CAGR). The Phase Years have been taken on a gap of 5 years i.e., 2016, 2021, 2026, 2031 and 2035. Hence the projected population for Baijnath Paprola Planning Area for the year of 2035 is 28,553.

Economic Profile

The Work Participation Rate of the Planning Area is 37 % with most of the workers (70 %) engaged in tertiary sector, 25 % engaged in primary sector and only 5 % works engaged in secondary or industrial sector. The workforce constitutes of 70 % male and 30 % female workers as per Census 2011. The percentage of women participation has decreased from 37 % in 2001 to 30 % in 2011 with 65 % women participation in the primary sector. There are 69 % main workers whereas 31 % marginal workers in the Planning Area according to 2011 Census. The percentage of marginal workers have increased from 26 % in 2001 to 31 % in 2011.

Paddy (90 %) and wheat (85 %) are major food crop cultivated during Kharif and Rabi seasons. The main horticultural crops in the region include oranges, lemons, mangoes and apples (initiation phase).

Traffic and Transportation

Baijnath is connected by NH-154 and two MDRs i.e. MDR-56 and MDR-43. NH-154 connects Baijnath with Dharamshala and Mandi/Manali via Palampur and Jogindernagar. MDR 56, connects Jogindernagar with Baijnath via Thara, Yol Settlements and MDR 43, connects Neri with Baijnath via Ustehar, Kunsal settlements. The NH-154 serves as the primary road network in the Planning Area covering a length of about 7.15 km in the Planning Area and serves 34 % population in the Planning Area directly. The MDR-43 and MDR-56 serves the secondary road network of about 2.50 km and about 5.63 km respectively in the Planning Area and serve 38 % population in the Planning Area. The tertiary road network consists of the village roads which connect the rest of the settlements like Malgota, Kharanal, Paprola Khas, Beth Jhikli, Nagan, Kothi and Majehrna Khas with a network of 40 km of road length inside the Planning Area and serve 38 % population directly and rest of the people indirectly in the Planning Area.
The average vehicular annual growth rate is 5 % from 2011 to 2015. The highest growth rate was experienced in 2014. The maximum registered vehicles are mainly the two wheelers (63 %) and cars (26 %). The LMV vehicle share is 6 % out of the total vehicles registered in the area. Rest of the 5 % share includes buses, three wheelers, tractors and MGVs.

There are two designated off-street parking spaces available in Baijnath town viz., one adjacent to Baijnath temple of 530 sq. m. area with a capacity of 19 cars and another near the PWD rest house beside the Sub-divisional post office of Baijnath of about 850 sq. m. with a capacity of 30. As per the norms of URDPFI guidelines 710 sq. m. area is required for parking area for the temple.

There are no designated pathways for the pedestrian movement in the town. The carriage way of NH-154 is used by the pedestrians mainly. The walkways are required as most of the people commute by walking inside the Planning Area.

Baijnath Temple, a very famous ancient temple of Lord Shiva, attracts a large number of tourists and pilgrims from all over India and abroad throughout the year for which there will be increase in vehicular as well as pedestrian traffic in that area.

Paprola and Baijnath is a highly dense built-up area which generate high local traffic movement (vehicles and pedestrian both).

Agro Based Industries, R&D Institute and Skill Development centres have been proposed in the planning area which will further increase vehicle and pedestrian traffic in that local area.

The alignment of the proposed Bypass is from Pandtehar Village near proposed bus and truck terminals to Gankheter Village near rail crossing; connecting Paprola Khas, Kharanal and Malgota Village.

Housing

The overall condition of houses in Baijnath-Paprola Planning Area is good. A significant section of the households is the owner of their structures and have permanent structure. Most of the temporary structures can be seen in villages that are situated along the railway line or along the bank of Binwa River. Total housing need for 2035 would be 2784. Different settlements are distributed in a dispersed mannerwith low population density. These traditional settlements appear to have the 'colour of the land' and are vernacular in character. The landscape, materials, techniques of making, all contribute to a common formal language of settlements in Himachal Pradesh. The location of various settlements in the Baijnath-Paprola Planning Area.

Physical and Social Infrastructure

Both surface water and groundwater are utilised to meet the water demand of the people of Baijnath Paprola Planning Area. The estimated water demand for the Planning Area will be 15.46 MLD in 2035 and the sewage generation will be 11.88 MLD. Proper waste management for 13.97 Ton per day of the Planning Area would be required for 2035. The cluster based approach can be adopted for the waste disposal. Presently, in Baijnath-Paprola Planning Area, there is one fire station adjacent to SDM office at Baijnath. The projected population of Baijnath-Paprola Planning Area is 28,553 for the year 2035. Hence, current provision for fire services in Baijnath-Paprola Planning Area are sufficient to cater the needs.

In Baijnath-Paprola Planning Area, the primary and secondary education facilities are more than the requirement. The population for opening a college is lower than the population requirement under the URDPFI Guidelines, considering the population and availability of colleges in the surrounding areas, these are adequate with reference to the distance range prescribed by URDPFI norms.

There is a need to give priority on skill based training institutes. The citizens of Baijnath-Paprola Planning Area avail higher education in science and other streams at Palampur, which is located at a distance of about 17 km from the Planning Area.

Though there is a gap in the existing number of dispensaries and sub-centres but the existing number of primary health centres and hospitals are fulfilling the healthcare demand in the Planning Area as they are existing more than required by the URDPFI guidelines. Hence, the healthcare facilities in Baijnath-Paprola Planning Area are adequate to cater the healthcare demand.

The multi speciality speciality hospitals are located at Palampur and Dharmashala which come under the about 50 km radius of the Palnning Area.

There is acute deficiency of open spaces in the Planning Area. One cow shed, two cremation grounds, two play grounds and one community hall are located in the Planning Area which are concentrated in the Nagar Panachayat boundary. Disaster management centre and fire station are aslo located in the Planning Area.

Environment and Disaster Management

In the Planning area 29 % area comes under the forest cover out of which 21 % is Demarcated Protected Forest, 30 % is Un-Demarcated Protected Forest and rest of the 49 % is Unclassed Forest. The nearest Air Quality Monitoring Stations are at Dharamshala and Sundarnagar which are located beyond 50 km radius, hence the data on air quality could not be procured for Baijnath-Paprola Planning Area. The major source of noise in the Planning Area is roadway traffic. Roadway noise levels vary with traffic volume and speed, types of vehicles on the roadway and the type of roadway. For densely populated areas of Baijnath-Paprola, where residential uses line the roadways, few noise mitigation options exist. In Baijnath-Paprola Planning Area, the concentration of pH, Dissolved Oxygen and Biochemical Oxygen Demand is under the permissible limits and the quality of water falls in Class-A.

The area adjoining the river Binwa bank starting from Binwa Bridge to Kheer Ganaga ghats is vulnerable to natural land slide disaster during raiy season. This area is approximately 27800 sq.m which is nearly 500 m in length. This area shall be considered as non-developable land and no-construction activity should be allowed here. In order to sustain the existing structures adjoining this area, the Development Plan recommends to have retaining walls along the sliding and sinking area and to grow vegetation and trees in this area so as to avoid soil erosion.

Heritage and Tourism

In terms of cultural and historical importance, Baijnath-Paprola Planning Area is endowed with a number of heritage and architecturally magnificent structures of religious as well as national importance. These include the Baijnath Temple, Sidhnath temple, Tashi Jong Monastery, Sherab Ling Monastery, Bir-Biling Paragliding site, Kangra Valley Railways and Binwa River. Baijnath-Paprola Planning Area falls on the Dhauladhar Circuit. This circuit covers Delhi - Chintpurni - Jawalamukhi - Kangra - Dalhousie - Khajjiar - Chamba - Dharamshala - Chamunda - Palampur - Jogindernagar - Delhi. Baijnath-Paprola is situated in between Palampur and Jogindernagar and is a major religious destination. Baijnath needs more attention to make it visible on the existing tourist circuit.

The tourism recommendations are: Identification of tourist destinations and preparation of Tourism Master Plan and Mobility Plan for the Planning Area. The tourism department in co-ordination with the private sector should develop these circuits towards making tourism an important economic sector. Promote responsible tourism that will be welcomed as both preferred employer and community industry. Use Tourism as a means of providing new employment opportunities in rural, tribal and remote areas of the Planning Area. Increase private sector participation in tourism, both as means of generating employment and providing new infrastructure. During mela period the demand for basic physical infrastructure increases for which the plan recommends to have mobile toilets and additional water supply system in the mela ground. These toilets should be connected to

septic tanks that are suggested to be constructed within the mela ground. ASI norms to be followed for Baijnath and Sidhnath temples. Eco-tourism though a relatively new concept can be developed around the tea gardens and factory in Ustehar. Tea garden shall be promoted and activities like tea tasting, visit to tea factory, tea plucking and processing can be encouraged. Camping sites to be developed along with viewing decks in the Planning Area, one towards the North at Bheth Jhikli and the other at Dhar Baggi.

1 INTRODUCTION: BAIJNATH PAPROLA PLANNING AREA PROFILE

1.1 Introduction

Baijnath Paprola is a notified Planning Area in Kangra district of Himachal Pradesh state. Baijnath-Parola Planning Area is situated in Baijnath Tehsil of Kangra district. It is located at a distance of about 50 km from Dharamshala, the district headquarters and about 217 km from Shimla, the state capital. Baijnath Tehsil shares its boundary with Chamba district in the North, Palampur Tehsil in the North-West, Jaisinghpur Tehsil in the South-West, Mandi district in the South, Multan tehsil in the East (Refer Figure 1-1: Baijnath Paprola Planning Area).

Baijnath and Paprola are twin towns situated on the opposite banks of Binwa River. Baijnath is famous for its 13th-century temple dedicated to Lord Shiva which attracts a large number of tourists and pilgrims from all over India and abroad throughout the year. Makara Sankranti, Maha Shiv Ratri, Vaisakha Sankranti, Shravana Mondays, etc. festivals are celebrated with great zeal and brilliance. A five-day state level function is held in the Baijnath during Maha Shiv Ratri every year. A famous Ayurveda College and hospital, named Rajiv Gandhi Government Ayurvedic Collegeis located at Paprola town.

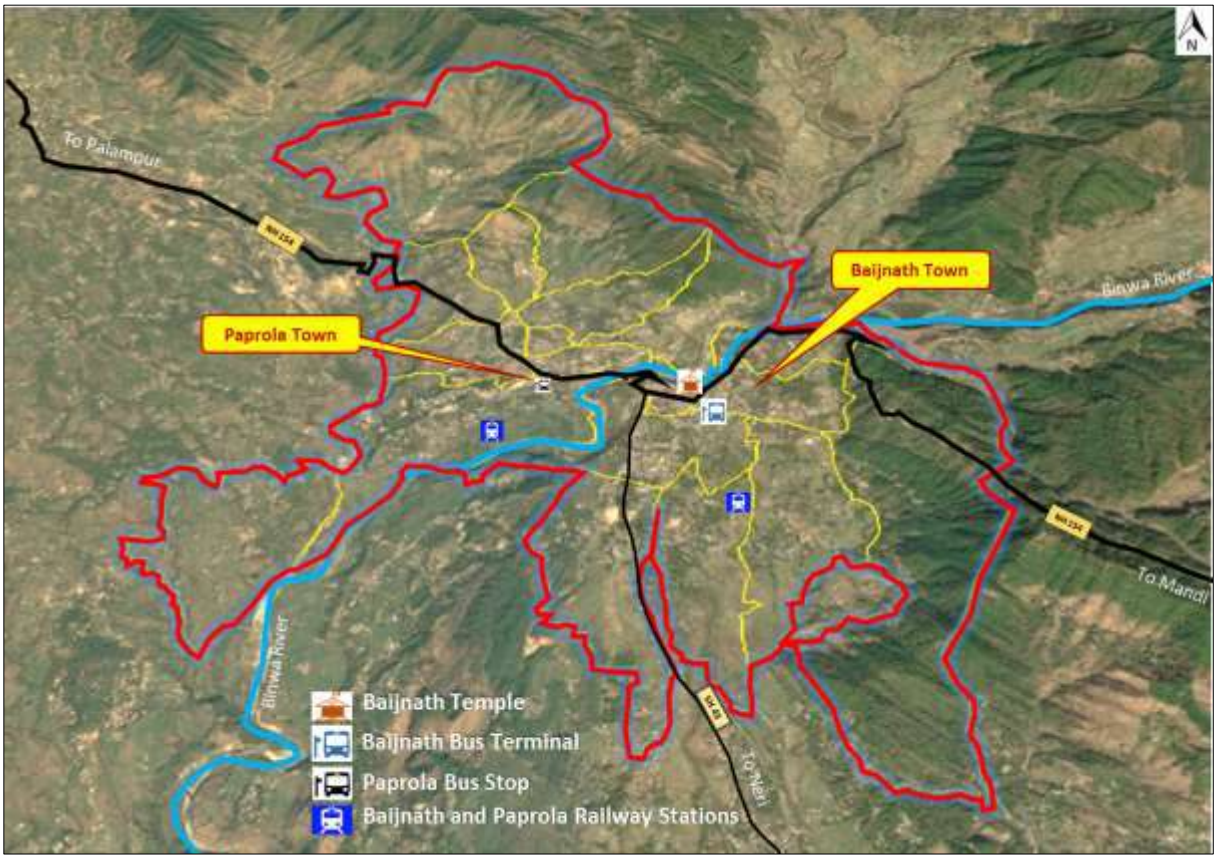
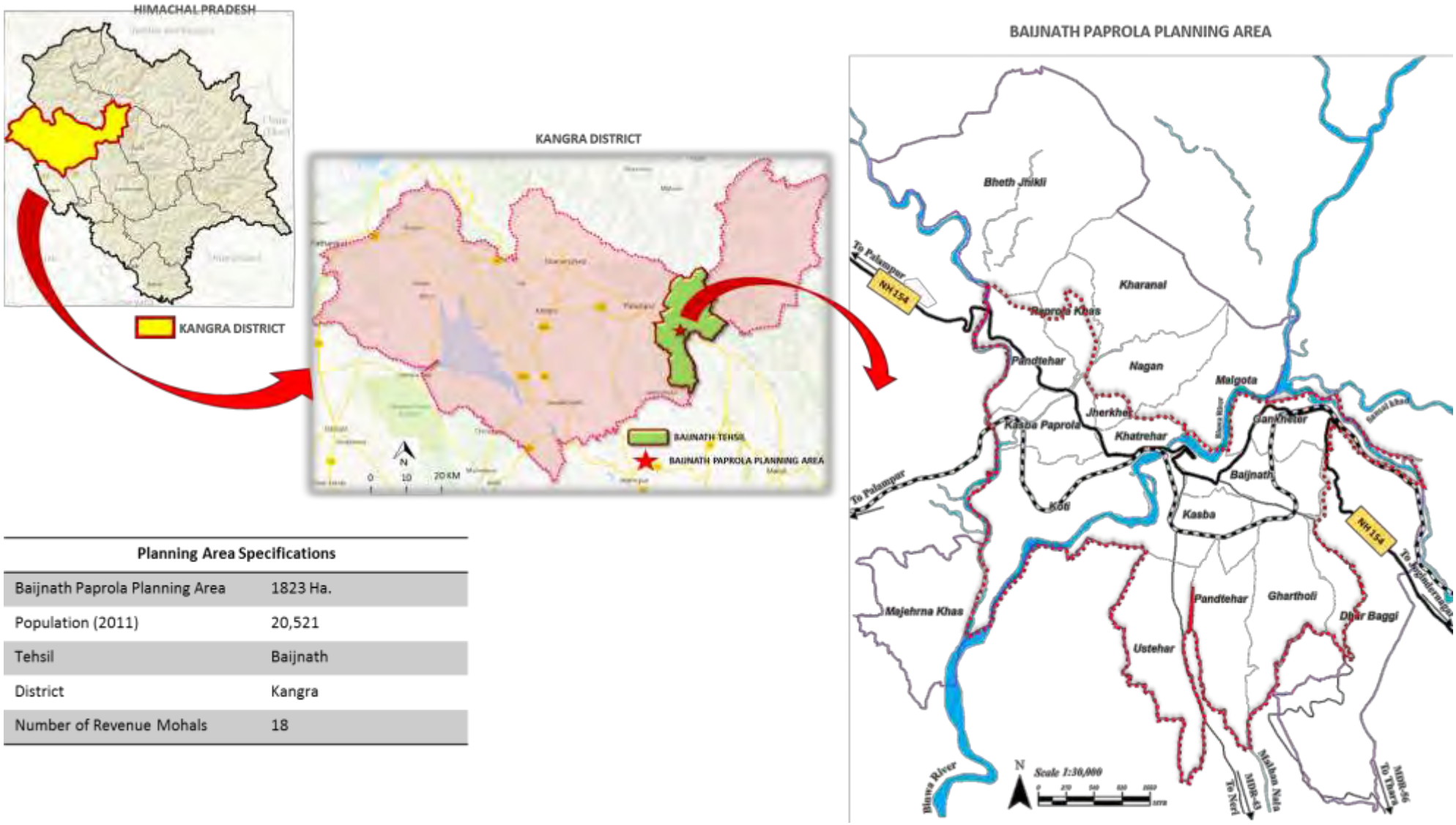


Figure 1-1: Baijnath Paprola Planning Area
Source: Google Earth and Primary Survey



Planning Area Specifications	
Baijnath Paprola Planning Area	1823 Ha.
Population (2011)	20,521
Tehsil	Baijnath
District	Kangra
Number of Revenue Mohals	18

Figure 1-2: Location of Baijnath-Paprola Planning Area
Source: Notification provided by Town and Planning Department, HP

1.2 Planning Area

In exercise of the powers conferred by sub-section-(1) of Section- 13 of the Himachal Pradesh Town and Country Planning Act, 1977 (Act No.12 of 1977), the Governor of the state has constituted "Baijnath-Paprola Planning Area" on 7th July, 2014 which is comprised of following Revenue Villages:

Table 1-1: Planning Area Profile

Sl. No.	Name of Revenue Village	Hadbast No.	Area (Hectares)	Population (2011 Census)
1	Kasba (NP)	871	88	1861
2	Baijnath (NP)	870	70	2349
3	Gankheter (NP)	869	68	721
4	Ghartholi (NP)	1023	97	1956
5	Pandtehar (NP)	872	80	696
6	Ustehar (NP)	875	98	909
7	Paprola Khas (NP)	820	46	860
8	Kasba Paprola (NP)	822	58	1979[1]
9	Nagan	826	64	835
10	Koti (NP)	823	142	1698
11	Jherkher (NP)	825	9	774
12	Khatrehar (NP)	829	22	958
13	Kharanal	819	123	660
14	Malgota	827	84	613
15	Pandtehar (NP)	821	65	688
16	Bheth Jhikli	817	318	1715
17	Dhar Baggi	1025	273	233
18	Majehrna Khas	779	118	1016
Total			**1823**	**20521[2]**

Source: Town and Country Planning Department, Himachal Pradesh

The Baijnath Paprola Planning Area has 18 revenue villages out of which Baijnath and Paprola are considered as the urban centres which have been upgraded to Nagar Panchayat in 2015 as per Notification No. UD-A(1)-1/2012, dated 28.5.2014 having 12 Revenue mohals (11Wards) . The Exisiting land use of Baijnath-Paprola Planning Area has been adopted vide Notice No. HIM/TP/PJT/PA-Baijnath-Paprola/2013/Vol-1/-3896-3923, dated 03.08.2017. The Planning area has a population of 20,521 which is distributed over an area of 1823 hectare.

[1] Note: The Population of Kasba Paprola as per Notification No. TCP-F (5)-1/2014 dated 07-07-2014 is 822 whereas the actual population is 1979 according to 2011 Census.

[2] Actual Population of the Planning Area as per Census of India, 2011

Baijnath Paprola Planning Area	
Baijnath Paprola Nagar Panchayat	**Gram Panchayats**
I. Baijnath	I. Nagan
II. Kasba	II. Malgota
III. Gankheter	III. Bheth Jhikli
IV. Usther	IV. Dhar Baggi
V. Pandtehar	V. Majerhna Khas
VI. Ghartholi	VI. Kharanal
VII. Kasba Paprola	
VIII. Khatrehar	
IX. Jherkher	
X. Koti	
XI. Pandtehar	
XII. Paprola khas	

Figure 1-3: Administrative Set Up in Baijnath Paprola Planning Area
Source: Town and Country Planning Department, Himachal Pradesh

1.3 Administrative Set up

In 2015, Baijnath and Paprola towns conjointly formed the Nagar Panchayat. It has 11 wards and 12 Hadbast revenue settlements. According to the 74th amendment, the newly formed Nagar Panchayat can perform the eighteen functions listed in the 12th schedule. 6 revenue villages are coming under the administration of Gram Panchayat in the planning area. Baijnath town is the Tehsil and Block headquarter of Baijnath Teshil and Baijnath Block.

1.4 Regional Linkages and Connectivity

The Planning Area is well connected by air, rail and roadways with all the state level and national level major towns and cities.

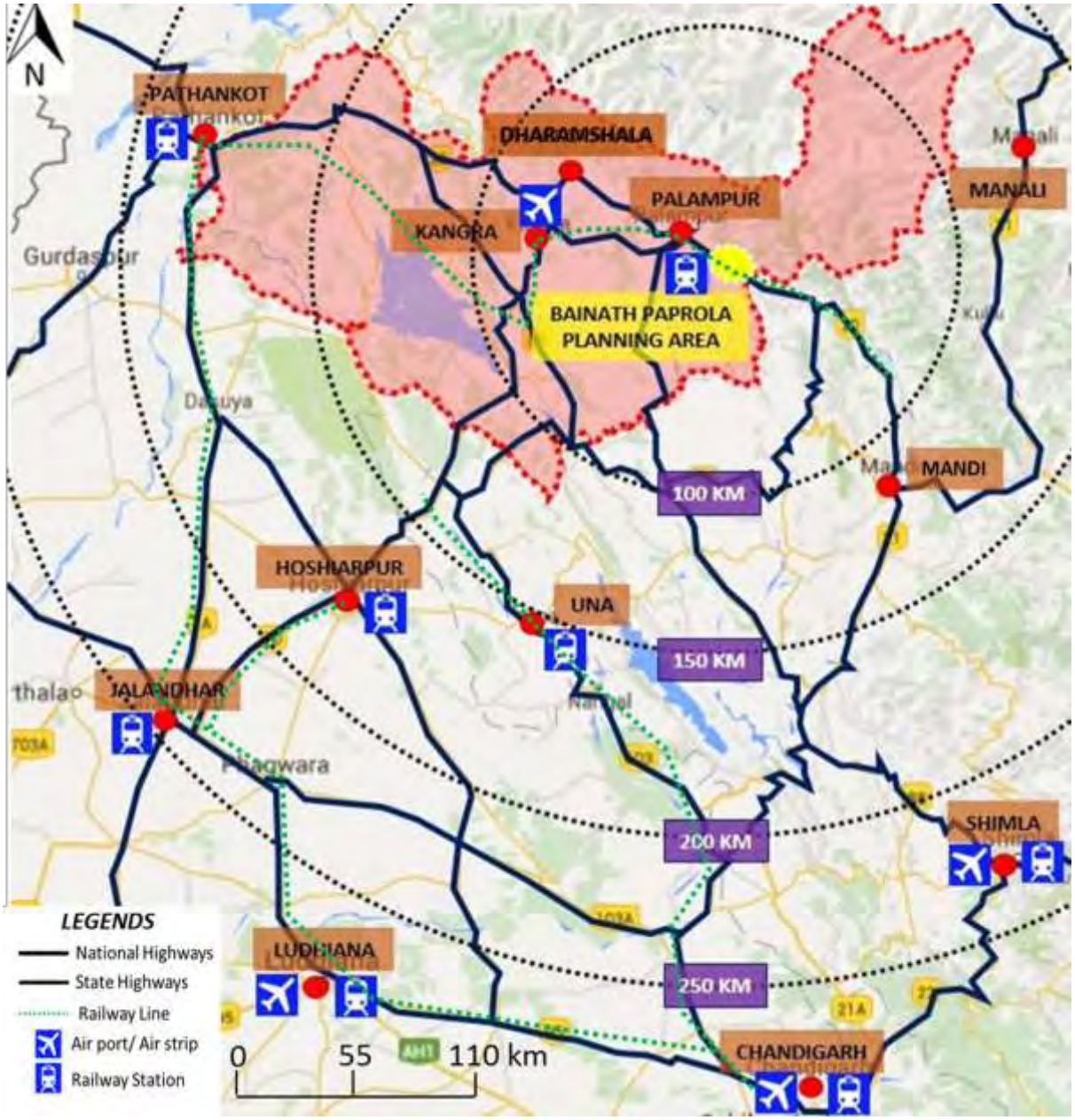


Figure 1-4: Regional Linkage

Source: Google Earth and Primary Survey

1.4.1 By Air

The nearest air connectivity is at Gaggal Airport in Dharamshala (the district head quarter) which is located at a distance of about 55km and flights are available every alternate day, to-and-from Delhi, the national capital.

1.4.2 By Rail

Baijnath and Paprola towns are connected by a railway line and have 2 separate narrow gauge railway stations. The narrow-gauge line connects Pathankot with Jogindernagar via Paprola and Baijnath.The next nearest railway station is in Kangra which is about 50 km from the Planning Area. The nearest broad-gauge railway stations are located at Amb (120 km) and Pathankot (130 Km).

1.4.3 By Road

Baijnath is well connected by roadways through NH – 154, MDR – 56 and MDR - 43. Public bus service is available from Baijnath Paprola to the major cities.

The district Head quarter Dharamshala is located at a distance of about 50 km from Baijnath town whereas Shimla (the state head quarter) is located at a distance of 217 km. Chandigarh is located at a distance of about 270 km whereas Delhi is at a distance of about 507 km.

Table 1-2: Distance of Major Towns and Cities from Planning Area (PA)

Sl. No.	Towns/Cities	Distance from PA (in km.)
1	Palampur	17
2	Dharamshala	50
3	Gaggal Airport	55
4	Shimla	217
5	Chandigarh	270
6	Delhi	507

Source: Calculations from the Google Map

1.5 History and Spatial Growth

The existence of Baijnath town seems to be from 13th century A.D., this is evident from the presence of famous Lord Shiva temple in Baijnath. The Baijnath temple has been continuously under worship ever since its construction in 1204 A.D. The present temple is a beautiful example of the early medieval north Indian Temple architecture known as Nagara style of temples. The whole temple is enclosed by a high wall with entrances in the south and north. The outer walls of the temple have several niches with images of gods and goddesses. Numerous images are also carved in the walls.[3]

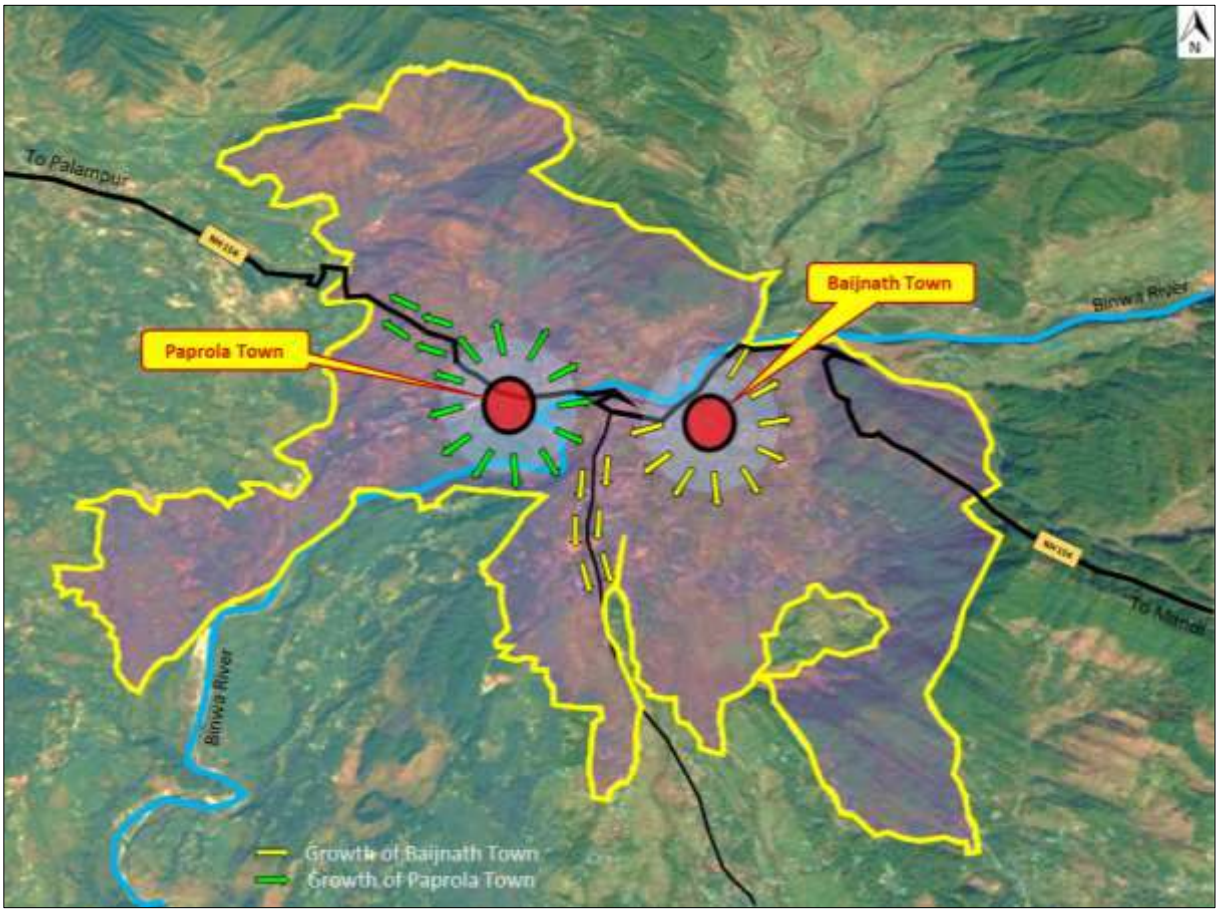


Figure 1-5: Pattern of Growth of two Urban Centres
Source: Google Map and Primary Survey

[3]*Source: http://baijnathtemple.com/archaeology.htm, and http://himachaltourism.gov.in/temple.php*

Baijnath town has grown around the temple in an organic way. The temple area has formed the core area of Baijnath town. The town has shown spatial growth towards south (refer Figure 1-5: Pattern of Growth of two Urban Centres). The twin town Paprola has grown along the NH-154 and Binwa River in a linear form. The Town is famous for the Ayurveda College and Hospital. Paprola has grown in Western and North-Western direction towards Palampur town. These urban areas have particular linear spatial form along the roads and highway. The pilgrimage tourism has facilitated the development of huge commercial centre along the highway.

1.6 Geographical Setting

1.6.1 Geology

Kangra district has Quaternary, Tertiary and Precambrian deposits which are basically made of sedimentary and igneous rocks. The valley fills are composed of recent Alluvium, Shivalik hills are made up of rocks such as sandstone, shale and clay that came into existence during the Eocene, Miocene and Pliocene period. The rocks of southern portion of Baijnath Tehsil is of upper Shivalik group. The middle portion of the Tehsil is formed of Kullu formation that consistsof sandstone and granite rocks. These porous geological formations form have facilitated for potential ground water reserves.

1.6.2 Physiography

Baijnath-Paprola Planning Area in Kangra district is situated on the southern slope of the Himalayas. The entire area of the district is traversed by the varying altitude of the Shivalik, Dhauladhar and the Himalayas from North-West to South-East. The area is categorised as the hilly area.[4]

1.6.2.1 Elevation

The entire Planning Area is characterised by mountainous undulating terrain. The elevation in the area ranges from a minimum of 850m near the Binwa valley to a maximum of 1400m near Tashi Jong Monastery. Baijnath-Paprola Planning Area is situated at an average elevation of 1314 m above mean sea level. About 95% of the settlements are located within an elevation of 1100m. The elevation increases from south western part to north eastern and south-eastern sides. High altitude areas having forest cover. (Refer Figure 1-6: Elevation Analysis)

1.6.2.2 Slope Analysis

Baijnath Paprola Planning Area has moderate (western side) to steep slope (eastern side). Almost 68 % of area, in the central, western and southern parts of the Planning Area, has gentle slope of less than 27 % i.e. suitable for development or any construction. Almost 24 % area falls under moderate to semi-steep slope categories, ranges from 27 to 58 %, located in north eastern and south-eastern fringes. Rest 8 % of the planning area, falls under steep slope category i.e. more than 58 % slope. Areas with more than 27 % slope are mostly under forest cover and along the river. Any sort of constructions is refrained in this zone. Hence, areas coming under semi-steep and steep slope have

[4] *Source: Ground Water Information Booklet, Kangra District, Himachal Pradesh*

been marked as the eco-sensitive zones while preparing the development plan.[5] (Refer Figure 1-7: Slope Anlysis)

1.6.3 Climate

The climate of the district varies from wet sub-tropical climate to sub-humid in lower areas and temperate towards the higher areas. Winter extends from December to February and summer extends from March to June while July to September is the rainy season called monsson. The average annual rainfall of the district is 1751 mm, out of which 83% occurs during July to Sept. Snowfall, is also received at northern parts around Dharamshala, Palampur and Baijnath Tehsil areas. The temperature ranges from 2.9°C in January to 32.9°C in May.[6]

1.6.4 Soil Character

Five types of soils are found in Kangra district viz., 1. Histosols (Snow field, Peaty and Saline Peaty), 2. Ultisols (Brown red and yellow), 3. Alfisols (Sub Mountain), 4. Ardisols (Grey Brown), 5. Entisols (Younger alluvium).

The pre-dominant soil type of Baijnath-Paprola is Alfisol. "Alf" refers to aluminium (Al) and iron (Fe). Because of their productivity, the Alfisol represents one of the important soil orders for food and fodder production.[7]

[5] *Source: URDPFI Guidelines and http://www.sappi.com/regions/sa/SappiSouthernAfrica/Sappi%20Forests/Tree%20Farming%20Guidelines/Part%203_Forest%20Engineering_Chapter%207_Terrain%20Classification.pdf*

[6] *Source: Statistical Handbook, Kangra District (2014-15) and Human Development Report, Kangra District*

[7] *Source: Ground Water Information Booklet, Kangra District, Himachal Pradesh*

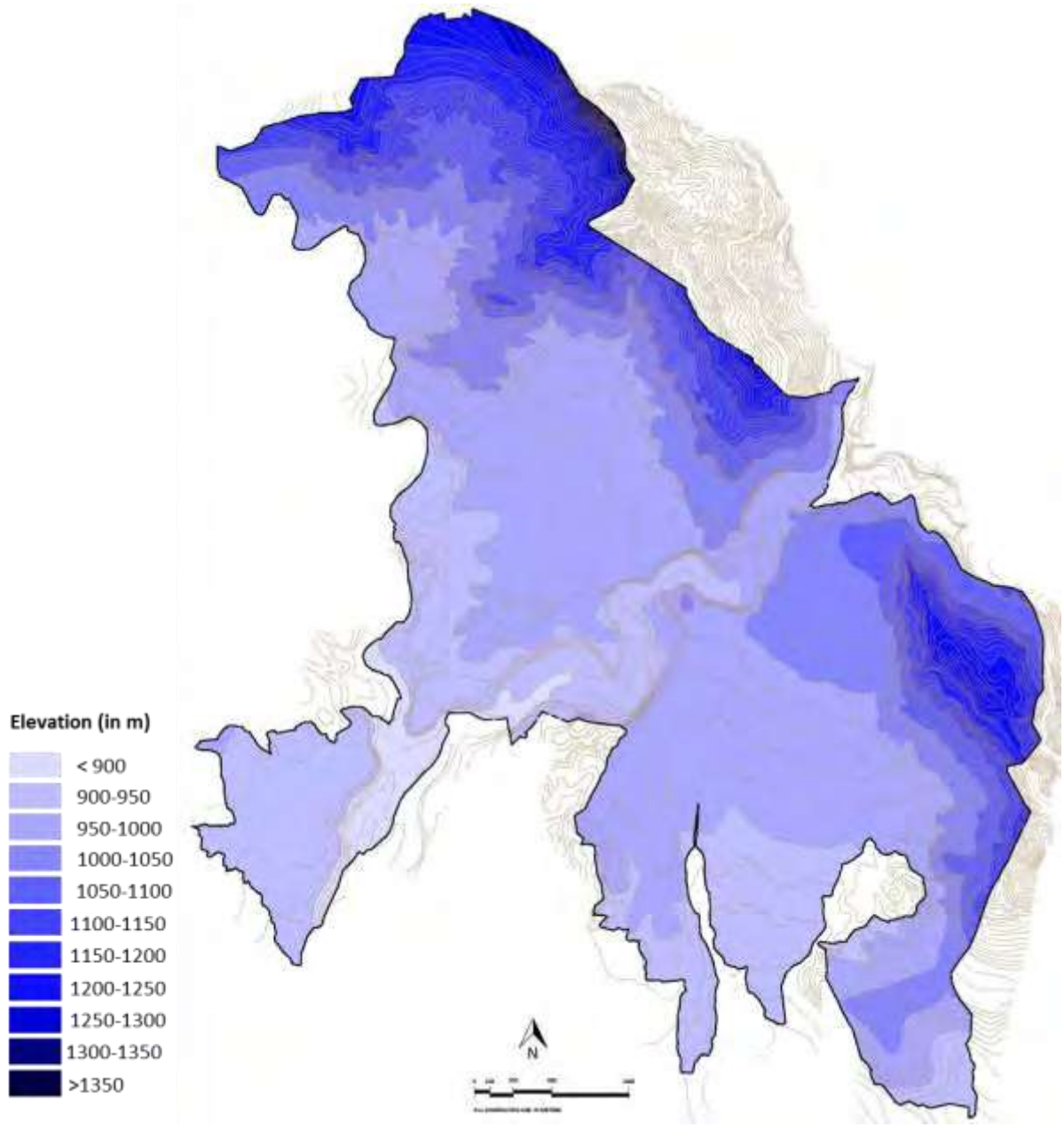


Figure 1-6: Elevation Analysis
Source: Analysis from the Satellite Image

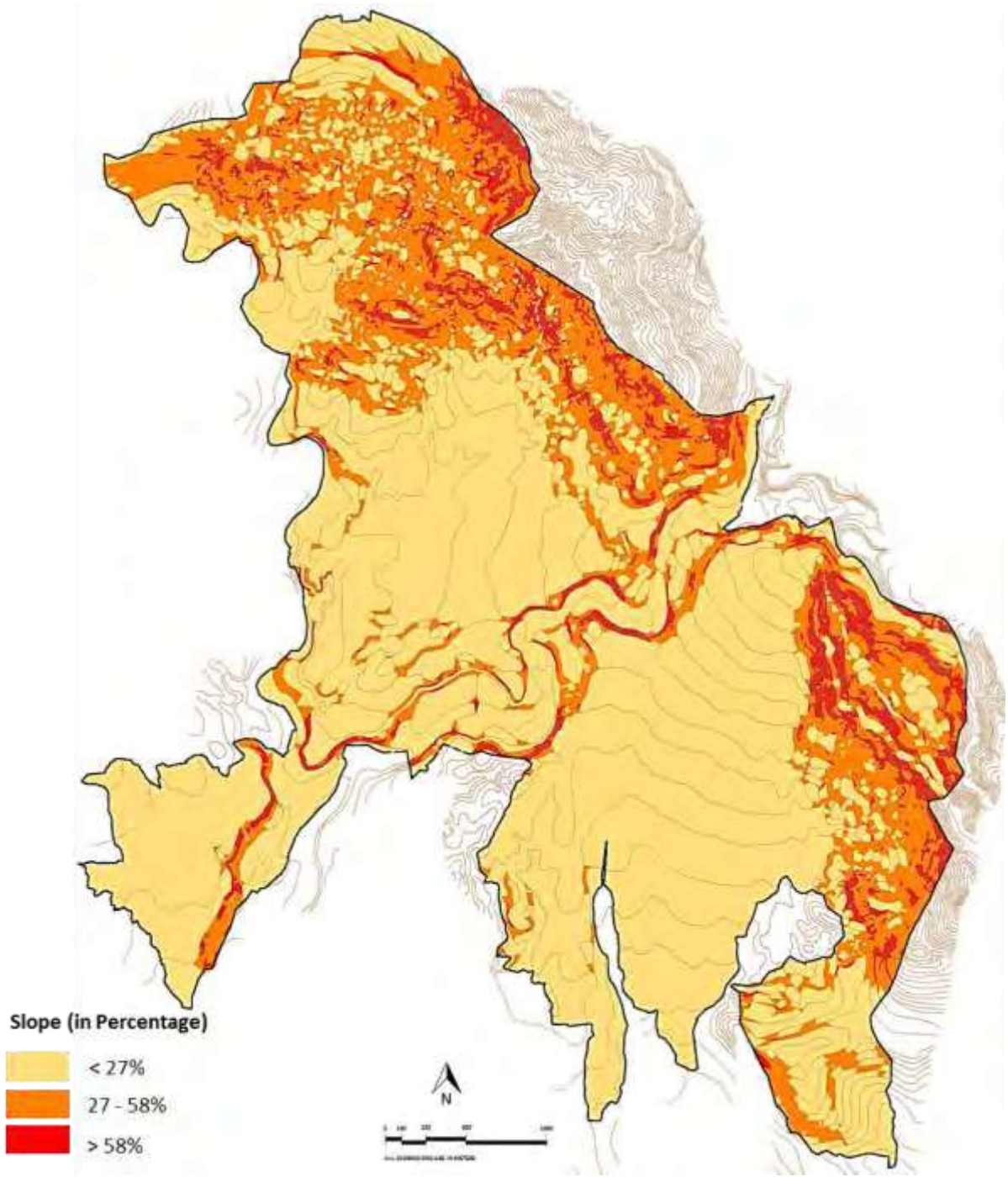


Figure 1-7: Slope Analysis
Source: Analysis from the Satellite Image

1.7 Resources

The existing available resources in and around the Planning Area are as follows:

1.7.1 Mineral Resources

Kangra district is well endowed with varied kind of mineral resources such as clay, coal, glass sand from soft quartzite, iron ore, limestone, dolomites, mineral water, rock salt, slates etc. Extraction of mineral resources has been increased 5 times from 1975-76 to 2005-06.[8]

1.7.2 Forest Resources

Out of the total area of Kangra district, 49.5 % (2842 sq.km.) area is under forest cover. Baijnath block has 63 % area under forest cover. The pre-dominant forest types range from sub-tropical evergreen forest to Himalayan moist temperate forest. In Baijnath-Paprola Planning Area, 36 % area is under forest cover.[9]

1.7.3 Flora and Fauna

The major species available in the Planning area are Khair, Cheed etc. The sub-tropical pine trees grow on the semi-steep to steep slopes in the planning area. In forest areas, commonly found animals are leopard, hare, wild boar, jackal, kakar, monkey and sambhar. Various bird species like crows, wild hens, grey partridge etc. are found in the area.[10]

1.7.4 Water Resources

Binwa River, one of the tributaries of Beas flows through Baijnath-Paprola Planning area. This is one of the major surface water sources in the area. The area is dissected by different types of khads and khuls (specifically natural streams). These are the main sources of surface water. Pun khad is one of the important sources of potable water after Binwa River. The khad flows along the western boundary of the planning area and joins Binwa River downstream.[11]

1.7.5 Hydro Power

A set of micro scale hydro power projects of 5 MW, 4 MW and 1.5 MW capacity under the Binwa Hydel Project have been set up about 20-25 km upstream of Baijnath Planning Area on the Binwa River.[12]

[8] *Source: MSME Report*
[9] *Source: Forest Range Office and Human Development Report, Refer to Chapter 9, Environment*
10 Source: Forest Range Office, Baijnath and District Disaster Management Report, Kangra
[11] *Source: Field Survey*
[12] *Source: HIMURJA Website*

2 DEMOGRAPHY AND URBANIZATION

2.1 Demographic Profile

The population distribution of Baijnath-Paprola Planning Area is as follows- According to the Census of India 2011, Baijnath Paprola Planning Area has a total population of 20,521 out of which 10384 are male (51%) and 10,137 are female (49 %). The Population in the Planning Area accounts for only 1.36 % of the total population of Kangra district in 2011. The population share of the planning area to the district population increased from 1.34 % in 1991 to 1.43 % in 2001 but then decreased to 1.36 % in 2011.

In 2011, the population of the planning area contribute to about 22 % of the total population in Baijnath Tehsil, which however has decreased from 23 % in 2001. The decline in population can be due to factors such as migration.

According to 2011 Census, 100 % of the population resided in rural areas as there was no urban settlement in the planning area[13]. However, after delineation of the Nagar Panchayat area, almost 75 % of the total population of the Planning area reside in Baijnath-Paprola Nagar Panchayat Area.

Table 2-1 Population Distribution of Baijnath-Paprola Planning Area

Year	2001			2011		
Area	**Total Population**	**Households**	**Average HH Size**	**Total Population**	**Households**	**Average HH Size**
India	102.86 Cr	19.35 Cr	5.3	121.08 Cr	24.95 Cr	4.9
HP	60.77 Lakh	12.21 Lakh	5.0	68.64 Lakh	14.83 Lakh	4.6
Kangra District	13.39 Lakh	2.72 Lakh	4.9	15.10 Lakh	3.38 Lakh	4.5
Baijnath-Paprola Planning Area	19,197	4,177	4.6	20,521	47,07	4.4

Source: Census of India, 2001 and 2011

2.1.1 Household Size

In 2011, the average household size of the Planning Area is 4.4 persons per household which is the same as that of the district average of 4.5 persons and less than the state average of 4.6 persons per household.

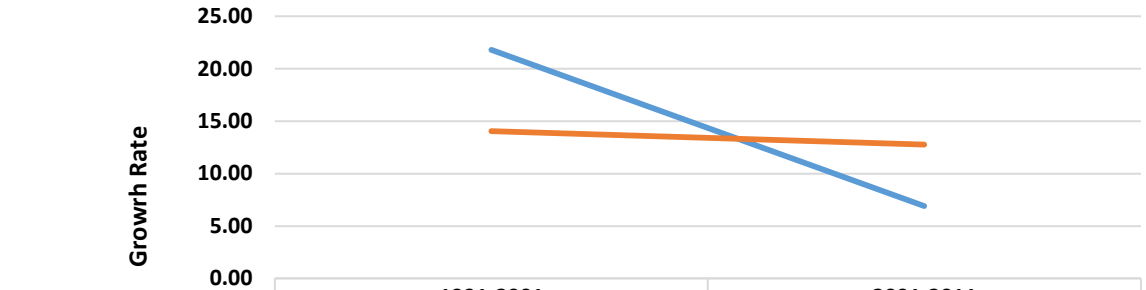
2.1.2 Population Density

The average population density of the Planning Area is 19 persons per hectare in 2011 which is more than the district average i.e. 3 persons per hectare. The population density has marginally increased from 9 persons per hectare in 1991 to 11 persons per hectare in 2001 to 19 persons per hectare in 2011.

[13] *Baijnath – Paprola Nagar Panchayat was formed in 2015*

2.1.3 Population Growth

Baijnath-Paprola Planning Area has a decadal growth rate of 6.90 % which is less compared to the district average of 12.77 % in 2011. The Planning Area has experienced a sharp fall of growth rate from 22 % in 2001 to 7 % in 2011. The growth rate of the Kangra district has decreased from 14 % in 2001 to 12.77 % in 2011.



	1991-2001	2001-2011
Baijnath Paprola PA	21.79	6.90
Kangra District	14.05	12.77

Figure 2-1: Population Growth Ratein Baijnath-Paprola Planning Area
Source: Census of India, 1991, 2001 and 2011

2.1.4 Sex Ratio

There are 976 females per 1000 males in Baijnath-Paprola Planning Area which is lesser than the district average i.e. 1012 females per 1000 males in 2011 and is more than the state average (972 females/1000 males in 2011). The sex ratio has increased from 937/1000 males in 1991 to 976/1000 males in 2001. In 2011, the sex ratio in the Planning Area remained the same as that of 2001 i.e. 976 females per 1000 males.

2.1.5 Literacy Rate

The overall literacy rate in the Planning Area is 83 % which is lower than the district average i.e. 85 % in 2011. The male literacy rate is 88 % whereas the female literacy rate is 78 % according to the Census of India, 2011. There is a significant increase in literacy rate in the Planning area from 62 % in 1991 to 82 % in 2001 to 83 % in 2011.

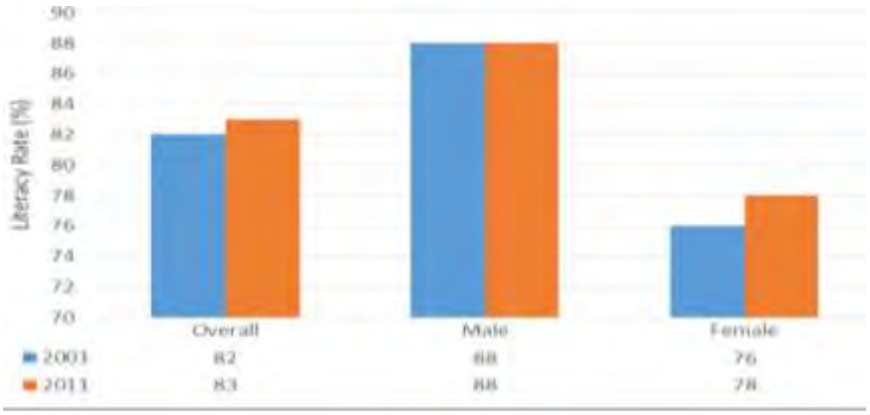


Figure 2-2: Literacy Rate in Baijnath Paprola Planning Area
Source: Census of India, 2001 and 2011

2.1.6 Scheduled Caste and Scheduled Tribe Distribution

Out of the total population, about 23 %of the population is from Scheduled Caste category in 2011 which is more than the district average (i.e. 21 % in 2011). The share of SC people remained almost constant over the last two decades. (Minimal decrease from 25 % in 1991 to 24 % in 2001 to 23 % in 2011).

In case of Scheduled Tribe population in 2001, there are very few persons from Scheduled Tribe (ST) category Gankheter and Khatrehar with 15 and 1 perosns from Scheduled Tribe Category respectively. In 2011 there is a significant increase of ST population in all revenue villages of the planning area. The share of ST population in the Planning Area is 13 % in 2011, which is more than the district average (5.60 %).

2.2 Population Projection

For all practical purposes, the size of the present and future population is a key input in an urban planning exercise. Since the last Census was conducted in 2011, population projection up totarget year starting from 1991 has been calculated. In this exercise, the future population distribution is more than a mere population projection of the past trends or past behaviour of the demographic variables. Such allocation depends majorly on development programmes envisaged or decided upon in the respective areas.

According to the Census of India, Baijnath-Paprola Planning Area had a population of 19,197 in 2001 which rose to 20,521 in 2011 registering a decadal growth rate of 6.90 % in 2001-11.

The projection method followed to forecast the probable increase of population in Baijnath-Paprola Planning Area up to target year 2035 is Compound Annual Growth Rate (CAGR). The Phase Years have been taken on a gap of 5 years i.e., 2016, 2021, 2026, 2031 and 2035.Hence the projected population for Baijnath-Paprola Planning Area for the year of 2035 is 28553.

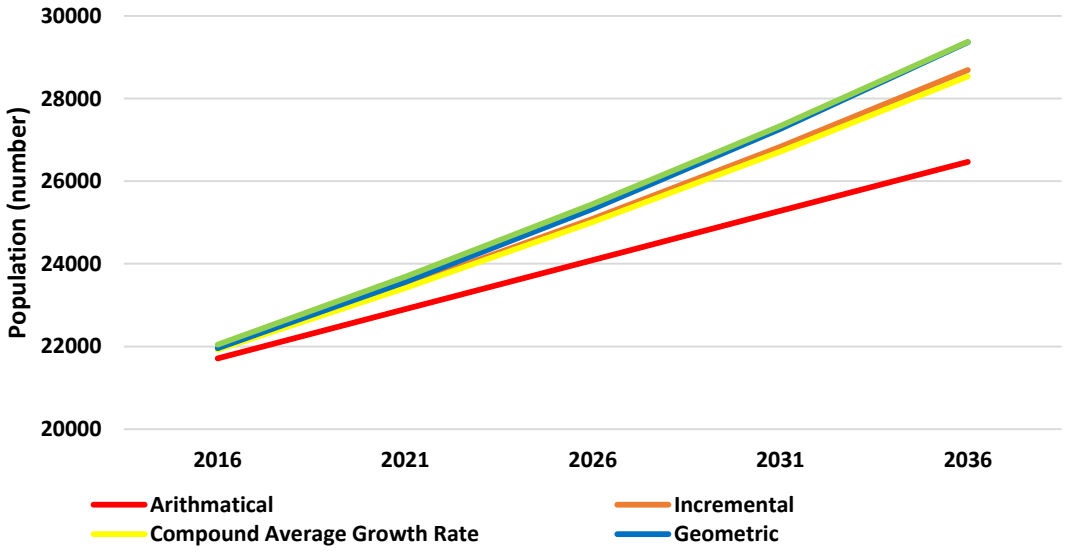


Figure 2-3: Population Projection
Source: Calculations based on the previous Census data

Table 2-2 **CAGR for Population Projection of Baijnath-Paprola Planning Area**

Population			CAGR 1991-2011
1991	**2001**	**2011**	
15763	19197	20521	1.33

Source: Calculations based on the previous Census data

Table 2-3 **Year wise Projected Population of Baijnath-Paprola Planning Area**

Sl. No.	Year	Population
1	2016	21920
2	2021	23414
3	2026	25010
4	2031	26715
5	2035	28553

Source: Calculations based on the previous Census data

2.1 Settlement Pattern

As per Census 2011, Baijnath-Paprola Planning Area comprises of all Class VI settlements.

2.1.1 Rural Settlement

Baijnath-Paprola Planning Area comprises of 18 revenue villages. As per Census of India 2001, the rural population in the Planning Area is 19,197 residing in 18 villages. In 2011, the rural population increased to 20,521in the Planning Area. Table 2-4 Distribution of Rural Settlements in the Planning Area by Population Size, 1991, 2001, 2011 and 2035.

Table 2-5 Distribution of Rural Settlements in the Planning Area by Population Size, 1991, 2001, 2011 and 2035

Sl. No.	Range (Population)	No. of villages (1991)	No. of villages (2001)	No. of villages (2011)	No. of villages (2035)
1	<100	0	1	0	0
2	100 - 500	6	0	1	1
3	500 - 1000	5	8	10	4
4	1000 - 1500	4	5	1	7
5	1500 - 2000	2	3	5	0
6	2000 - 2500	1	1	1	2
7	>2500	0	0	0	4
	Total	**18**	**18**	**18**	**18**

Source: Village Directory, Census of India, 1991, 2001 and 2011

2.2 Existing Settlement Pattern

To find out the existing settlement pattern of Baijnath-Paprola Planning Area, ranking method has been adopted, which is based on certain physical and social infrastructure indicators which are:

1. **Availabilityof Physical Infrastructure facilities**

a) Black Topped (pucca) Road
b) Tap Water supply-treated and protected
c) Sewer Network- all whether drain water is discharged directly into sewer plant
d) Covered Drainage System
e) Solid Waste Management- Community waste disposal system after house to house collection
f) Power supply for domestic use

2. **Hierarchy of Educational facilities**

a) Degree College
b) Senior Secondary School
c) Secondary School
d) Middle School
e) Primary School
f) Pre-Primary School (Nursery/LKG/UKG)

3. Hierarchy of Health facilities

a) Hospital (Allopathic)
b) Dispensary
c) Maternity and Child Welfare Centre
d) Primary Health Centre
e) Family Welfare Centre
f) Veterinary Hospital
g) TB Clinic
h) Mobile Health Clinic

4. Availability of Communication facilities

a) Mobile Phone Coverage
b) Post Office
c) Internet Cafes /Common Service Centre
d) Telephone (landlines)
e) Private Courier Facility

The data of each above indicators has been analysed from Village Directory of District Census Handbook (Kangra District) from Census of India 2011. These indicators (i.e. the Physical, Social and Communication facilities) have been weighed based on their availability within the settlements. The villages having the highest availability/hierarchy of infrastructure have been given the highest rank and the villages having the lowest availability of infrastructure have been given the lowest rank. Table 2-6: Functional Index and Rankings of the villages in the Planning Areashows the functional index and the rankings of the villages as per their facilities and services availability. Settlement planning at the sub-regional level shall be linked with on-going development process in the region and shall focus on integration with socio-economic development. Growth strategies can help these rural settlements achieve their goals for growth and development.

Table 2-6: Functional Index and Rankings of the villages in the Planning Area

Village	Population (2011 Census)	Physical Infrastructure Index	Health Facilities Index	Educational Facilities Index	Communication Facilities Index	Total Functional Index	Ranking
Baijnath	2349	15	33	50	15	113	1
Kasba	1861	9	4	38	11	62	2
Paprola Khas	860	12	12	36	2	62	3
Majehrna Khas	1016	12	5	30	11	58	4
Kothi	1698	6	7	31	7	51	5
Ghartholi	1956	12	10	15	11	48	6
Kasba Paprola	1979	6	0	26	12	44	7

Village	Population (2011 Census)	Physical Infrastructure Index	Health Facilities Index	Educational Facilities Index	Communication Facilities Index	Total Functional Index	Ranking
Bheth Jhikli	1715	6	11	20	5	42	8
Ustehar	909	15	0	16	11	42	9
Khatrehr	958	6	3	18	8	35	10
Pandtehr	696	15	3	10	7	35	11
Gankheter	721	9	0	3	11	23	12
Pandtehr	688	12	0	3	3	18	13
Kharanal	660	6	0	3	6	15	14
Malghota	613	6	0	6	2	14	15
Nagan	835	6	0	0	7	13	16
Dhar Bagi	233	6	0	0	7	13	17
Jherkar	774	6	0	3	2	11	18

Source: Village Directory, District Census Handbook (Kangra District), Census of India 2011

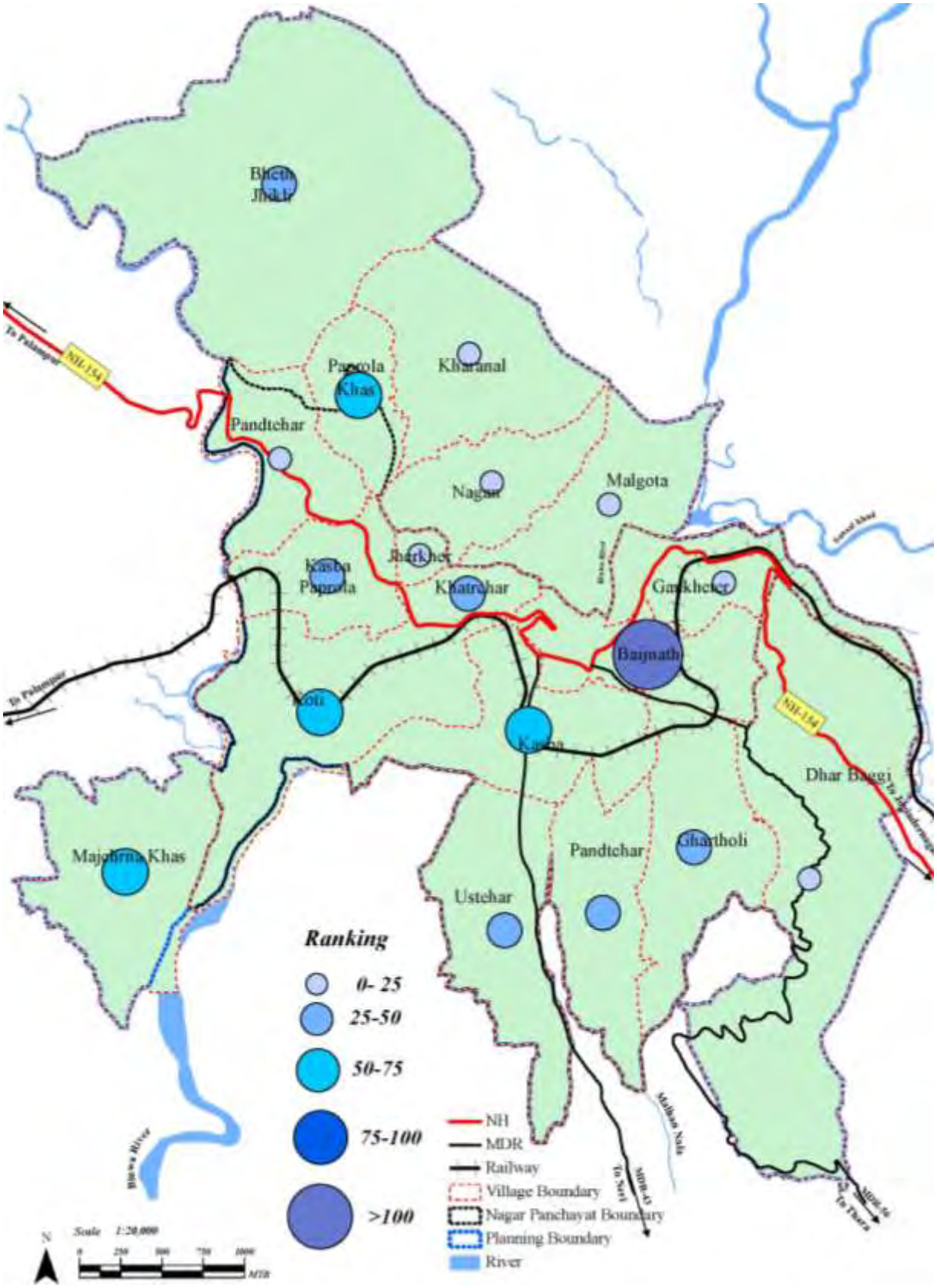


Figure 2-4: Existing Settlement Pattern in the Planning Area

Source: Calculation from Village Directory, District Census Handbook (Kangra District), Census of India 2011

2.3 Proposed Settlement Pattern

The identified urban centres in the Planning Area are **Baijnath, Kasba, Kasba Paprola, Jherkher and Khatrehar**. These settlements are attributed to become the urban centres for the whole Planning Area. With Baijnath-Paprola as a centre, Pandtehar and Ghartholi with projected population after 20 years (957 and 2722) respectively, will become a part of the urban agglomeration as they are in the vicinity of Baijnath town. Some more growth centres like Pandtehar (968) and Paprola Khas (1197) will also grow after 20 years as they are located along NH-154.

1) Baijnath-Paprola with Urban Extension

Urban Extension is the first order hierarchy settlements. This urban area would cater to the rural hinterland as agro-service centre in the collection and distribution of agricultural goods and services. These areas would work, as a nodal centre of resource based activity centre, trade and commerce, administration, etc. The centre would have adequate infrastructure facilities with adequate resources in quantity and quality.

Hence the proposed urban area in the Baijnath-Paprola Planning area will consist of **Baijnath, Kasba, Kasba Paprola, Jherkher and Khatrehar.**

2) Growth Centres

Growth Centres are the higher order village having central location and potential for development within its catchment area, with relatively better services and facilities in terms of education, health, communication, accessibility.

Table 2-7: Proposed Growth Centres

S. No.	Proposed Growth Centres
1	Ustehar
2	Pandtehar
3	Ghartholi
4	Kothi
5	Pandtehar
6	Paprola Khas

Source: Calculation and Analysis from the Village Directory Database

3) Basic Village

All other villages have been identified as basic villages and will be provided with basic facilities like link roads, water supply, electricity and some basic social infrastructure.

Table 2-8: Proposed Settlement Hierarchy and Proposed Facilities in Baijnath-Paprola Planning Area – 2035

Level	Settlement Level	Catchment range in km from the Settlement	Average total population to be served by each centre	Education Facility	Health	Recreation	Shopping	Transport-Road Connectivity
1	Baijnath-Paprola with Urban Extension	10 to 15	10,000-50,000	Vocational training/ Polytechnic	Maternity and Family Welfare Centre	Recreational spaces/ Play grounds	Shopping centre/ Community welfare centre	Road connectivity to other villages and Growth centres

Level	Settlement Level	Catchment range in km from the Settlement	Average total population to be served by each centre	Education Facility	Health	Recreation	Shopping	Transport-Road Connectivity
2	**Growth Centre** -Ustehar -Pandtehar -Ghartholi -Kothi -Pandtehar -Paprola Khas	5 to 10	5,000-10,000	Primary school/ Secondary school	Dispensary/health sub centre/ family welfare centre	Mela ground/ cremation ground	Informal Bazaar	Road connectivity from the Town to the Basic villages
3	**Basic Village** -Bheth Jhikli -Kharanal -Nagan -Malgota -Majehrna Khas -Dhar Bagi	Within the village	< 5,000	Pre- Primary and Primary school	Dispensary/ health sub centre	Basic community space	Daily need shop	All weather pucca road

Source: Estimation according to the URDPFI Guidelines, 2015

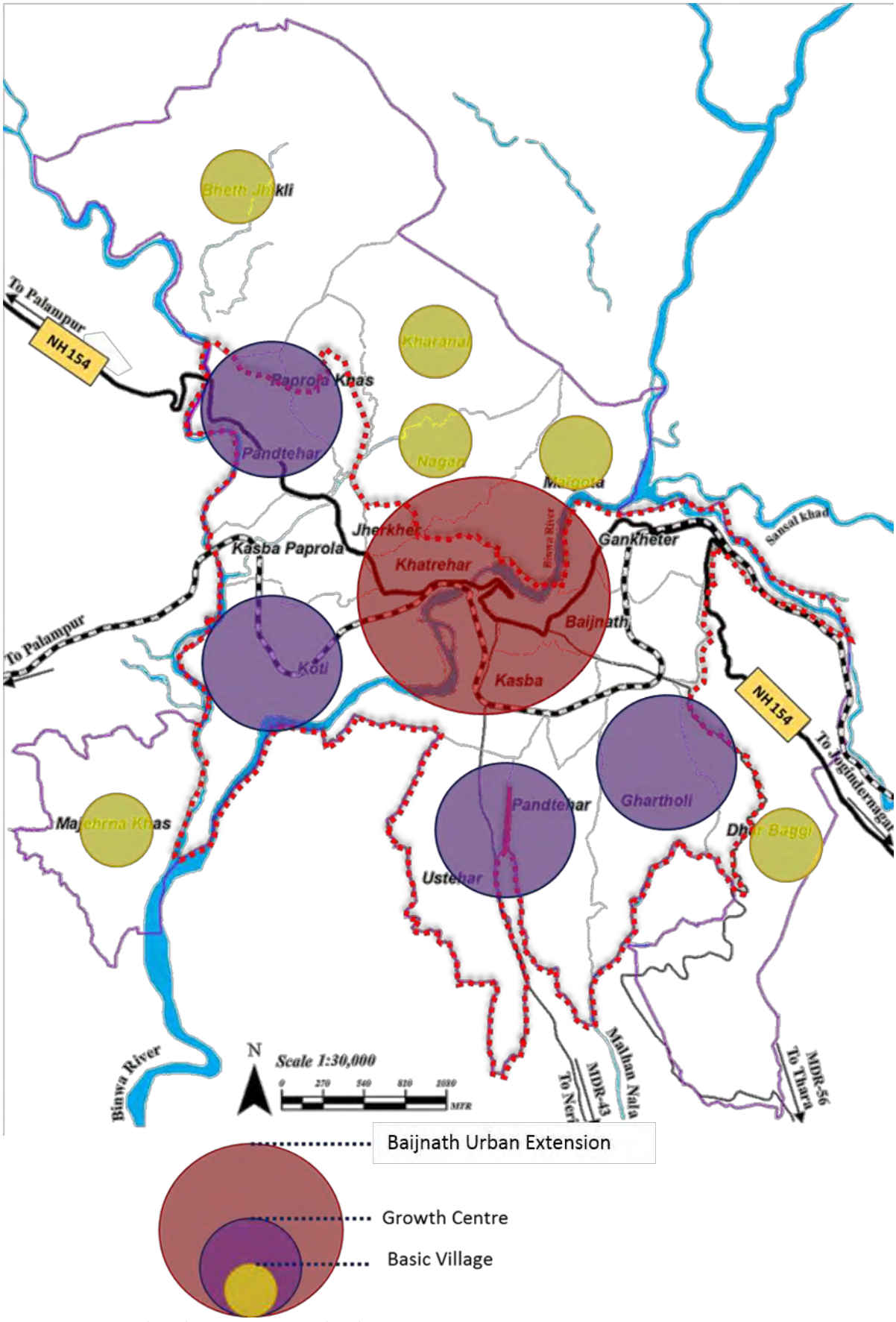


Figure 2-5: Proposed Settlement Pattern in the Planning Area

Source: Calculation from Village Directory, District Census Handbook (Kangra District), Census of India 2011

3 ECONOMIC BASE, EMPLOYMENT AND WORK AREAS

3.1 Economic Base

The following section would endeavour at unwinding the salient features of the existing local economy. It would also address the key areas of concern through physical, spatial and policy level proposals.

3.1.1 Work Participation Rate (WPR)

In the Planning Area the Work Participation Rate is 37 % which is lower than the district average i.e. 45 % in 2011. The WPR has significantly increased from 29 % in 1991 to 35 % in 2001 to 37 % in 2011. The increase of WPR in the Planning area in the last decade i.e. 3 % is more than the increase of WPR at the district level i.e. 1 % (44% in 2001 to 45 % in 2011).

3.2 Occupational Pattern

3.2.1 Main and Marginal Workers

In case of Baijnath-Paprola Planning Area, there are 69 % main workers whereas 31 % marginal workers. The percentage of marginal workers have increased from 26 % in 2001 to 31% in 2011 indicating an increase in informal economy. However, in a rural population base, the number of marginal workers increase over the period of time.[14]

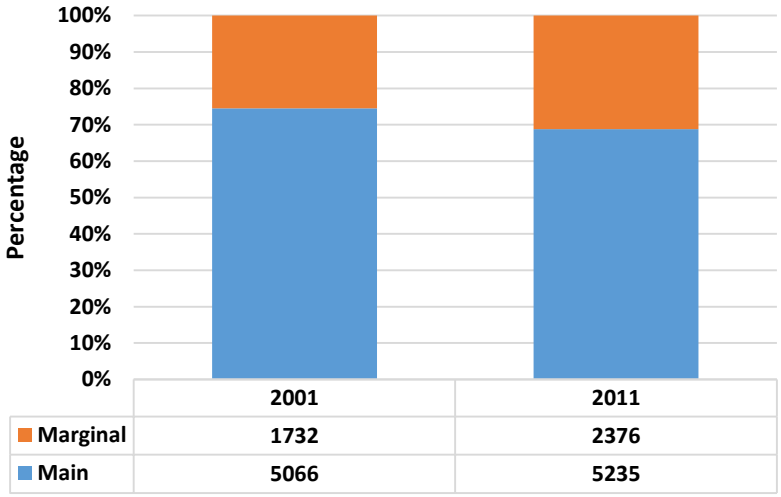


Figure 3-1Distribution of Main and Marginal workers
Source: Census of India, 2001 and 2011

[14] *Levels, Trends and Structure of Workforce in India: Census Based Study 1981-2001, International Institute for Population Sciences Govandi Station Road, Deonar Mumbai 400088, 2008*

3.2.2 Economic Sectors

Out of the total population, 7611 people (37 %) are engaged in different types of economic sectors. Most of the workers (70 %) are engaged in tertiary sector due to the tourism importance of the planning area and surrounding areas. After tertiary sector, the second most important sector is primary sector where 25 % people are engaged. The least important sector is the secondary sector where 5 % people are engaged.

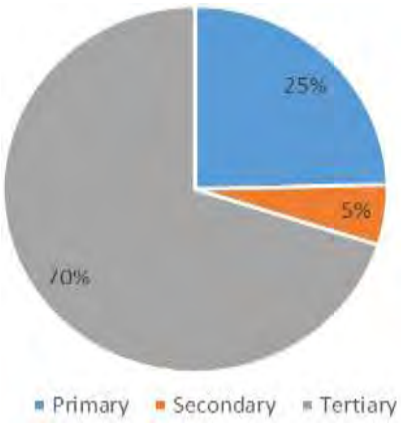


Figure 3-2 Workers Distribution
Source: Census of India, 2001 and 2011

3.2.2.1 Sector Wise Male Female Distribution

Among the three economic sectors, women participation is comparatively higher in primary sector i.e. 57 % in 2011 which is less than the national average of women participation (almost 65%) in primary sector. Secondary and tertiary sectors have women participation share of 61 % and 19 % respectively (National Averages: 6 % and 30 % respectively). The women work participation in tertiary sector is very low (19 %) due to the rural population base in the planning area (100 %).

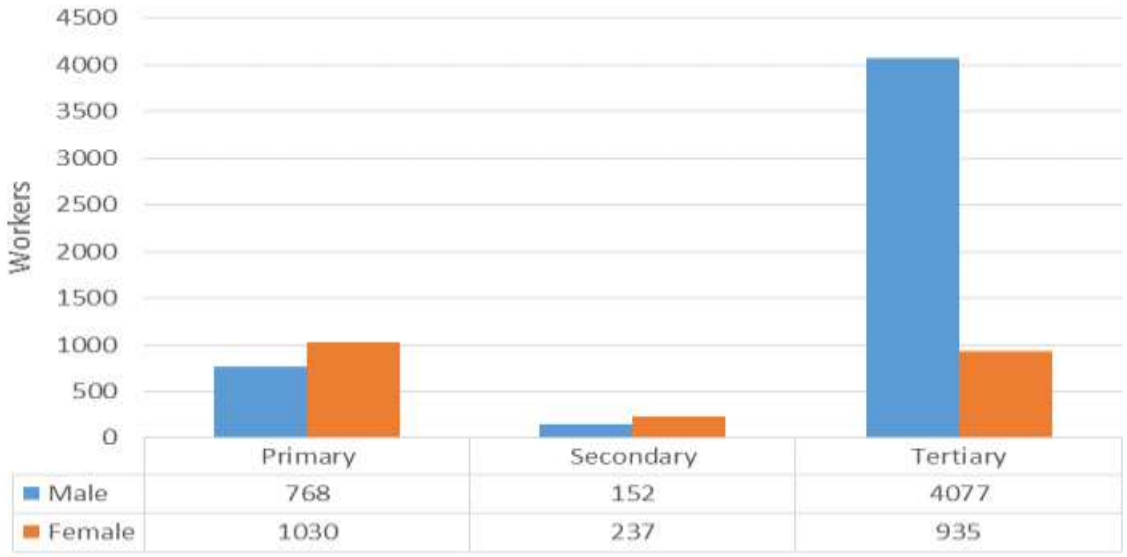


Figure 3-3: Male Female Sectorial Distribution
Source: Census of India, 2011

3.2.3 Regional Economy

- Kangra, being the largest district of Himacha Pradesh accounting for more than a fifth of the state population and 10.31 % of the total geographical area, plays an important role in the economy of this hilly state. The economy of district is primarily agrarian with two-thirds of the working population (66.06 %) directly dependent on agriculture.
- The GSDP share of Kangra district is the highest in Himachal Pradesh with 18 % share in 1995 – 96 and 19 % in 2005-06.
- The Per Capita Income (PCI) of Kangra district has increased over the years from 17,730 rupees in 1999-00 to 24,311 rupees in 2005-06 (at constant 1999-00 price) but is less than

the state average of 24,924 in 1999-00 to 31,414 in 2005-06. The PCI has increased to 1.37 times in a span of seven years which is slightly higher than the state increase of 1.26 times. This is due to the huge share of population of the district to the overall population of the state.

3.2.4 Sector wise analysis

Out of the total population, 7306 people (39 %) are engaged in different economic sectors. Most of the workers (70 %) are engaged in the tertiary sector i.e. in business and public administrations etc. Almost 25 % are engaged in the primary sector i.e. the agricultural and cultivation activities. The hilly undulating terrain of the area makes it unsuitablefor extensive commercial cultivation. The share of secondary sector is minimal with 5 %, which is mainly due to the limited number of small and micro scale industrial workers.

3.2.4.1 Primary Sector

The primary sector is the second most contributing economic sector in the Planning Area with 25 % work participation rate. It is also the second important sector in terms of the GDDP share during the last decade.

3.2.4.1.1 Agriculture

Out of the total primary workers in the Planning Area, 87 % are engaged in agricultural activities. The main cultivated crops are paddy (90 %) during Kharif season and wheat duringRabi season (85 %).[15] The total irrigated area to total cultivated area is 74 %, which is more than the district average (43.82 %[16]). The main irrigation source is the Binwa River and Awa khad.[17]

it is evident that the agricultural lands are distributed uniformly in the entire planning area. Most of the cultivable land parcles are found near the Pun khad and Binwa River as the soil at those places are lose and porous and hence is suitable for cultivation.

In terms of production and trade, paddy is the main crop and is largely produced in the area and in the district as well. The maize production has increased from almost 46 quintals per hectare in 2011 to almost 60 quintals per hectare in 2015. Simultaneously, the production of wheat has also been increased from 41 quintals per hectare in 2011 to 46 quintals per hectare in 2015.[18]

The total cultivable land available in the Planning Area is 856.26 ha which accounts to almost 47 % of the total land of Baijnath-Paprola Planning Area. Out of which 766.18 ha i.e. 90 % is under agricultural use and 45.22 ha i.e. 5 % is under tea plantation and rest 44.86 ha i.e. 5 % under horticultural use.

15 Source: Agriculture Department, Block Development Office, Baijnath Block, Baijnath
16 Source: Human Development Report, Kangra District
17 Source: Agriculture Department, Block Development Office, Baijnath Block, Baijnath
18Source: Agriculture Department, Block Development Office, Baijnath Block, Baijnath

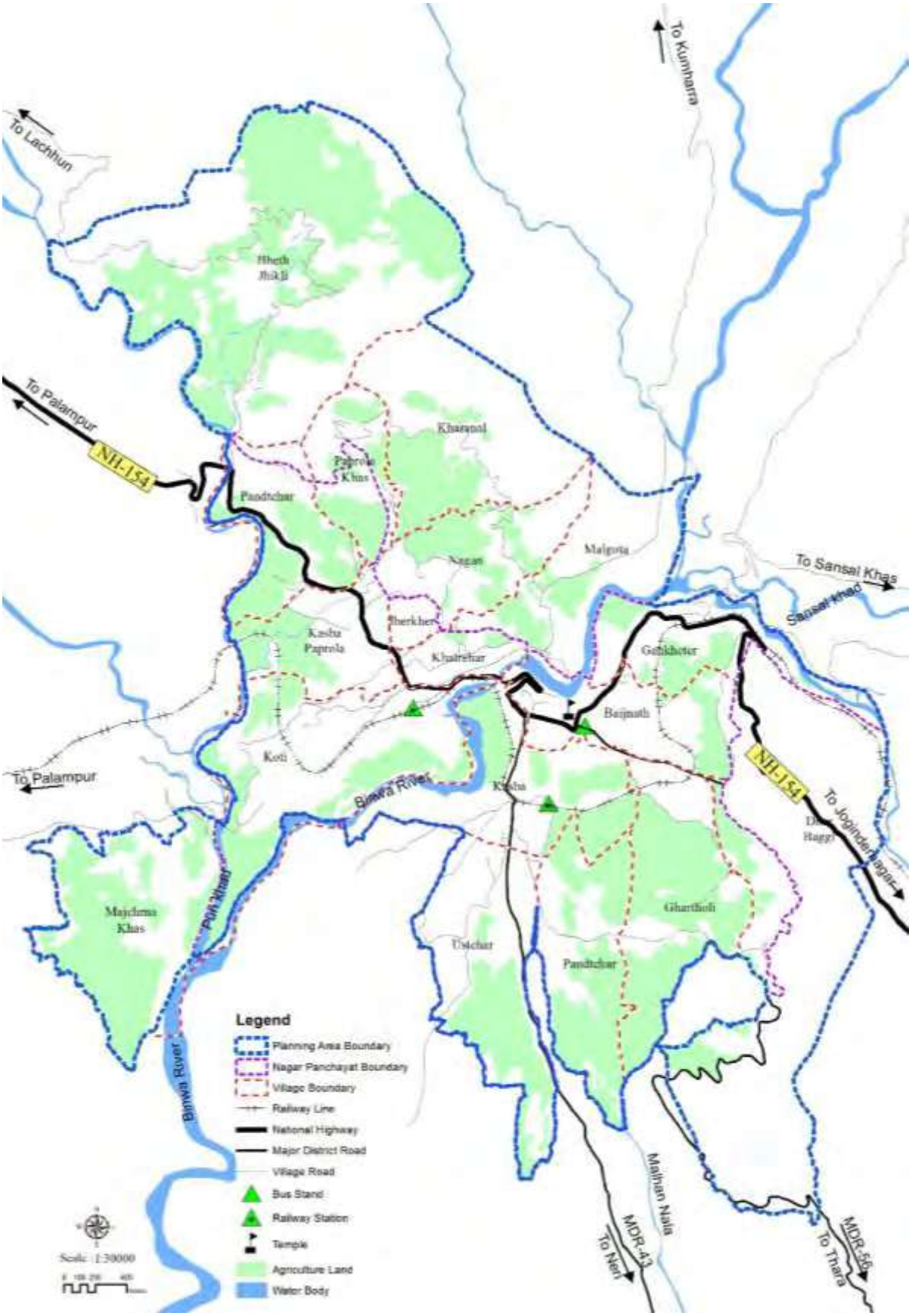


Figure 3-4: Area under Cultivation in the Planning Area
Source: Extract from the Satellite Image

3.2.4.1.2 Horticulture

The main horticultural crops in the region are mangoes, apples and citrus fruits like oranges, lemons, litchi etc. Out of the total cultivable area in Baijnath-Paprola Planning Area, only 6 % area is under the horticultural use. Area under horticultural use in Baijnath block is 2000 ha. approximately, out of which 45.79 ha. i.e. 2.28 % is inside the Planning Area shows the horticultural production in the Planning Area.

The production of horticulture crops in the Planning area is showing an upward trend from 2011-12 to 2015-16. There is almost 5 % growth from 2011-12 to 2015-16 in the block. The amount of production of horticulture crops in the Planning Area is 1.13 Mt/ha. which is almost same with the district average.

Apple cultivation has newly been introduced in this area; however, the state has good cultivation of apples in other areas.[19]

Table 3-1 Production of Horticultural Crops in the Planning Area, (2011-12 to 2015-16)

Sl. No.	Year	Production (in tons)
1	2011 - 12	43
2	2012 - 13	45
3	2013 - 14	48
4	2014 - 15	49
5	2015 – 16	52

Source: Horticulture Department, Block Development Office, Baijnath Block, Baijnath

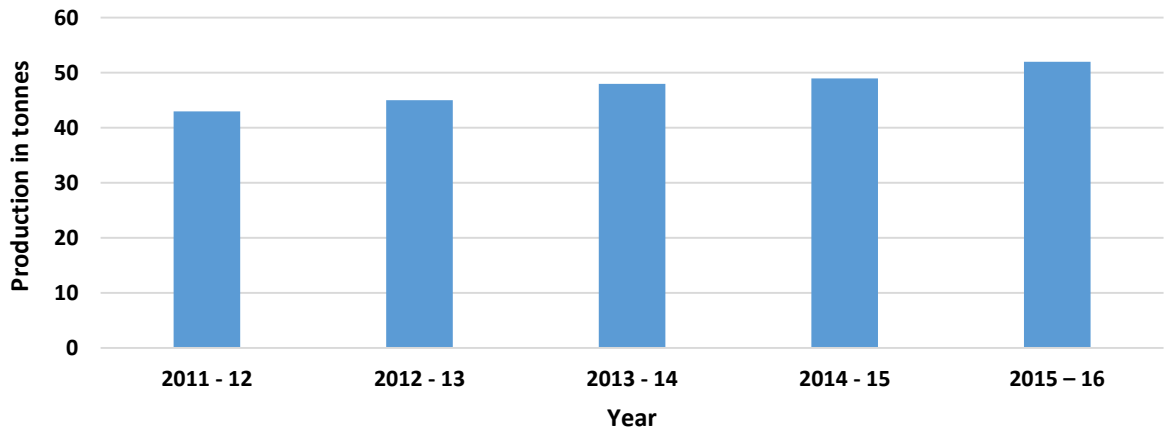


Figure 3-5Production of Horticultural Crops in the Planning Area, (2011-12 to 2015-16)
Source: Horticulture Department, Block Development Office, Baijnath Block, Baijnath

3.2.4.2 Secondary Sector

Secondary sector contributes minimal to the economy in Baijnath-Paprola Planning Area in terms of work participation rate and GDDP share. From 2005-06 the share of secondary sector in total GDDP has decreased from 8 % to 7 % in 2009-10. This drop of share in district's GDDP amount clearly

[19]*Source: Horticulture Department, Block Development Office, Baijnath Block, Baijnath*

indicates that the sector lags behind the other sectors in the district. In case of Baijnath and Paprola, some of the micro scale units are functioning at local level.

3.2.4.3 Tertiary Sector

The non-agriculture sector in the district also has great potential to influence economic and social well-being of the people. Tertiary sector or the service sector is the most important sector in the Planning Area in terms of work participation rate and share in GDDP amount. The recent upsurge in all types of connectivity has facilitated this transformation in a big way.

In 2000-01, the share was 68 % of the total GDDP of Kangra district, which have increased to 71 % in 2005-06 and to 75 % in 2009-10. This indicates that tertiary sector is the most important sector in terms of its annual growth in GDDP share and work participation rate. The main tertiary sector activities are constructions (39 %), trade and hotels (17 %), banking facilities (8 %), public administration (9 %), Real estate (6 %) and Transportation (6 %) including railways. There are other services as well whichaccounts 14 % of the total GDDP share.

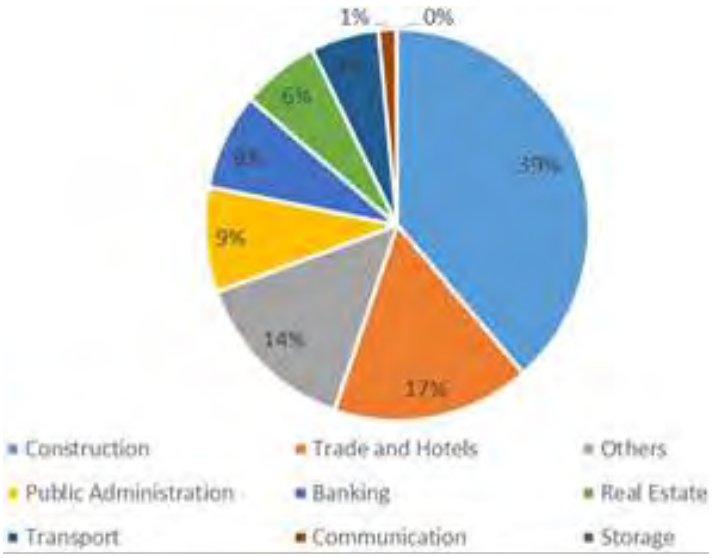


Figure 3-6Important Activities in Tertiary Sector
Source: Economic Survey of Himachal Pradesh, 2005-06

The potentials areas for service industry in the Planning Area are-

- Repairing of Electrical/Electronic goods
- Repairing of Agriculture Implements
- Designer Boutique
- Beauty and Health Care
- Coaching Centre
- Transportation
- Mobile Repairing
- TV/Cable/DTH Services

3.3 Employment Generation

Creating jobs is a keystone of any development plan making process. Considering that the Development Plan - 2035 will boost the economic activities within the planning area and create more opportunities for work, the planning area will have a substantially higher WPR i.e. 40 % till 2035.

Thus, the worker population in 2035 will be 11,421 considering an additional 1 % as floating population the total workforce of planning area will be 14,276.

A break-up of the projected employment generation in each sector has been worked out in the following table.

Table 3-2 Proposed Occupational Classification of Baijnath-Paprola

Sector	Occupation	Baijnath-Paprola (%)	
Primary sector	Agriculture, Forestry and Fishing	25	25
Secondary Sector	Light Industries and Composite Use Zone	2	5
	Agro- based Industries	1	
	Construction Industry	2	
Tertiary Sector	Government Offices	9	70
	Institutional Areas	17	
	CBD	20	
	Wholesale Trade (Integrated Freight Complex)	1	
	Transportation Hub	6	
	Retail Sector	17	

Table 3-3 Proposed Employment generated by various activitiesin the Planning Area

Sl. No.	Activity/Use Zone	Number of Employees	Percentage
1	Agricultural	3569	25
2	Agro- based IndustriesandLight Industries	714	5
3	Tourism Industry	714	5
4	Government Offices	1428	10
5	Institutional areas	2141	15
6	CBD	2854	20
7	Wholesale Trade (Integrated Freight Complex)	143	1
8	Transport Hub and Construction	572	4
9	Retail Sector	2141	15
	Total	**14,276**	**100**

3.4 Proposed Work Areas

The employment preference of the planning area reveals that people prefer to work in tertiary sector; they also prefer employment activities close to their home, e.g., agriculture, forestry and fishing etc. Thus employment opportunities close to their residences would generate interest in the local population.

3.4.1 Government Services

About 9 % of the people are engaged in the Government offices and it is projected that it will increase in the near future hence there will be a requirement for employment generation in this sector.

The existing Government Offices and the Civic corridor in village Ustehar form the important employment generating area. Proposed Government Offices will be developed surrounding these existing offices.

3.4.2 Light and Service Industries

The city needs an industrial base. Baijnath-Paprola broad region would provide skilled, unskilled and semi-skilled labour for the proposed based industries and Tourism Hub. Industries like Agro-based, Wellness Tourism, Furniture, Engineering Products/Repair and Maintenance, Real Estate, Horticulture etc. are the sectors which is proposed to increase the Economy of the Planning Area.

3.4.3 Informal Sector

Service sector largely dominated by religious tourism, trade and commercial activities. Trade activity includes purchasing and selling of all commodities whether produced domestically, imported or exported. Tourism is another important sector that contributes significantly towards the tertiary sector in the planning area. The growth in tertiary sector has spurred indirect employment demand in certain unorganized sectors like security services and facilities management.

The informal sector trade and services are scattered within the Planning area. The informal sector units locate themselves strategically near work centers, commercial areas, outside the boundaries of schools, colleges and hospitals, transport nodes and near large housing clusters. It is proposed to integrate the informal sector in trade and services in the planned development. This would be appropriately incorporated in the following developments-

- Community Centre
- Neighborhood Shopping Centre
- Convenient Shopping Centre
- Homestays and Resorts
- Travel Trade
- Herbal Products
- Warehousing and Packaging
- Bus Terminal/Depot

4 HOUSING

4.1 Housing Status

The condition of houses[20] in India is divided into three categories, i.e. good, liveable and dilapidated. In Baijnath-Paprola planning area, approximately 83 % of the houses are in good condition and 16 % in liveable condition whereas only 1 % houses are in dilapidated condition. (Refer Figure 4-1 Condition of Houses in Baijnath-Paprola Planning Area).

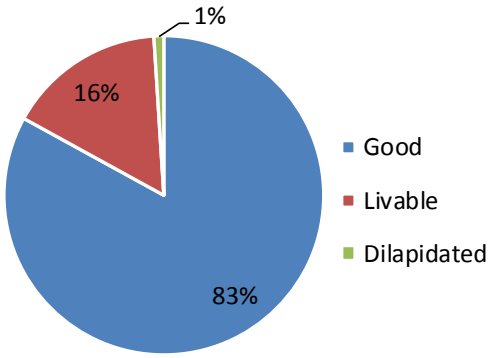


Figure 4-1 Condition of Houses in Baijnath-Paprola Planning Area
Source: Housing Table HH-14, Census of India, 2011

In most of the revenue villages of Baijnath-Paprola Planning Area, the houses are in good condition but only in three villages i.e. Khatrehar, Pandtehar, Bheth Jhikli, the number of liveable houses are exceeding the number of good houses and i.e. Kasba Paprola (5 %), Pandtehar (4 %), Majherna Khas (2 %) and Paprola Khas (1 %) have some percentage of houses in dilapidated condition.

4.2 Ownership of Housing

In the planning area, more than 75 % of the households' own houses (refer Figure 4-2 Ownership Status of the households in Baijnath-Paprola Planning Area) and the villages located along or near the national highway and the railway line shows around 10% of rented houses.

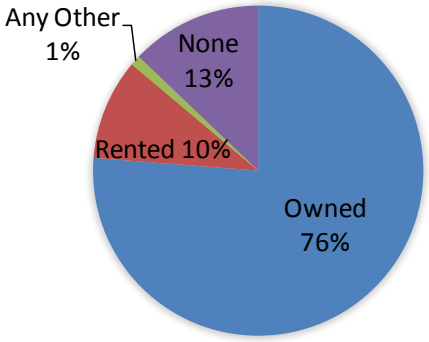


Figure 4-2 Ownership Status of the households in Baijnath-Paprola Planning Area
Source: Housing Table HH-14, Census of India, 2011

4.3 Type of Structure

Houses are classified as permanent, semi-permanent and temporary based on the type of material used in construction of building, wall and roof. On an average, 64 % of the houses in Baijnath-Paprola Planning Area are permanent structures followed by 35 % households with semi-permanent structures and only 1 % are temporary structures.

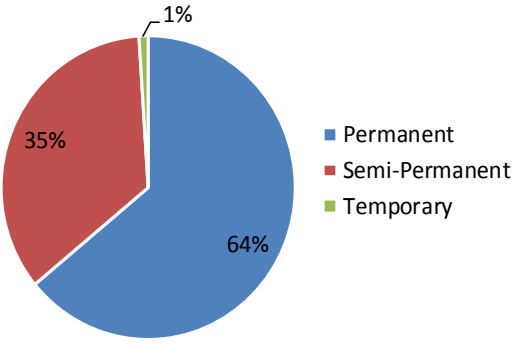
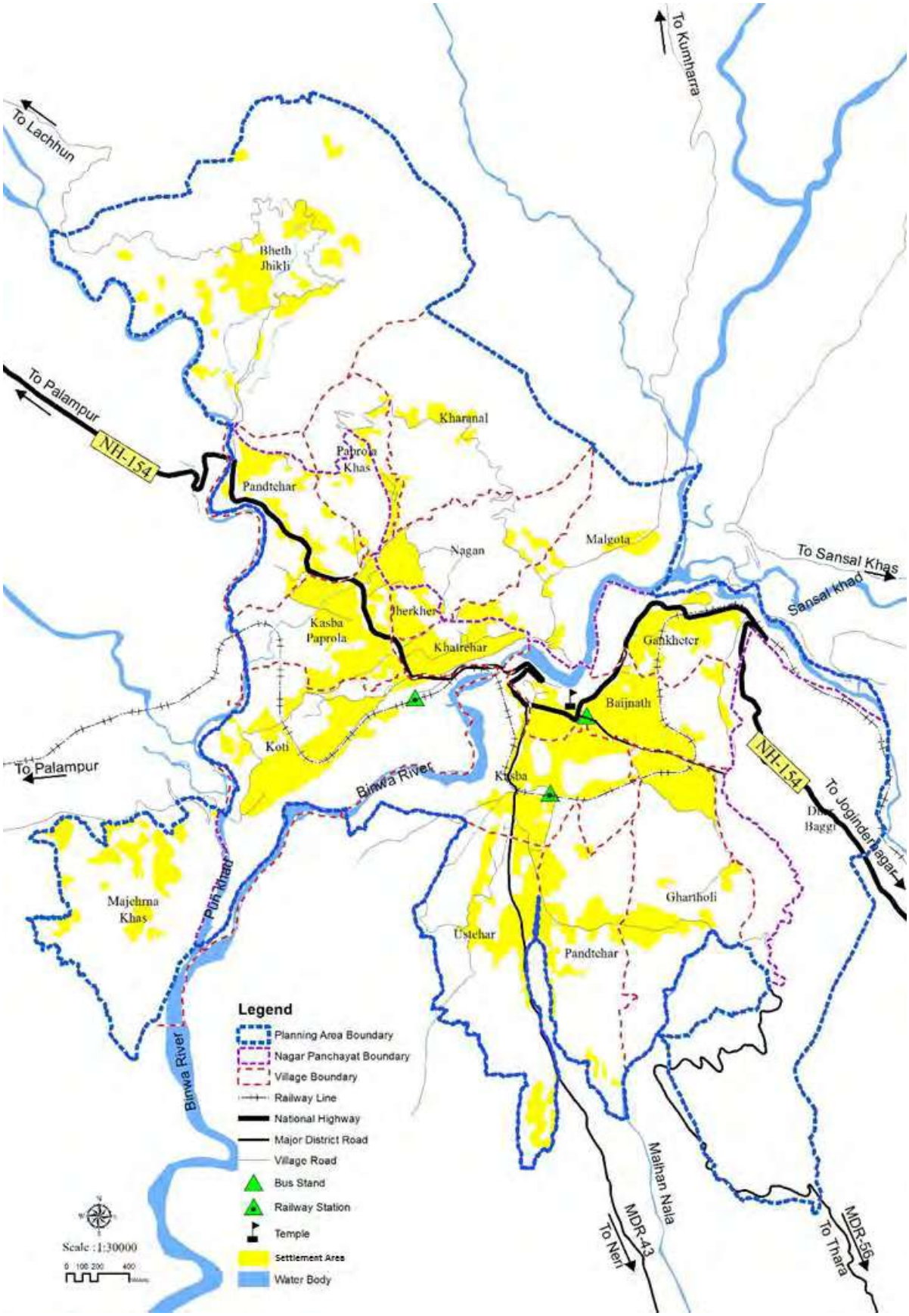


Figure 4-3 Type of Structures in Baijnath-Paprola Planning Area
Source: Housing Table HH-14, Census of India, 2011

The temporary structures seem to be the encroachments that occurred along the railway line, major roads and Binwa River.

[20]Government of India, 2011, *Meta Data, Census of India 2011*, Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, India, p.6-7.



Map 4-4 Existing Settlements in the Planning Area
Source: Extract from the Satellite Image

4.4 Use of Buildings

In Baijnath-Paprola Planning Area, as per the Census statistics (2011), the predominant use of structure is residential i.e. 98 % and 2 % structures are in mixed-use. Mixed use structures have two or more types of activities like residential and commercial/ industrial activities being carried out in the same structure etc. Mixed land use is found mostly in the buildings located along the roads.

4.5 Household Size and Dwelling Rooms

In Baijnath-Paprola Planning Area, the average household size is 4.3 persons per household which is as per with the district average of 4.3 and state average of 4.6 in 2011. The household size varies from one village to other i.e. from 4 to 7 persons per household.

Nearly 45 % households have two to three dwelling rooms and more than 40% households have four to six dwelling rooms.

4.6 Housing Shortage and Housing Need

The demand of housing in the year 2035 is calculated on the basis of projected population, household size and current housing shortage. The Baijnath-Paprola Development Plan 2035 proposes to facilitate the provision of a fully serviced dwelling unit for each family and reduce the gap between housing shortage and supply through innovative measures.

For calculating the Housing Shortage and Need, it has been assumed that all the households have a habitable house in the Census year 2011.

Table 4-1 Projected Population and Housing Need

Total Population (2011)	**20,521**
Total projected population till 2035	28,553
Total number of Households (Census 2011)	4,707
Total number of Households (for 2035)	6,549
Temporary Households (Census 2011)	471
Dilapidated Household (Census 2011)	471
Total Housing shortage (No. of DUs)	942
Need of Housing Units till 2035	1842
Total Need till 2035	2784

Source: Estimation from the Census database

Table 4-2 Housing Need for Five Years

Year	Additional Population	HH size	No. of HH	Natural Housing Need	Catering for the Shortage	Total Housing Need
2016	1399	4.4	321	321	942	1263
2021	1494		343	343	-	343
2026	1596		366	366	-	366
2031	1705		391	391	-	391
2035	1838		422	422	-	422
Total Housing Need till 2035						**2784**

Source: Estimation from the Census database

4.7 Issues and Concerns

- Temporary structures are encroaching the NH, railway line and Binwa river.
- Building maintenance system is not prevalent in the area.
- Areas of high built up density in the planning area need to be decongested.
- The traditional style of construction is getting lost and often the new construction lacks any definite character. A hybrid style has developed over time. Thus, a detailed study to identify the style and nature of construction that is better suited to Baijnath-Paprola is required.

Different settlements are distributed in a dispersed mannerwith low population density. These traditional settlements appear to have the 'colour of the land' and are vernacular in character. The landscape, materials, techniques of making, all contribute to a common formal language of settlements in Himachal Pradesh. The location of various settlements in the Baijnath-Paprola planning area is shown in Map 4-4 Existing Settlements in the Planning Area.

5 TRAFFIC AND TRANSPORTATION

5.1 Road Network

Baijnath-Paprola town is accessible by NH-154 (Pathankot-Mandi Naional Highway), which connects the town with Mandi via Jogindernagar towards the east and Pathankot via Kasoti, Gaggal and Nurpur towards the west.

Figure 5-1 Road Networkin the Planning Area
Source: Satellite Image and Primary Survey

Baijnath is connected by two MDRs, i.e. MDR- 56, connects Joginder Nagar with Baijnath via Thara, Yol Settlements and MDR- 43, and connects Neri with Baijnath via Ustehar, Kunsal settlements.

5.2 Road Inventory

The total length of the existing road network is about 54.84 km which includes National Highway 154, MDR 43, MDR 56 and village roads at different revenue villages in the Planning Area. The length of NH-154 passing through the Planning Area is about 7.15 km. The NH is two lane undivided road in the Planning Area with 1.5-2m shoulders on both sides. The ROW of the NH in the Planning Area is of 10m out of which 7m is used as the carriage way and 3m as the shoulders (earthen) at both sides. Within Baijnath town shoulders are not available at the edges of carriage ways of NH-154. The structures have been built right from the edge of the carriage way without any setback. The length of MDR-43 and MDR-56 is passing through the Planning Area are 2.49 km and 5.63 km respectively. These are double lane road with 6-7 m carriage way and 1m earthen shoulder at both ends.

From the road inventory analysis, it is evident that NH-154 forms the primary road network (The Trunk road) in the Planning Area connecting the district head quarter and other administratively important towns/settlemets whereas the MDR-43 and 56 form the secondary road network connecting the second order settlemets with Planning Area. The village roads form the third order road netrowk which facilitate the intra Planning Area movement.

Table 5-1 Road Length in the Planning Area

Sl. No.	Road Hierarchy	Length (KM)	Width (M)
1	National Highway	7.15	10.00
2	Major District Road (MDR)	8.12	7-9.00
3	Village Road	39.57	3-6.00

Source: Estimation from Satellite Imagery

Both of the MDRs are maintained by the PWD. The village roads and other link roads are maintained by PWD and respective Gram Panchayats. Village roads, maintained by PWD are entirely metalled roads. Out of the total road length maintained by PWD in the Planning Area, 9 km is upgraded under Pradhan Mantri Gram Sadak Yojana in 2014-15 Financial Year. Three road stretches connecting Paprola with Beth Jhikli via Pandtehar, connecting Paprola with Koti and connecting Baijnath with Bhattu village have been identified and upgraded under PMGSY.

5.3 Vehicle Growth

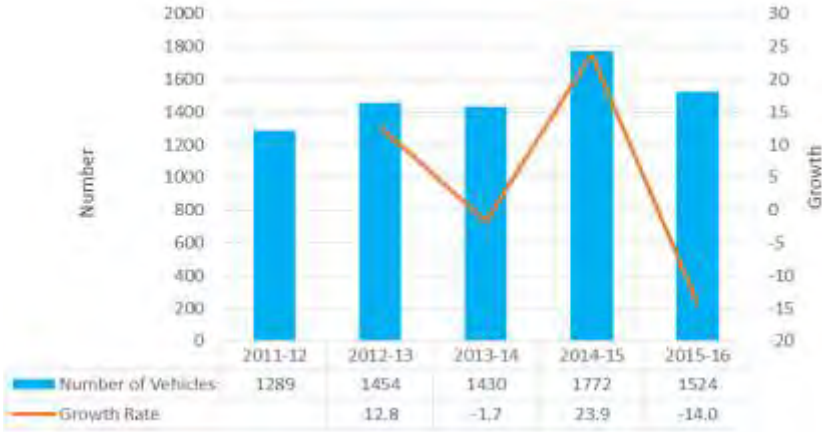


Figure 5-2 Vehicle Growth in Baijnath Subdivision
Source: SDM Office, Baijnath

Figure 5-2 Vehicle Growth in Baijanth Tehsil depicts the average annual growth rate is 5 % from 2011 to 2015. The highest growth rate was experienced in 2014. After that, there is a steady fall in overall vehicle growth till 2015.

The maximum registered vehicles are mainly the two wheelers (63 %) and cars (26 %). The LMV vehicle share is 6 % out of the total vehicles registered in the area. Rest of the 5 % share includes buses, three wheelers, tractors and MGVs. This clearly illustrates the local roads get the maximum volume of two wheelers and cars (Refer Figure 5-3 Vehicle Classes in the Planning Area).

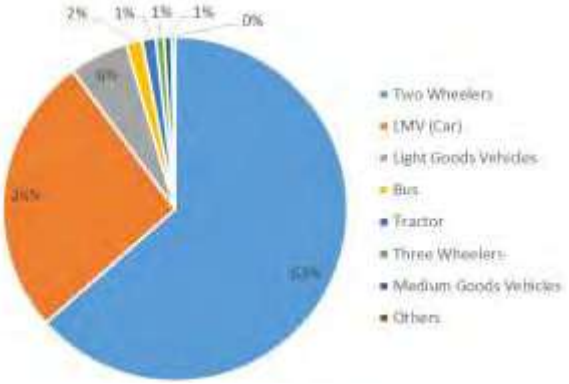


Figure 5-3 Vehicle Classes in the Planning Area
Source: SDM Office, Baijnath

5.4 Parking Facility

There are 2 designated off street parking spaces available in Baijnath town viz., one adjacent to Baijnath temple about 530 Sqm. area with a capacity of 19 cars and another near the PWD rest house beside the Sub-divisional post office of Baijnath of 850 Sqm. with a capacity of 30 cars. The parking area near Baijnath Temple is used as taxi stand by the local taxi owners.

The available parking spaces cannot cater to the number of vehicles arriving during festival as almost 1 lakh people (nearly 22,000 families) come per day during weeklong festival out of which 1.3 % families have cars (national average[21]) which is estimated to be 285 cars per day enter in the town. For these many cars, sufficient parking space is not available. There is no provision of other means of public transport, and for designated on street parking in the Town.

As per the norms of Town and Country Planning Department, Himachal Pradesh, one floor should be provided for parking in all land uses. The ground coverage of the temple is about 1240 Sqm. hence a parking area of 1240 Sqm. is required for Baijnath Temple**,** out of which 530 Sqm. is already available. Additional 710 Sqm. area is required for parking area as per the norms.

5.5 Pedestrain Pathways

There is no designated pathways for the pedestrian movement in the town except a small stretch of 100 m from the edge of the public toilet block towards Baijnath ITI. The carriage way of NH-154 is used by the pedestrians. The walkways are required as most of the people commute by walking inside the Planning Area.

5.6 Public Transport

5.6.1 Road ways

Bus is the main mode of public transport in Baijnath Planning Area. The Planning Area is well-connected with important towns and centres within and outside state by the roadways. The State Govt. (Himachal Road Transport Corporation) and private buses do operate from the Baijnath Bus terminal. Compared to other same sized towns in Himachal Pradesh, Baijnath has a designated bus

[21] *Source: GOI and MoRTH*

terminus. Many of the buses terminates at Baijnath bus terminal and go to a distance of more than 500 km. Almost 80 % of the Planning Area comes under the catchment area of the public transport facility and it serves 88 % population in the Planning Area.

Buses are available at every 10 to 15 minutes frequency for the neighbouring towns, located within 50 km. like Palampur, Bir, Mahakal, Chamunda, Dharamshala, Kangra etc. Towns located within 100 km, have bus connectivity in every 30 to 40 minutes. Towns sited beyond 100 km. have bus services twice or thrice from the town.

Baijnath Planning Area has efficient intercity public transportation system in terms of the accessibility (catchment area) and connectivity. Other than the bus, autos also run within the Planning Area. Autos have a catchment radius of about 5 km, catering Baijnath town.

Taxi service is also available in Baijnath town. The local people or tourist can easily hire the taxi from Baijnath Taxi stand.

5.6.2 Railways

Kangra Valley Railway is a narrow-gauge railway line connecting Pathankot with Jogindernagar via Jwalamukhi, Kangra, Palampur and Baijnath-Paprola. Seven trips are made each day from Pathankot to Jogindernagar out of which five trips terminate at Baijnath station.

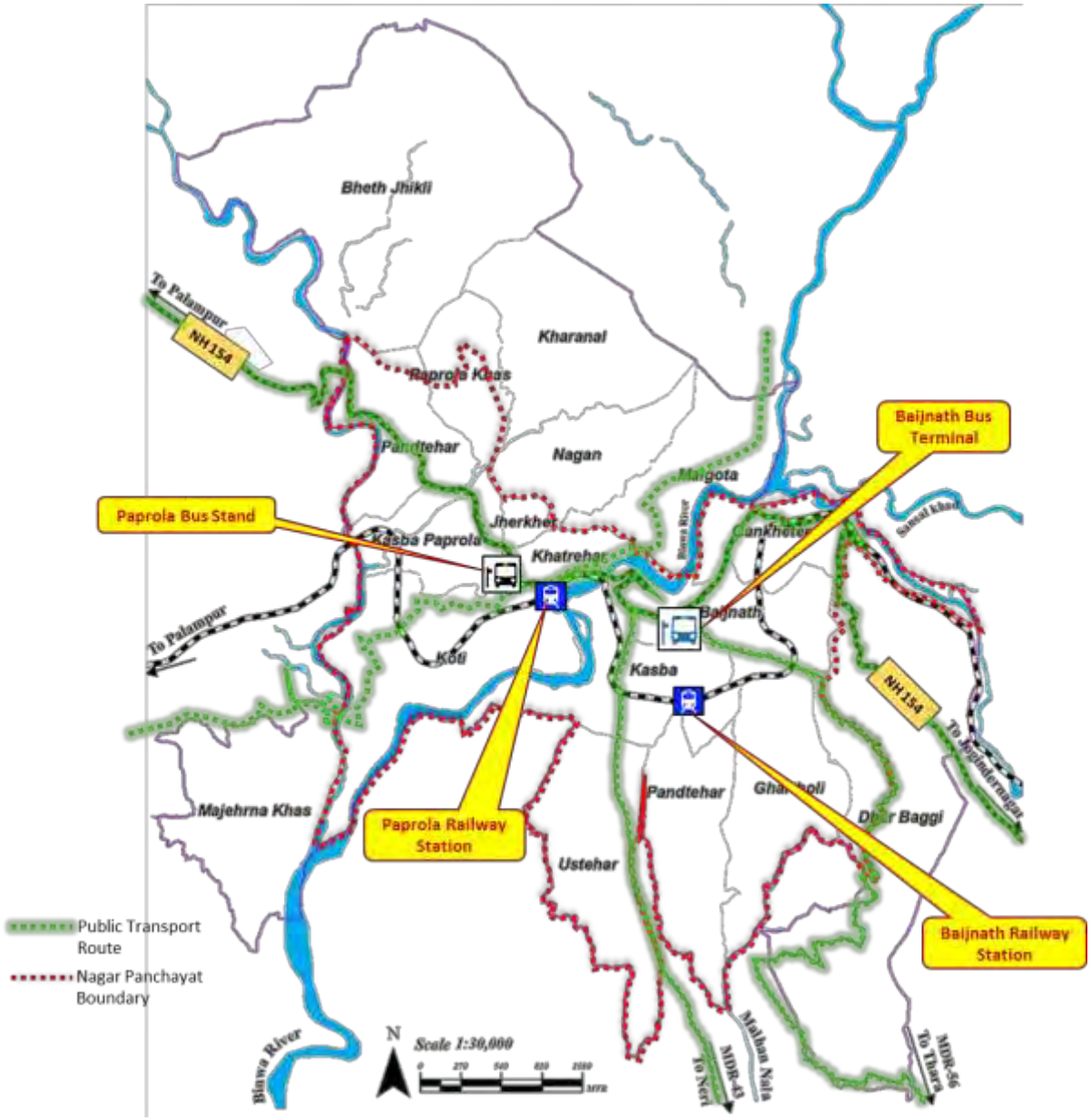


Figure 5-4: Existing Public Transport Routes in the Planning Area
Source: Primary Survey

5.7 Black Spots and Accidents

There are 4 black spots identified by the Police Thana Baijnath, located along NH-154 in the Planning Area viz., Tashi Jong Chowk, Binwa Bridge, Gankheter Bhattu Chowk and Awahi temple chowk. According to the SHO, Baijnath, the probable reasons of these accident prone black spots are as follows:

1. The faulty designs of the junctions at different chowks.
2. No signage mentioning about the blind curves on the roads.
3. Obstruction in the drivers vision due to hills at one side of the roads.
4. Constructing of semi-permanent structures near junctions which blocks the vision.
5. Over speeding of vehicles along NH-154.
6. Not availing pre cautionary measures during driving (like wearing helmets or seat belts).

7. Frequent land slide near the Binwa Bridge.

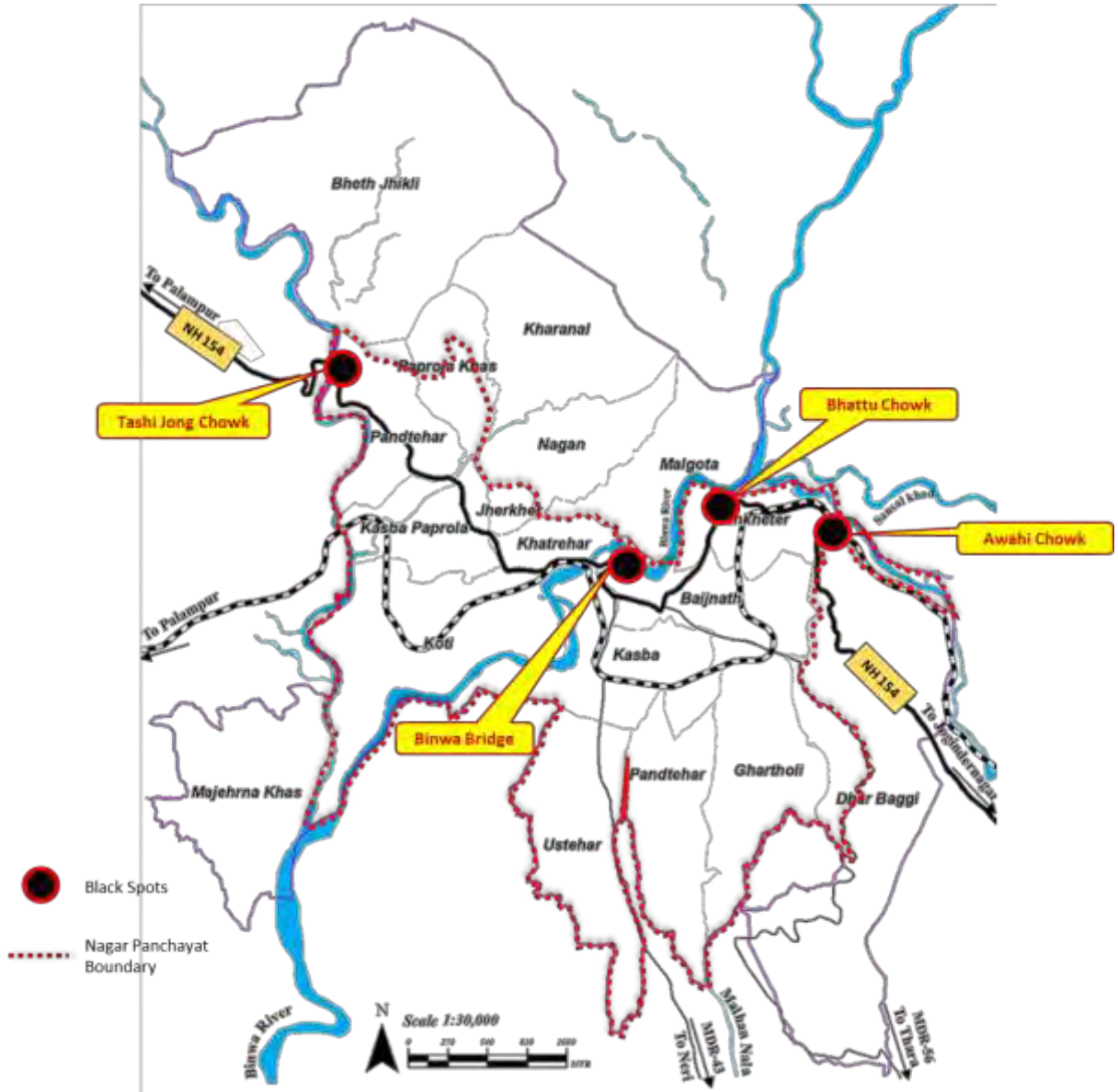


Figure 5-5: Location of the Black Spots
Source: Police Station, Baijnath

5.8 Average Daily Traffic (ADT)

The summary of ADT, in terms of each class, vehicles and PCUs at the 4 count stations are done. ADT (PCU) of 12 hours is 8068 near Tashi Chowk Survey Point (I), 3303 near SDM Complex at Survey Point (II), 1973 on Majehrna Road at Survey Point (III) 5330 on Mandi Road at Survey Point (IV).

5.8.1 Daily Variation of ADT

The variation from average is ranging from -26.00 % to +18.95 % near Tashi Chowk at Survey Point (I), -10.08 % to +18.89 % near SDM Complex at Survey Point (II), -5.97 % to +3.52 % on Majehrna Road at Survey Point (III) and -1.55 % to +2.81 % on Mandi Road at Survey Point (IV).

5.8.2 Hourly Variation of ADT

Analysis has been carried out to understand hourly variation and peak hour traffic characteristics. The Peak Hour Factor and Peak hour PCUs details of each location are given in Table 5-2.

Table 5-2: Peak Hour Details

Location	Peak Hour	Peak Hour Factor (%)	Peak Hour PCU
Near Tashi Chowk on Baijnath-Palampur Road, (Survey Point I)	5:00 PM-6:00 PM	10.27	804
Near SDM Complex on Mahakal-Baijnath Road (Survey Point II)	10:00 AM-11:00 AM	11.28	368
On Majehrna Road connecting Baijnath to Panchrukhi (Survey Point III)	10:00 AM-11:00 AM	11.05	221
On Mandi road connecting Mandi to Palampur (Survey point IV)	5:00 PM-6:00 PM	9.55	495

Source: Traffic Survey Analysis by Voyants 2016, Gurugram

5.8.2.1 Directional Distribution

Directional distribution of traffic has been analysed. The analysis reveals that there are no tidal flows on the roads in the project area. The directional distribution observed is 50:50 at all the survey locations except near Tashi Chowk at Survey Point I where it was found to be 60:40.

5.8.2.1.1 Traffic Composition

Analysis has been carried out to find out the composition of traffic and the results are illustrated in Figure 5-14 to 5-16. Cars and Two Wheelers contribute the most in traffic composition at all the locations.

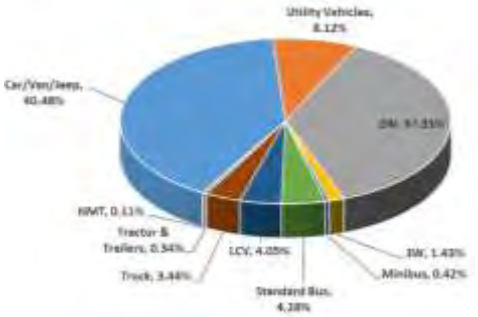


Figure 5-6: Traffic Composition near Tashi Chowk at Survey Point I

Source: Traffic Survey Analysis

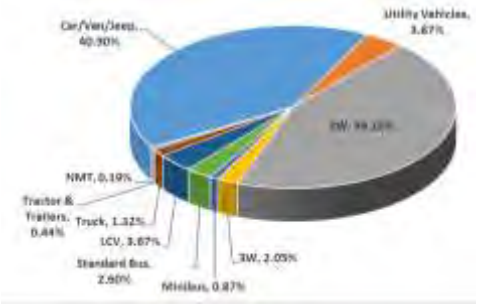


Figure 5-7: Traffic Compositions near SDM Complex at Survey Point II

Source: Traffic Survey Analysis

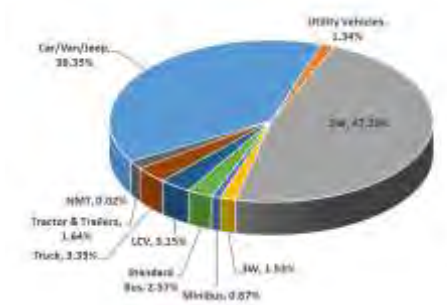


Figure 5-8: Traffic Compositions on Majehrna Road at Survey Point III

Source: Traffic Survey Analysis

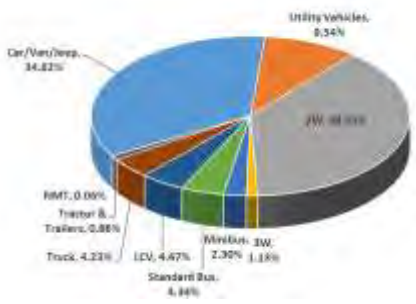


Figure 5-9: Traffic Compositions on Mandi Road at Survey Point IV

Source: Traffic Survey Analysis

5.9 Traffic Growth Rates

The adopted growth rates for design is the highest of the following-

(i) Estimated volume traffic growth rate for each vehicle types from the above method
(ii) 5 % per annum for vehicle types

The final adopted growths rates for design are presented in Table 5-3.

Table 5-3: Final Traffic Growth rates (%)

Sl. No.	Vehicle Type	Final Traffic Growth Rates (%)			
		2013-2020	2021-2025	2026-2030	Beyond 2030
1.	Cars	5.0	5.0	5.0	5.0
2.	Two Wheelers	5.0	5.0	5.0	5.0
3.	Buses	5.0	5.0	5.0	5.0
4.	LCV	5.0	5.0	5.0	5.0
5.	2-Axle Trucks	5.0	5.0	5.0	5.0
6.	3-Axle Trucks	5.0	5.0	5.0	5.0
7.	MAV	5.0	5.0	5.0	5.0

Source: Traffic Survey Analysis

5.10 Traffic Forecast

Traffic projection for the project road is calculated at two locations up to the year 2035 and shown in below Table 5-4. It includes both direction of the traffic.

Table 5-4: Projected Normal/Total Traffic AADT (PCU)

Year	Near Tashi Chowk on Baijnath-Palampur Road		Near SDM Complex on Mahakal-Baijnath Road		On Majehrna Road connecting Baijnath to Panchrukhi		On Mandi road connecting Mandi to Palampur	
	Nos	PCU	Nos	PCU	Nos	PCU	Nos	PCU
2016	8207	8068	3775	3303	2103	1973	5235	5330
2021	10474	10297	4817	4216	2684	2518	6681	6803
2026	13368	13142	6148	5380	3425	3214	8527	8683
2031	17062	16773	7847	6867	4371	4102	10883	11082
2035	21776	21407	10015	8764	5579	5235	13889	14143

Source: Traffic Survey Analysis

5.11 Observations and Recommendations

1. Annual Average Daily Traffic (Passenger Car Unit) ranging at 4 count stations of 12 hours are-8068 Passenger Car Unit near Tashi Chowk on Baijnath-Palampur Road, 3303 Passenger Car Unit near SDM complex on Mahakal-Baijnath Road, 1973 PCU on Majehrna Road Connecting Baijnath to Panchrukhi and 5330 Passenger Car Unit on Mandi Road connecting Mandi to Palampur. The classified directional traffic observed at each count location.
2. Composition of cars and two wheelers is very high than any other mode of transport.
3. Capacity Augmentation in following Homogeneous Sections:

A. At NH-154 present traffic numbers show need of 4 Lane two-way road in next 5 years as per IRC notification (crossing 10000 Passenger Car Unit). However, this is an urban hilly road, and due to limitations of space widening, a bypass proposal is appropriate for this

area. Reasons for proposing bypass are given below-

i. Traffic forecast indicates crossing 10,000 Passenger Car Unit in next 5 years (in year 2021).
ii. Near Tashi Chowk present traffic is 8617 Passenger Car Unit and Near Railway Crossing at Gankheter present traffic is 5497 Passenger Car Unit. This shows that approximate 5000 Passenger Car Unit is through traffic and 3000 Passenger Car Unit is local traffic for that available carriage way, which seems to be not sufficient for future planning.
iii. Baijnath Temple, a very famous ancient temple of Lord Shiva, attracts a large number of tourists and pilgrims from all over India and abroad throughout the year for which there will be increase in vehicular as well as pedestrian traffic in that area.
iv. Paprola and Baijnath is a highly dense built-up area which generate high local traffic movement (vehicles and pedestrian both).
v. Agro Based Industries, R&D Institute and Skill Development centres have been proposed in the planningarea which will further increase vehicle and pedestrian traffic in that local area.
vi. High volume through traffic will create issues of traffic congestion and accident prone zone) in local area which can be avoided.
vii. The alignment of the proposed Bypassis from Pandtehar Village near proposedbusand truck terminals to Gankheter Village near rail crossing; connecting Paprola Khas, Kharanal and Malgota Village.

B. Near SDM Office at Ustehar at MDR-43 the entire area is administrative area and also developing as residential area in future. Present traffic analysis on this road needs atleast 2 Lane two-way road. So, proposal of a 12m wide 2 lane road is to be considered for future traffic activities.

C. From tourism point of view a Tourism Hub has been proposed at Malgota village where camping, jungle safari, etc facilities have been proposed for tourists. From there a Nature's Trail has been proposed directly to Baijnath Temple for congestion-free movement of pedestrian.

D. However typical cross-section for the study area can be adopted from the IRC code for hilly area.

4. Present traffic on Majehrna Road in Koti Village is 2072 Passenger Car Unit. Following points are considered and accordingly proposals of this area has been given below-
Existing carriageway of road is 7m which is building to building distance.

i. This area is proposed for Commercial Cultivation which will generate the additional traffic in this area majorly goods vehicular traffic.
ii. The goods vehicular traffic will continue utilizing NH-154 and generate issues like increasing congestion, accident prone spots etc.
iii. To avoid these issues, a proposal of 12m wide direct link from Ayurveda College Gate connecting to NH-154 has been proposed at Pandtehar Village near proposed Bus Terminal.

5.11.1 Transit Facilities

Private two-wheelers are the most common form of transit in the planning area. Access to public transit facilities is mostly by walking. Passenger loading/unloading from these vehicles as well as parking takes place within the carriageway – obstructing the vehicular traffic in most cases.

At present, the operation is in the hand of private operators which prefer routes where trip density is favourable and transit patronage is high.

Looking at the future development of residential and non-residential use, there is a urgent need to expand and augment the public transport facilities. Active intervention of public sector may be needed along some of the non-profitable routes, primarily-

- To increase the transit frequency and to reduce dependency on private modes.
- To make new areas of development accessible to all section of people.
- To protect local environment from further deterioration (particularly from vehicular pollution).

5.11.2 Parking Management

High vehicle ownership pattern, dense mixed-use pattern along the road, high tourism potential and excessive reliance on private mode of transport, i.e., two-wheelers and cars exert huge parking demand. As most of the parking demand is met by on-street parking due to negligible provision of off-street parking, this is perhaps the biggest contributor to traffic congestion in the Core Area.

The parking areas have been proposed along the NH-154 to cater the existing and increasing parking needs. One Multi Level car parking area is proposed near the Baijnath Chowk. Two parking areas have also been identified in Paprola.

Apart from parking of cars, significant numbers of taxi, jeep, LCV and trucks are found to be parked along some of the links. Idle bus parking should be restricted to dedicated bus stands. Taxi parking should be encouraged only at certain location where its parking will not interfere much with the vehicular flow. The stretch from Choubin chwok to Railway Crossing at Gankheter will be notified as the No Parking Zone.

5.11.3 Upgradation of Pedestrian Facilities

Certain measures listed below must be adopted along road links to improve the pedestrian movement condition.

1. Adequate walkways commensurate to the pedestrian traffic volume on both sides of the carriageway for safety of people. The stretch has intermittent footpaths should be converted to continuous stretches as far as possible.
2. Complete restriction of on-street parking on pedestrian pathways – even if they are lying empty.
3. Integration of steps with walkways to create an efficient system of pedestrian network for fast movement, particularly within the core area.
4. Improvement of surface condition for steps with due attention to riser/tread width as well as installation of railings and intermediate landing facilities to facilitate pedestrian movement

and safety.

5. Provision of alternate pedestrian route to the temple for managing the pilgrim's movement during the peak season.

5.11.4 Safety Issues

Most of the accidents recorded take place along the highways and regional linkages. Basic reasons are difficult road alignment, poor road geometry, bad road surface conditions, unstable road pavements and frequent landslides. The land slide prone area near the Binwa Bridge, should be stabilised with the retaining wall.

Most of the links do not have adequate footpaths on both sides to accommodate the high pedestrian volume – forcing them to move along the carriageway. Low traffic speed within the city significantly reduces the probability of accident in spite of very high level of pedestrian vehicular conflict. Steps, which helps to reduce travel distances for pedestrians are often in bad condition. The major deficiencies are: -

i) Inadequate/irregular riser and tread.
ii) Uneven surface condition.
iii) Poor illumination.
iv) Insufficient railing and landing facilities for long flight of steps.

5.11.5 Road Signs

Presently, the absence of the propoer road signages cause fatal and other accidents in the Planning Area. Appropriate road signs are to be provided along the major roads where ever needed.

5.12 Future Urban Structure and its Impact on Trip Characteristics

The allocation of future population in the Planning Area reveals that most of the new population in the coming years will be accommodated on the South-Western and Southern sides of the existing urban structure. This will have significant impact on the travel characteristics of the city.

This will invariably reduce share of pedestrian trip and increase vehicular trip. At present, a significant portion of the trips are short distance and pedestrian in nature.

Available modes of transport in town, offers limited choice to people and higher reliance on private modes is observed, especially two-wheelers. Lack of appropriate facilities and rising income will increase number of private vehicle and travel trips by private vehicles.

Vehicle ownership is already quite high – nearly 63 % of households' own two-wheelers and 26 % own four wheelers.[22] The income and people's affordability of vehicle ownership, is also high. This will further increase vehicular traffic on already congested urban road network unless commensurate augmentation of network capacity is not undertaken.

There is a need for creation of an expanded road network not only for creating access to the planning zones with new development activities but to relieve congestion from the core area. A significant

[22] *Source: Primary Survey*

share of the through traffic which is borne by the existing North-South corridor can be diverted to more direct links across Planning zones within Baijnath-Paprola.

5.13 Strategic Recommendations

There is an urgent need to restructure the transport management mechanism to meet the future demand with satisfactory level of service.

For effectively implementing the provisions of Himachal Pradesh Transport Policy 2014, a committee headed by the Transport Minister should be notified that will hold meetings on quarterly basis and review the implementation of this policy. Evaluation studies should be undertaken in various segments of the transport operation to guide the implementing agencies on various options and their possible outcomes.

Comprehensive and holistic approach to transport management is needed to cope with the growing complexity of the transport sector as well as its inter-dependence with other urban sectors.

Creation of an Urban Transport Management Authority as an organization to undertake this task has been widely acclaimed as the appropriate solution. The salient tasks of this authority will be-

1. To co-ordinate actions of various public and private agencies providing transport infrastructure and services.
2. To arrive at a regulatory frame work for operations of various service providers, particularly transit and parking facilities.
3. Planning for future transport demand and supply management taking proposed land use into consideration.
4. To monitor the environmental and socio-economic impact of the existing transport system and for future investments.
5. To effectively control vehicle ownership and dependence through a set of fiscal and regulatory controls.
6. Capacity building, both managerial and technical, for institutions under its umbrella.

6 PHYSICAL INFRASTRUCTURE

6.1 Water Supply

6.1.1 Existing Situation and Demand Estimation

Baijnath-Paprola Planning Area utilizes both surface water (River and Spring) and ground water to cater to its water supply needs. The total water supply in the Planning Area is 1.274 MLD out of which 1.171 MLD is supplied through piped water supply and 0.103 MLD is through community hand pumps. The water supply in Baijnath – Paprola Planning Area is majorly catered through water supply schemes; 92 % Piped Water Supply (PWS) and 8 % is through hand pumps i.e. through ground water. The Planning Area has 10 piped water supply schemes supplied to around 18642 users (as per 2011 Census), out of which 8 are through spring sources while the rest 2 are from river source. 5 of the water supply schemes supply water at the rate of 70 lpcd, which is the standard service level as per the CPHEEO Manual – 2000 for non-sewered areas, while remaining 5 supply water in the range of 40-50 lpcd.

CPHEEO Manual, norms are adopted for calculating water demand for base year, intermediate year and target year 2035.

Water supply should be increased to 135 lpcd for residential purposes and for other purposes, consumption rate as mentioned in CPHEEO Manual.

Table 6-1: Total Water Demand and Gap

Description	**Year**		
	2016	**2026**	**2035**
Total Domestic Population	**21920**	**25010**	**28553**
Total Domestic Water Demand (MLD)	2.96	3.38	3.85
Commercial Demand (MLD)	0.25	0.28	0.32
Industrial Demand (MLD)	0.05	0.06	0.06
Institutional Demand (MLD)	0.12	0.13	0.15
Estimated Tourist	10329	21684	47153
Estimated Domestic	*9426*	*18630*	*36821*
Estimated Foreign	*902*	*3054*	*10332*
Water Demand for Tourist (MLD)	1.86	3.90	8.49
Floating Population	5323	6075	6924
Floating Demand (MLD)	0.24	0.27	0.31
Total Water Demand (MLD)	**5.47**	**8.02**	**13.19**
15% losses (UFW) (MLD)	0.82	1.20	1.98
Sub Total (MLD)	6.29	9.23	15.17
2% Fire Fighting (MLD)	0.12	0.18	0.30
Grand Total of Water Demand (MLD)	**6.41**	**9.41**	**15.46**
Existing Supply (MLD)	1.27	1.27	1.27
Gap (MLD)	5.14	8.13	14.19

Source: Calculated as per CPHEEO Manual

The total water demand for base year 2016, intermediate year 2026 and target year 2035 is 6.41 MLD, 9.41 MLD and 15.46 MLD respectively. At present, water supply does not take into account the floating population and fire fighting requirement. Hence to bridge the supply gap, water supply system needs to be augmented to meet out water demand at different stages of development.

6.1.1.1 Water Sources and Treatment

The existing water sources can be used to meet up water demand for the planning area. Presently, existing water treatment plant is required to be augmented as per demand estimation.

Table 6-2: Water Treatment Demand

Sl. No.	Description	Year		
		2016	2026	2035
1	Total Water Demand (MLD)	**6.41**	**9.41**	**15.46**
2	**WTP Capacity Required (MLD)**	**7.34**	**10.78**	**17.71**
3	Existing WTP Capacity (MLD)	1.17	1.17	1.17
4	**Augmentation required (MLD)**	**6.17**	**9.60**	**16.54**

Source: Calculated as per CPHEEO Manual

6.1.1.2 Fire Stations and other Fire-Fighting Facilities

Presently, in Baijnath-Paprola Planning Area, there is one fire station adjacent to SDM office at Baijnath. The projected population of Baijnath-Paprola Planning Area is 28,553 for the year 2035. Hence, current provision for fire services in Baijnath-Paprola Planning Area are sufficient to cater the needs.

6.1.2 Service Level Benchmarking

Service level benchmarkings have been formulated by the MoUD, with a view to achieve all-round sustainability including environmental sustainability.

Table 6-3: Service Level Benchmarking for Water Supply System

Sl. No.	Services	Ultimate Benchmark as per MoUD, GoI Guidelines	Present Status (%)	Aim to achieve in Long Term
1	Coverage of Water Supply connections	100	90	100
2	Per Capita Supply of Water in Project area	135 lpcd	70 lpcd	135 lpcd
3	Extent of Non-revenue Water	15	NA	15
4	Extent of Metering	100	NA	100
5	Continuity of Water supplied	24 Hours	NA	24 Hours
6	Efficiency in redressal of customer complaints	80	NA	80
7	Quality of Water Supplied	100	NA	100
8	Cost Recovery	100	NA	100
9	Efficiency in collection of Water charges	90	NA	90

Source: Based on NMSH, MoUD, GoI, 2014

6.1.3 Key Issues and Challenges

- The existing water supply system for the study area is not sufficient to cater even the existing water demand of the area-
- Intermittent water supply system
- Water losses
- Consumers lack awareness for consumption of water

6.1.4 Development Strategies

The present water supply system in project area is intermittent, this is proposed to be developed into 24X7 hours. Decentralization in the distribution system ensures equalization of supply of water throughout the area. Hence, the plan recommends to have decentralisation of water supply system. Each decentralized area should have its separate distribution network served by the elevated and/or ground level service reservoirs. The service reservoirs should be provided at the highest elevation of the distribution zone, so that the water can be distributed by gravity for majority of the supply area.

Based on population projection, the total required storage capacity of service reservoirs should be 9.83 ML per day for the target year based on 24X7 water supply system.

(A) Short Term Strategies

1. Develop strategies for improvement and utilization of existing water supply schemes for the potential demands and adequate supply of potable water in the region.
2. Water supply shall be on 24X7 with equity, effective metering and hygienic model of supply. Systems leaks and thefts can easily be revealed only with a 24x7 supply pattern.
3. Augmentation of Water Treatment Plant or setup new water treatment plant of 9.60 MLD
4. 100 % coverage of treated piped water
5. New water reservoirs for supplying to end users as per target year requirement
6. Replacement or Repair the old/defunct system/network, if any
7. Implementation of 100 % Consumer metering system
8. Awareness program for optimization of water use, recycling and recharging
9. Introducing SCADA system to minimise water losses and theft
10. Complaint redressal centers to be set up to look after the issues on water supply
11. Systems should function with minimum interruption and failures
12. Detailed Operation and Maintenance Programme

(B) Long Term Strategies

(A) Use of Recycled water for secondary uses like meeting horticulture, air-conditioning, industrial cooling and other non-potable uses
(B) Additional 7.00 MLD capacity of water treatment plant after year 2026
(C) Implementation of Rain Water Harvesting Scheme.

6.1.5 Proposed Water Supply Projects

Based on the existing water supply and demand analysis, there are some potential projects that can be proposed for water supply projects in the study area. Some of the potential projects are-

- Detailed analysis of existing water sources and supply system
- Detailed designing of water supply system (DPR)
- Implementation of 24x7 water supply system
- Augmentation of existing water treatment plant or setup new water treatment plant
- Implementation of 100% Consumer metering system
- Implementation of SCADA system to minimise water losses and theft
- Implementation of Rainwater Harvesting Scheme
- Detailed Operation and Maintenance Programme

6.2 Sewerage System

The components of sewerage system are the house connection, conveyance network, pumping system, the treatment facility and the disposal strategy. The conveyance is by gravity and the treatment facility is located at the lowest point.

6.2.1 Existing Situation and Demand Estimation

At present, Baijnath – Paprola Planning Area does not have any central sewage network. The planning area being situated in a hilly terrain, utilises individual septic tanks for sewage disposal.

Taking 80 % of total water supply and 10 % infiltration as per CPHEEO Manual, future sewage generation projected is as follows:

Table 6-4: Sewerage Generation and Gap

Sl. No.	Description	Year		
		2016	2026	2035
1.	Sewage Generation (MLD)	4.84	7.16	11.88
2.	**Total Sewage Generation including infiltration (MLD)**	**5.33**	**7.88**	**13.07**
3.	**STP Capacity (MLD)**	**5.59**	**8.27**	**13.73**
4.	Existing STP Capacity (MLD)	0.00	0.00	0.00
5.	**Augmentation required (MLD)**	**5.59**	**8.27**	**13.73**

Source : Calculated as per CPHEEO Manual

6.2.1.1 Sewage Treatment and Disposal

Currently, the planning area generates 5.33 MLD of sewage. Projected sewage generation for 2035 will be 13.70 MLD and there is no facility for centralised/decentralized collection, treatment and disposal of the sewage generated.

6.2.2 Service Level Benchmarking

The following table explains the existing and proposed service level benchmarks of Sewerage and Sanitation of the planning area.

Table 6-5: Service Level Benchmarking for Sewerage and Sanitation (2015-2035)

Sl. No.	Services	Ultimate Benchmark as per MoUD, GoI Guidelines (%)	Present Status (%)	Aim to achieve in Long Term
1	Coverage of Toilets	100	86	100
2	Coverage of Sewerage Network Services	100	0	100
3	Collection Efficiency of Sewerage Network	100	0	100
4	Adequacy of Sewage Treatment capacity	100	0	100
5	Quality of Sewage Treatment	100	0	100
6	Extent of reuse and recycling of sewage	20	0	20
7	Efficiency in redressal of customer complaints	80	0	80
8	Extent of cost recovery in sewage management	100	0	100

9	Efficiency in collection of sewerage charges	90	0	90

Source : Based on NMSH, MoUD, GoI, 2014

6.2.3 Key Issues and challenges

- Nonexistence of the centralized sewerage network
- Open defecation
- Discharge of domestic sewage, rotten food materials and vegetation into natural drains and water bodies

6.2.4 Development Strategies

As per the gap and deficiencies identified in the existing sewerage system of the study area, an integrated approach is required to cater to the sustainable solution.

1. To develop a proper sewage collection and treatment system.
2. To recycle/reuse of waste water to incorporate in the Planning Area to reduce the burden on water supply system. All the household/community septic tanks to be connected to the sewer network.
3. It is to be ensured that Sewage flows through gravity minimizing the use of energy for pumping.
4. Reuse options for Treated Wastewater
5. Treated water from STP should be recycled as per URDPFI Guidelines and sludge can be used as manure for agriculture and plantation. The plan CPHEEO aims should be aimed to achieve 100% coverage of sewerage connections to every household.

6.2.5 Proposed Sewerage System Projects

Based on the existing system and demand analysis, there are some potential projects proposed for sewerage system in the study area. Some of the potential projects are-

- Detailed analysis of existing system
- Detailed designing of sewerage system (DPR)
- Implementation of decentralized collection, treatment and disposal of the sewage generated
- Sewerage Treatment Plant
- Construction of adequate public toilets complex at public places
- Recycle and use of treated sewage
- Detailed Operation and Maintenance Programme

6.3 Storm Water Drainage Network

6.3.1 Existing Situation and Demand Estimation

Baijnath-Paprola Planning Area has topography and natural drainage slope pattern from North-East South-East to South-West direction. The highest elevation is in the North with more than 1400m above the sea level and the lowest is towards the south with less than 1000m above sea level. The

Planning Area has one natural water body, the Binwa River, which runs along the North-Eastern to South-Western side. The surface run-off is from North-East to South-West.

In addition, there are various nalas and khads in the Planning Area which have their outfall into the Binwa River. The Sansal Khad and Kheer ganga connects the Binwa River on the North-East and also the Pun Khad on the South-West. The river caters to the discharge from these drains and khads in the surrounding areas. Also, there are small water channels in Baijnath Area have their run-off towards the South.

As per PWD, presently, Baijnath – Paprola Planning Area has a road length of about 19.45 kms out of which 53 % have storm water drains i.e. for a length of about 10.57 kms. Hence, there is a gap of 8.88 kms of road length without storm water drains in the Planning Area.

Based on the gap, an integrated approach is proposed, some of the drains will run alongside the roads (Roadside Drains) and others may follow natural slope (Cross Drain).

Rainfall intensity calculated from monthly rainfall data of last 11 years comes out to be 92.05 mm/hr. considering once in 5 years as storm frequency and 30 minutes as Time of concentration.

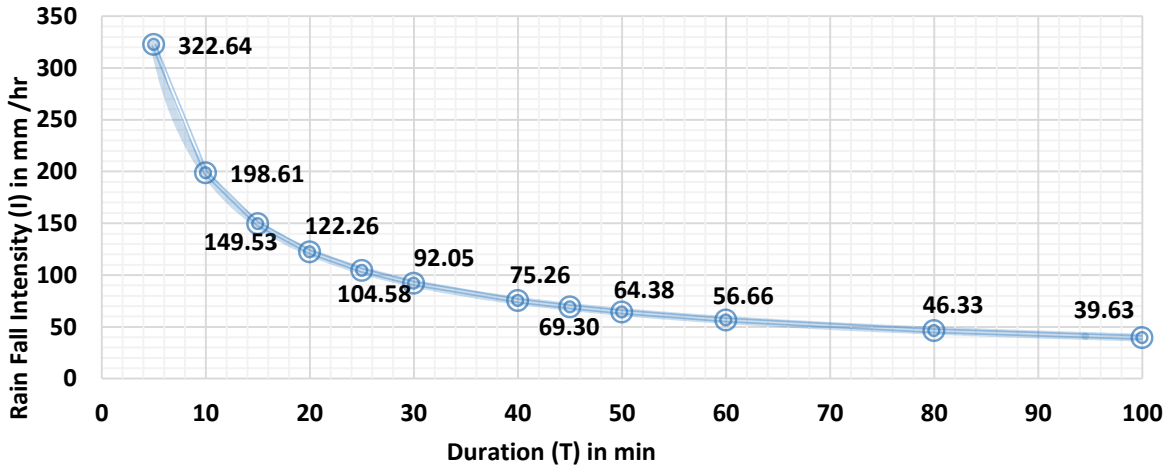


Figure 6-1: Intensity-Duration Curve
Source: Calculated based on CPHEEO Manual

The Planning Area is broadly divided into 99 catchments, which is further divided into smaller sub-catchments. All the major Catchments discharge into major streams/water bodies. Key feature of the network, is use of natural streams, to minimize the drain section. Several outfalls are proposed in order to enable safe conveyance of runoff discharge. Two major streams flowing through the project area receives run off through major catchment basin. The total runoff generated for entire study area is 303.077 Cubic metre per second.

6.3.2 Service Level Benchmarking

Service level benchmarking have been formulated by the MoUD with a view to achieving all-round sustainability including environmental sustainability.

Table 6-6: Service Level Benchmarking for Storm water Drainage System

Sl. No.	Services	Ultimate Benchmark as per MoUD, GoI Guidelines (%)	Present Status (%)
1	Coverage of storm water drainage network	100	53
2	Incidence of water logging	0	NA
3	Construction of new drains and conversion of *Katcha* drains (earthen, natural drains) into *Pucca* drains with additional provision to carry 20 % discharge.	100	NA
4	Cleaning of drains twice in a year	100	NA
5	Incidence of people affected in vulnerable areas and property damaged during flooding.	0	NA
6	Rejuvenation of water bodies once in two years.	100	NA
7	Provision of pumping arrangement in low lying areas/water logging areas.	100	NA
8	Extent of rain water harvesting in buildings etc.	100	NA
9	Incidence of sewage mixing in the drains	0	NA

Source: Projections based on NMSH, MoUD, GoI, 2014

6.3.3 Key Issues and challenges

The existing system has problems, which are as follows:

a) In absence of regular solid waste collection, wastes dumped into the drains, kuls which leads to choking and overflowing of drains.
b) The natural storm water is mixed with garbage which creates environmental pollution and public health concerns
c) Most of the areas within planning area are not provided with a proper and planned drainage system
d) The city has poor capacity for effective periodic maintenance of the drains in terms of cleaning and de-silting

6.3.4 Development Strategies

The drains will run along the roads, either one side or both side as per road camber. Wherever the drain is proposed to be covered, it will be necessary to provide a horizontal/vertical entry into the drain at the same time not obstructing free passage for the pedestrians or vehicles. Hence, wherever road width is more than 10 m, kerb opening inlets can be proposed at every 50 m interval to provide horizontal entry into the drain. Since the road width is less than 10 m Kerb Inlets cannot be accommodated, Perforated Cover Slabs are proposed at every 50 m interval.

All the primary and secondary drains should be covered. These covers will protect the storm drains from disposal of garbage, debris, etc. and also may serve as walkway for pedestrian in narrow roads.

a) Storm Water Drainage (SWD) system should be designed as a separate system to carry storm water by gravity for the entire project area. Storm water drains shall be designed with proper gradient, which will create a self-cleansing velocity, as these drains will carry storm water along with grit, silt and other impurities. All the primary storm water drains should be designed to have a capacity to carry the total discharge of all secondary and tertiary storm water drains.

b) Existing nallahs running through the study area should be improved to increase the efficiency of natural channels. Improvement works shall consist of desilting of channel, development of edge of drains/ nallahs, improvement of side slopes and development of green belt around the nallahs and provision of culverts at road crossings.
c) Detailed Operation and Maintenance Programme
d) Detailed Hydrological study for further proper flood management plan

6.3.4.1 Flood Management

It is proposed to rejuvenate the river and detailed study of the existing condition of culverts and bridges to improve their hydraulic capacity. There is a need to improve the natural drainage by de-silting the natural drains and removing the blockages. The existing storm network along the roads needs to be strengthened in terms of coverage and capacity. A hydrology model should be developed for flood management.

There would be a requirement of estimation of flood generated from each stream with objective of protection from flood and uninterrupted communication for the town. To achieve this, the extent of flood and its duration shall be noted down at critical locations so that the formation levels/plinth levels of the infrastructure can be finalised keeping in mind the flood levels at flood prone areas, for culverts, stream/river bank protection works etc.

6.3.4.2 Rainwater Harvesting

Water level declines as a result of injudicious exploitation of groundwater resource. Some of these problems are reduced well yields, low water level and leakage into the aquifer of highly mineralised water. In order to over-come these serious environmental implications, rain water harvesting is proposed.

6.3.5 Proposed Projects

Based on the existing system and gap analysis, there are some potential projects can be proposed in the development plan.

a) Detailed Master Plan for Storm Water Drainage system for further detailed assessment and solution of drainage proposal
b) Detailed Hydrological study of existing nallahs/ canals/ river for proper flood management plan and to improve efficiency to cater storm water from outfalls.
c) Detailed designing of storm water system (DPR)
d) Proper outfall structures
e) Rainwater harvesting system
f) Detailed Operation and Maintenance Programme

6.4 Solid Waste Management

6.4.1 Existing Situation and Demand Estimation

At present, there is no solid waste management system in Baijnath – Paprola Planning Area. Garbage is being openly dumped in large quantities along roads and streams. Apart from open dumping, solid

waste is also burned by the people outside their household premises. There is a Solid waste landfill site in Paprola town, however it is not in use now.

6.4.2 Bio Medical Waste

The bio medical waste generated from hospitals in the Planning Area is disposed by a private agency, M/s Bio-medical Waste Treatment Plant Pvt. Ltd. located in Pathankot, Punjab. The treatment plant has an incinerator of 200 Kg/hr., an Autoclave and a Shredder and it caters for the collection and transportation of the bio medical waste generated on a weekly basis.

6.4.3 Projected SWM Generation and Gap Assessment

The number of waste generating inhabitants as well as collection is assumed to rise to a higher percentage of the total population. With passing time as a consequence of ameliorated collection systems the percentages are due to rise in coverage from 0 in 2016 to 100 % in 2035. The daily waste production is estimated to increase from 4.57ton/day to 41.74ton/day with population growth rate of 1.33 % pa.

The following table (Table 6-7: Solid Waste Generation and Gap) gives estimated solid waste generated in the Planning Area at the end of the plan period (2035) and the estimated waste reaching the land fill site.

The following assumptions were considered:

- Waste generated per day: 0.3 kg per capita per day
- Solid waste growth factor: 1.33 % per annum (ministry of urban development standard)
- Quantity of solid waste reaching landfill: 39 % of total waste (based on national average)

Table 6-7: Solid Waste Generation and Gap

Sl. No.	Description	2016	2026	2035
1	Population	21,920	25,010	28,553
2	Solid Waste Generation Annual (tons/day)	4.57	8.12	13.97
3	Existing Treatment Facility (tons)	Nil	Nil	Nil
4	Infrastructure required	Solid waste segregation, collection, transportation and treatment and landfill site for disposal are required		

Source : Calculated as per CPHEEO Manual and MoUD Standard

6.4.4 Service Level Benchmarking

Table 6-8: Service Level Benchmarking for Solid Waste Management (2016-2035)

Sl. No.	Services	Ultimate Benchmark as per MoUD, GoI Guidelines (%)	Present Status (%)	Aim to be achieved in Long Term
1	Household level coverage of SWM services through door-to-door collection of waste	100	0	100
2	Collection Efficiency of Solid waste	100	0	100
3	Extent of segregation of waste	100	0	100
4	Extent of MSW Recovered	80	0	80

Sl. No.	Services	Ultimate Benchmark as per MoUD, GoI Guidelines (%)	Present Status (%)	Aim to be achieved in Long Term
5	Extent of scientific disposal of waste of landfill sites	100	0	100
6	Efficiency in redressal of customer complaints	80	0	80
7	Extent of cost recovery for ULB/NP/Authorized agency in SWM services	100	0	100
8	Efficiency in collection of SWM charges	90	0	90

Source : Projections based on NMSH, MoUD, GoI, 2014

6.4.5 Issues and Concerns

The analysis of existing solid waste management practices of study area indicates that it has no structured primary and secondary collection, disposal arrangements. Solid waste management for study area requires the use of various instruments for improved service delivery.

Awareness levels in terms of importance of solid waste management have a huge scope for improvement. Installation of community bins and regular collection and transportation of domestic and roadside wastes to the identified dumping site (near kothi village) need to be done.

There is no segregation of waste at source. The range of issues that need to be addressed are listed below:

- Effectiveness of awareness building or direct community involvement
- No provision of user charges
- No provision of proper collection and treatment of solid waste
- Need of Institutional strengthening and human resources development.

6.4.6 Strategies and Recommendations

Studies on solid waste composition need to be carried out for study area. Proper segregation at source, collection and transportation system needs to be developed. A landfill site near the Koti village has already been identified.

An effective waste management system is recommended, with following componenets:

- 100 % Waste collection and proper transportation to the landfill site and/or shifting stations
- Segregation of Solid Waste at source
- Resource recovery through sorting and recycling of materials
- Resource recovery through waste processing by using composting or waste to energy approaches
- Waste minimization by reducing volume, toxicity or other physical/chemical properties of waste to make it safe for final disposal
- Disposal of waste in an environmentally safe and sustainable manner through land filling
- Recycling of Solid waste
- Commissioning of landfilling site
- Integrated management of Solid waste

- Incineration for treatment of biomedical waste
- Awareness generation for reduce, re-use and recycling of Solid waste
- Other than the landfill site, cluster based approach can be adopted as one of the ways of solid waste management.

6.4.7 Private Sector Participation in SWM at Urban Local Body Level

Given the lack of in-house capability of municipal authorities and paucity of financial resources, it is desirable to outsource certain services and resort to private sector/NGO participation in providing SWM services.

Experience the world over has shown that private sector participation (PSP) results in cost savings and improvement in efficiency and effectiveness in service delivery mainly due to financial and managerial autonomy and accountability in private sector operations. Besides, it brings in new investment and better technologies. In developed countries the private sector manages most of the SWM services.

In India, by and large, municipal authorities are providing solid waste management services departmentally. Resistance from labour unions and interpretations of labour laws have discouraged city administrations from contracting out services to private operators. Of late, some experiments to privatize certain SWM services have demonstrated improvement in the level of services in a cost-effective manner.

6.4.8 Proposed Solid Waste Management Projects

For achieving the goal and implementing the strategies various initative/projects need to be undertaken. Some of the proposed projects are-

- Preparartion of the Solid Waste Management Plan and Planning Area sanitation plan
- Provision of separate bins for bio-degradable and non-bio-degradable waste
- Provision of waste collection and sorting centres
- Provision of required number of vehicels and other equipments for collection, transportation of waste

6.5 Power

6.5.1 Existing Situation

Hydroelectricity is the main source of power supply for HPSEB as well as HPSEB exports power through major transmission lines to various parts in India.

Power is supplied in Baijnath – Paprola Planning Area by the Himachal Pradesh StateElectricity Board Limited (HPSEBL). The organisation has two sub-divisions within the Planning Area, one in Baijnath and the other in Paprola.

The power supply of Baijnath town is being managed by 33/11kV Baijnath Substation feeded from Bassi Power House (Generation station).

Four no's 11kVFeeder, emanating from Baijnath 33/11kV Substation feeds the Baijnath Town area. The details of existing power infrastructures are as follows:

Table 6-9: Existing Power Distribution in Baijnath-Paprola Planning Area

A. Basic Information			
Sl. No.	**Particular**	**Unit**	**Details**
1	Name of the Project Area	Baijnath	
2	District	Kangra	
3	Total Population (as per 2011 census)	No.	20521
B. Asset Information			
Sl. No.	Particular	**Unit**	**Details**
1	Total Number of 33/11 kV Sub-stations feeding the Project Area	Numbers	1
2	Number and capacity of Power Transformers	Numbers/MVA	*Not Available
3	Total Number 11 kV Feeders feeding the Project Area	Numbers	4
4	Total Length of 11 kV Feeders	km	*Not Available
5	Total Number of Distribution Transformers	Numbers	53
6	Total Capacity of Distribution Transformers	MVA	8.65
C. Details of 11kv Feeders in the Project Area			
Sl. No.	Name of 11kV Feeders	**No. of Distribution Transformers**	**Capacity**
		Nos.	**(kVA)**
1	Baijnath	23	3995
2	Paprola	20	3689
3	Majehrna	8	838
4	Allulal	2	126

Source : HPSEB, Baijnath and Paprola

6.5.2 Electricity Demand Forecasting

The key factors which can affect the load forecast for the Baijnath town for the next twenty years are as follows:

a) Estimation of suppressed demand
b) High level of unmetered sale
c) High transmission and distribution losses

6.5.3 Key Assumptions in Demand Forecasting Study

(A) Base Year and Forecast Horizon

Base year for forecasting has been considered as 2016. The forecast has been carried out from year 2016 to 2035.

(B) Power Demand for Projected Population

With reference to the 4th Annual Administrative Report of Himachal Pradesh State Electricity Board Limited for year 2014, the per capita power consumption/year was 1099kWh; service level of power is 3.01 KWH per capita per day and assuming 8Hours power supply per day per household. Considering these parameters, the historical annual growths of Maximum demand are tabulated below to understand the growth rate of power demand-

Table 6-10: Maximum Power Demand in Baijnath-Paprola Planning Area

Sl. No.	**Particulars**	**Power Demand Projection**			
		FY-2016 -2021	**FY-2021 - 2026**	**FY-2026 - 2031**	**FY-2031 - 2035**
1	Total Population (Nos.)	23,420	25,019	26,728	28,553
2	Power Demand (kW)	8811.6	9413.4	10,056.2	10,743.0
3	Power Demand (MW)	**8.81**	**9.41**	**10.06**	**10.74**

Source : Estimation considering standards

6.5.4 Expansion Proposal

Based upon the per capita power consumption, the projected load forecasting of Baijnath-Paprola town over the next 20 years is given below table-

Table 6-11: Projected Load Forecasting of Baijnath-Paprola Town over the next 20 years

Years	FY-2016 -2021	FY-2021 - 2026	FY-2026 - 2031	FY-2031 - 2035
Power Demand (MW)	8.81	9.41	10.06	10.74

Source : Estimation considering standards

The estimated power requirement of Baijnath Town till 2035 is 10.74MW. But as per the data received from HPSEBL, the total capacity of secondary distribution transformers for this area is 8648kVA. To meet the additional power requirement till 2035, addition or augmentation of secondary distribution sub-station with addition / upgradation of subsequent distribution networks. As per data received from HPSEBL, one number 33/11kV Substation is already proposed in Baijnath - Paprola area. Proposed 33/11kV Paprola Sub-station will fulfil the demand gap for the next 20 Years.

6.5.5 Planning Criteria

The power infrastructure development (renovation, modernization and upgradation) of Baijnath-Paprola town is proposed with HVDS system by extension of 11 kV Network and potential reduction in Low Voltage Network. For implementation of HVDS system, new 11kV feeder will be created including augmentation and bifurcation of existing 11 kV feeders to improve the quality of power supply and Reduction in distribution losses. All the consumers are to be fed through energy meters, with a futuristic view for implementation of SCADA.

The planning has been optimized to minimize the overall cost. This optimization considers the numbers of circuits requirement, it`s capacity of distribution and also the location, timing and additional capacity of the proposed network during operation. The optimization includes an assessment of cost for Over Head distribution network considering the impact of projected load growth.

The following critical areas also need to be attended to improve the energy efficiency-

- Introduction of energy audits and design of energy efficient buildings
- Aggregate Technical and Commercial (AT&C) losses reduction
- Load management techniques and energy accounting
- Promotion of new and renewable sources of energy
- Replacement of low efficiency incandescent lamp with CFL/LED

6.5.6 Saety Clearances

Table 6-12: Safety Clearances

Sl. No.	Description	33 kV	11 kV
1	Safety Working Clearance (m)	2.8	2.6
2	Clearance to ground (m)		
3	- Across street	6.1	5.8
4	- Along street	5.8	5.5
5	- Other areas	5.2	4.6
6	Clearance to Buildings (m)		
7	- Vertical Clearance	3.7	2.5

8	- Horizontal Clearance	2	1.2
9	Between Lines with Crossing Each Other (m)	2.44	2.44

Source : As per Indian Electricity Rules

6.5.7 Design Assumptions

i. The design and related documents based on the concept development plan of 1842.85 ha' area.

ii. To calculate the total power demand of the project area, the per capita consumption data have been used considering the various other developments like commercial, stadium, agro industries, ware houses, and recreational landscape etc. Area is also taken care as per the availability of standard guidelines set out by Himachal Electricity Regulatory authority or others based on our experience of earlier projects.

iii. Power factor to be achieved, is 0.9.

6.5.8 External Illumination System

Roads of the development area shall generally cater to-

1. Movement of goods, persons through vehicles including cyclist/pedestrian.
2. Basic requirement of road, green area and periphery lighting proposed be as follows:

a) Adequate level of illuminations for vehicles/cyclist.
b) Uniform illumination level over carriage way with minimum glare.
c) Safety of movement.
d) Minimum disturbance during fog/dust conditions.
e) Use of high efficiency lighting fixtures with high lumen output and low power consumption.
f) Beautification and pleasing view.
g) The Street lighting should be provided with LED luminaries on decorative street lighting poles.

Table 6-13: Technical Details of Road Lighting System

Sl.No.	Description	Up-to 12 m Wide Road (Primary Road)	9m wide Proposed Road
1	Area of Installation	Mixed, Residential	Mixed, Residential
2	Pole Mounting detail	Single arm pole on single side of the road.	Single arm pole on single side of the road.
3	Lighting Fixture	1 x 65W, LED Light	1 x 65W, LED Light
4	Mounting height	7Mtrs.	7Mtrs.
5	Spacing	25M	30M

Source : Estumation based on the previous analysis

6.6 Telecommunication System

The implementation of Telecommunication system is very important for any development and its usage has become a necessity these days. As such telecommunication network is proposed to be provided in a manner so as to have connectivity by different service providers. Consumer can select the services of telecom service provider according to good quality of network for providing these data and tele communication facilities.

a) Telecom Services today are of the following types-
b) Landline operations requiring a telecom cable and junction box space in utility corridor.
c) Wireless services on GSM / CDMA platform requiring tower at stipulated radii.
d) Broad band Services requiring a cable corridor and distribution chambers.
e) Short Coverage Wi-Fi networks.

To achieve it, Optical fibre cables are used to provide and connect various service providers for telecom as well as broadband services to the users through the optical fibre network. To run the cabling, the provision for laying the conduit and chamber in front of all the plots has been proposed in ROW planning.

7 SOCIAL INFRASTRUCTURE

7.1 Educational Facilities

Recommendation for educational facilities is based on the analysis of the current situation. In Baijnath-Paprola Planning Area, more than 50% of the schools are run by the private authorities and remaining schools are run by the government. It is observed that the government is focusing more on providing the basic education to the children and above primary level, educational facilities provided by the private authorities is exceeding the facilities provided by the government. In Baijnath-Paprola Planning Area, the schools are evenly distributed and catering to the entire population of the planning area.

Table 7-1URDPFI Guidelines and Gap Analysis for Educational Facilities

Sl. No.	Revised URDPFI Norms			No. of Existing Facilities	Requirement	Gap
	Facility	Population	Distance between two facilities			
1	Pre-Primary School	2,500	1 km	16	8	-
2	Primary School	4,000	1 to 2 km	32	5	-
3	Middle School	-	2 to 3 km	24	-	-
4	Secondary School	-	3 to 5 km	20		
5	Senior Secondary School	15,000	5 to 7 km	14	1	-
6	College	30,000	8 to 12 km	1	1	-
7	Professional College	30,000	8 to 12 km	4	1	-

Source: Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2015 and Voyants analysis based on VD-02024, Village Directory, Census of India, 2011

Table 7-2 Recommended Guidelines for Educational Facilities

Sl. No.	Level of Education	Population per Facility	Distance in Km	Recommended Area (in hectares)	
				Minimum	Maximum
1	Primary	4,000	1-2	0.2	0.3
2	High + Higher Secondary	16,000	5-7	0.3	0.6
3	College	30,000	8-12	2.0	3.0
4	Industrial training Centre/ Polytechnic	50, 000 /at least one in each	8-12	0.3	0.6
5	Engineering College	-	-	60	-
6	Medical College	-	-	15	-

Source: Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2015 and Voyants proposal

In Baijnath-Paprola Planning Area, the primary and secondary education facilities are more than the requirement (Refer Table 7-1URDPFI Guidelines and Gap Analysis for Educational Facilities). The population for opening a college is lower than the population requirement under the URDPFI Guidelines, considering the population and availability of colleges in the surrounding areas, these are adequate with reference to the distance range prescribed by URDPFI norms.

There is a need to give priority on skill based training institutes. The citizens of Baijnath-Paprola Planning Area avail higher education in science and other streams at Palampur, which is located at a distance of 17 km from the Planning Area.

7.2 Health Facilities

In Baijnath-Paprola Planning Area, there is hierarchy in terms of healthcare facilities i.e. dispensary, sub-centre, primary health centre, community health centre, hospital and veterinary centre.

A) Dispensary: As per the norms, , existing dispensaries are lesser than the requirement as there is a gap for 3 (no)sub-centres in the Planning Area.

B) Sub-Centre: The number of sub-centres in the Planning Area is less than the requirement with reference to the URDPFI guidelines. There are 5 (no)sub-centres existing in the Planning Area and the total requirement is 7 (no), hence, there a gap of 2 (no)sub-centres.

C) Primary Health Centre: There are total three Primary Health Centres (PHC) in Baijnath-Paprola Planning Area. The PHCs are located at Baijnath, Paprola Khas and Majehrna Khas. There is a total strength of 4 (no.) doctors in PHCs and all the 4 (no) doctors are in position at these PHCs. As per the URDPFI norms, there should be one PHC at a population of 20,000. Hence, the facility of PHCs in the Planning Area more than the requirement with reference to the planning standards.

D) Community Health Centre: In Baijnath-Paprola Planning Area, there is no Community Health Centre but the existing PHCs and hospitals are exceeding the required number of healthcare facilities, hence there is no need for a community health facility.

E) Hospital: There is one allopathic hospital in Baijnath, namely, Civil Hospital and an Ayurveda hospital, namely, Rajiv Gandhi Government Post Graduate Ayurvedic College & Hospital located at Paprola. There are 60 beds in Civil Hospital with a total strength of 8 (no) doctors. Besides, there are 9 number staff nurses and 3 (no) sisters and 1 (no) Dai in Civil Hospital at Baijnath. Apart from this, there are two private hospitals, DTIL Private Hospital at Baijnath and Johal Private Hospital in Paprola. The Civil hospital receives 250 to 300 patients every day and it has a catchment area of around 10-15 km. Hospital follows a proper process for disposing the bio-medical waste as prescribed in the Bio-Medical Waste (Management and Handling) Rules, 1998. A medical waste collection van comes every week to the Civil Hospital for collecting the medical waste and the waste is then transported to Pathankot where a private Bio-Medical Waste Treatment Plant is located.

According to the URDPFI standards, there should be one hospital for a population of 80,000. Therefore, the availability of hospitals in Baijnath-Paprola Planning Area is sufficient to cater the current as well as future population demand up to the target year 2035.

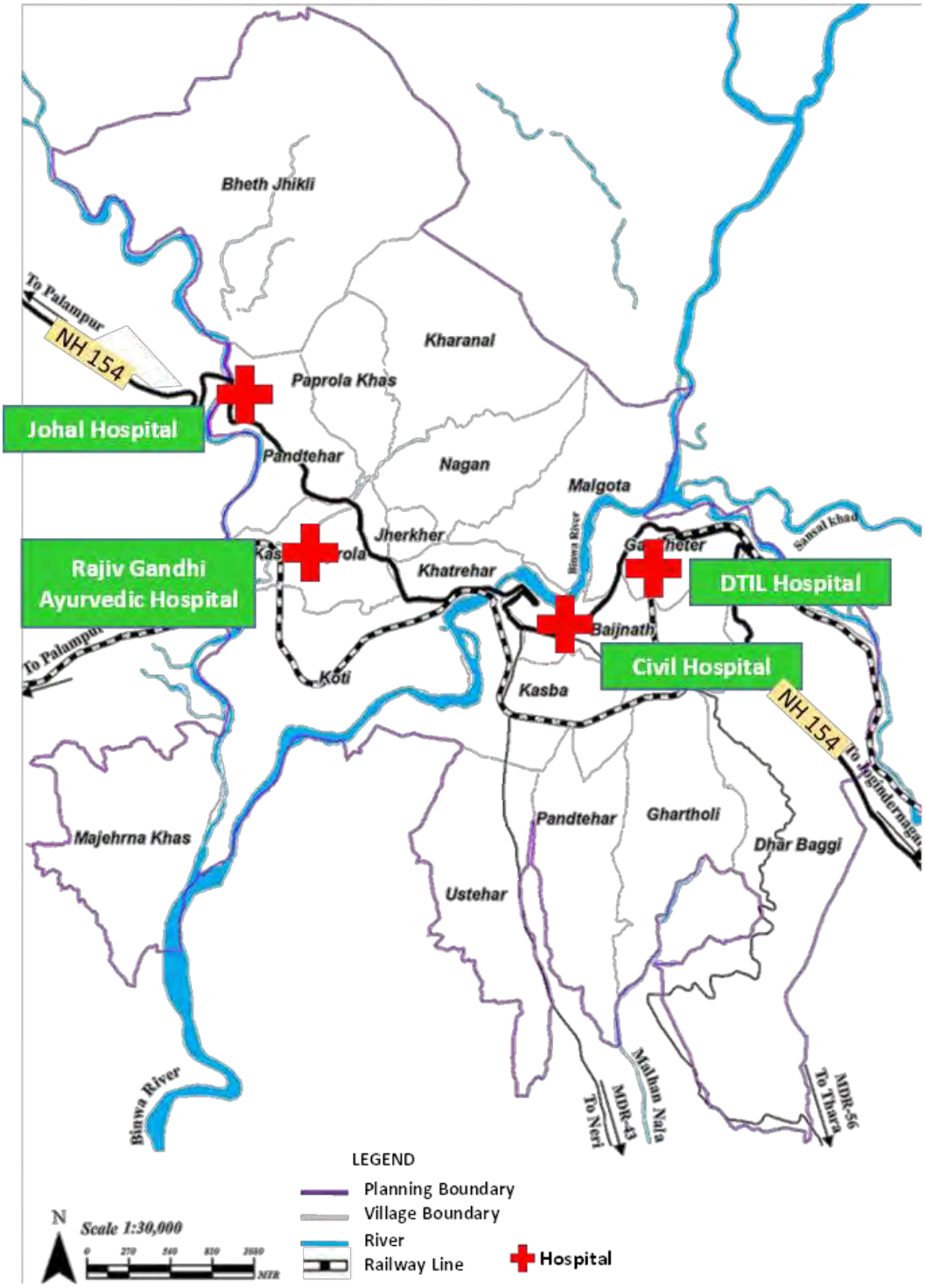
Veterinary Centre/Hospital[23]: There are 4 veterinary hospitals in the Planning Area located at Baijnath, Ghartholi, Pandtehar and Khatrehar. The total number of doctors posted at these hospitals are 4. The existing veterinary hospitals in Baijnath-Paprola Planning Area are adequate as per URDPFI guidelines/ norms.

[23] *URDPFI norms are available only for veterinary centres but not for Veterinary Hospitals.*

Table 7-3 URDPFI Norms and Gap Analysis for Healthcare Facilities in Hilly Area

Sl. No.	URDPFI Norms			No. of Existing Facilities	Requirement	Gap
	Facility	Population	Distance Range			
1	Dispensary	2,500	2 to 4 km	5	8	3
2	Sub-Centre	3,000	-	5	7	2
3	Primary Health Centre (25 to 50 beds)	20,000	16 to 20 km	3	1	-
4	Community Health Centre (30 beds)	80,000-1,20,000	-	-	-	-
5	Hospital (80 beds)	80, 000	16 to 20 km	3	1	-
6	Veterinary Centre	1,000	16 to 20 km	4 hospitals	20	16

Source: Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2015 and Voyants analysis based on VD-02024, Village Directory, Census of India, 2011



Map 7-1 Existing Healthcare facilities in Baijnath-Paprola Planning Area
Source: Prepared by Voyants on the basis of Google Map, 2016

Though there is a gap in the existing number of dispensaries and sub-centres but the existing number of primary health centres and hospitals are fulfilling the healthcare demand in the planning area as they are existing more than required by the URDPFI guidelines. Hence, the healthcare facilities in Baijnath-Paprola Planning Area are adequate to cater the healthcare demand.

The multi speciality speciality hospitals are located at Palmpur and Dharmashala which come under the 50-km radius of the Palnning Area.

7.3 Recreation and Open Space

In terms of Recreational facilities, one designated open space is available at the Baijnath temple premises. Otherwise, there is acute deficit of neighbourhood level parks, gardens and open spaces in the Planning Area

7.3.1 Proposed Open Space, Playgrounds, Indoor Stadiums and Community Centers

Six parks are already proposed at different areas in the Planning Area out of which, the plan for four parks have already been approved. As per the URDPFI guidelines, there should be six community level parks for 30,000 population. As per the population projection, six parks are required which have already been proposed at Paprola, Ustehar (near SDM office) and Pandtehar.

7.4 Community Facilities

7.4.1 Community Halls

A community hall is located in Paprola. As per URDPFI guidelines, one community hall/room of 660 Sqm. is suggested for every 5000 persons. There is a requirement of at least two community halls with higher capacity and augmented facilities at Baijanth and Paprola towns. The community hall in Paprola is proposed to be upgraded with all the modern facilities.

7.4.2 Community Grounds/ Play grounds

There are two Community grounds/ play grounds, located at Paprola and Baijnath. The Community ground at Paprola is locally termed as the Mela Ground and used for organising local fairs. The Play ground at Baijnath side is located near to the SDM complex and used for organising local level sports competition and other gatherings.

7.4.3 Cattle Shelter (*Goshala*)

One cattle shelter is located near the Binwa Bridge in Baijnath Town which serves the entire Planning Area.

7.4.4 Cremation ground

The Cremation ground is located on the banks of Kheer Ganga. It caters to the entire Planning Area. As per URDPFI guidelines, one cremation ground is required for a large size town. The site should not be located at in proximity to residential areas and preferably in urban extensions.

7.5 Other Social Infrastructural Facilities

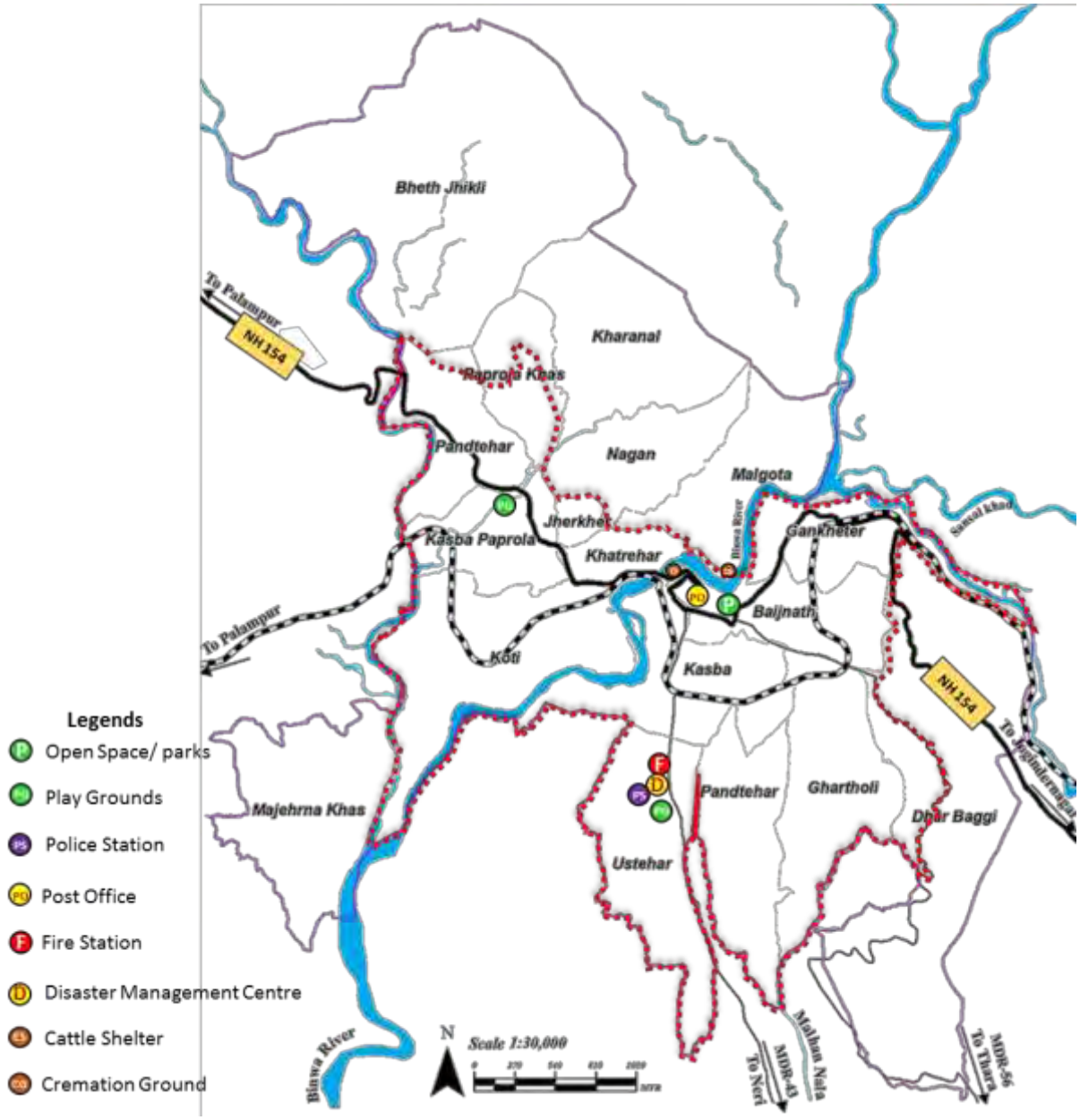
The public and semi-public facilities include anganwadi, community hall, police station, fire station, disaster management cell, banking facility, commercial facility, post office and telecommunication facility and recreational facility.

Table 7-4Gap Analysis of Public and Semi-Public Facilities in Baijnath-Paprola Planning Area based on URDPFI Guidelines

Sl. No.	URDPFI Norms			No. of Existing Facilities	Requirement	Gap
	Facility	Population	Distance Range			
1	Anganwadi	5,000	-	4	4	-
2	Police Station	15,000	5 to 10 km	1	-	-
3	Fire Station	50,000	-	1	1	-
4	Disaster Management Centre	20,000	5 to 10 km	1	1	-
5	Banking Facility	10,000	16 to 20 km	4	2	-
6	Commercial Facility	10,000	-	2	2	-
7	Post Office	10,000	5 to 7 km	7	2	-
8	Community Centres	10,000	5 to 10 km	9	2	-
9	Housing Area Park	5,000	-	-	4	4
10	Neighbourhood Park	10,000	-	1	2	1
11	Botanical Garden	1 for every town	-	0	1	1
12	Recreational Complex Including Zoo	1 for every settlement with tourist potential	-	0	1	1

Source: Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2014 and Voyants analysis

One botanical garden and one recreational centre including a zoological park are proposed for a town like Baijnath Paprola.



Map 7-2 Existing Public and Semi-Public facilities in Baijnath-Paprola Planning Area
Source: Prepared on the basis of Google Maps, 2016

8 ENVIRONMENT AND DISASTER MANAGEMENT

8.1 Forest Cover

There are four types of forest in Baijnath Paprola i.e. Demarcated Protected Forest (DPF), Un-demarcated Protected Forest, Unclassed Forest and Community Forests are observed in Baijnath Fores Range. Around 4 % of the total forest area in Baijnath Range falls in Baijnath-Paprola Planning Area.

In the Planning area 29 % area comes under the forest cover out of which 21 % is Demarcated Protected Forest, 30 % is Un-demarcated Protected Forest and rest of the 49 % is Unclassed Forest.

Table 8-1 Classification of Forest and its area under Baijnath Range and Baijnath-Paprola Planning Area

Type of Forest	Baijnath Range (in ha.)	Baijnath-Paprola Planning Area (in ha.)
Demarcated Protected Forest	9,977.40	114.36
Un-demarcated Protected Forest	1083.53	161.61
Unclassed Forest	3057.77	256.84
Community Forest	363.71	-
Total	**14,482.41**	**532.81**

Source: Satellite Image and Consultation with the Forest Range Office, Baijnath

There are few varieties of tree i.e. Chir, Eucalyptus, Raisin and Elysian that are found in Baijnath-Paprola Planning Area. Following map is showing the forested area under Baijnath-Paprola Planning Area (Refer Map 8-1 Forest area under Baijnath-Paprola Planning Area).

8.1.1 Conclusion and Recommendations

Regeneration of forests becomes essential as more and more forest areas become degraded because of social and economic causes, forest fires and other natural phenomena. Majority of the open forests in the Planning Area have been conserved while some of it has been planned as active green areas for promotion of sustainable use. The Planning Area's location and surroundings impose regulatory constraints on spatial and vertical growth, leading to limited useable land resource for future development. It is important that integrated planning is followed for the urban agglomeration, regulate rampant building development on the open forests and hill slopes and reduce vulnerability; and contribute to preservation of the planning area's natural ecosystem.

Map 8-1 Forest area under Baijnath-Paprola Planning Area
Source: Satellite Image and Consultation with the Forest Range Office, Baijnath

8.2 Air Quality

The nearest Air Quality Monitoring Stations are at Dharamshala and Sundarnagar which are located beyond 50 km radius, hence the data on air quality could not be procured for Baijnath-Paprola Planning Area.

8.2.1 Conclusions and Recommendations

In order to maintain air quality of Planning Area, following are the recommendations:

1. Land use and transportation pattern that discourage single occupancy vehicle travel
2. Encourage the use of alternative fuel are two most important components for achievement of better air quality standards.
3. Alternative forms of transportation like solar battery-operated car.
4. Promoting car-pooling and van pooling. These measures will also contribute to the reduction of energy resource consumption required in energy act.

8.3 Noise Impact

The major source of noise in the planning area is roadway traffic. Roadway noise levels vary with traffic volume and speed, types of vehicles on the roadway and the type of roadway. For densely populated areas of Baijnath-Paprola, where residential uses line the roadways, few noise mitigation options exist.

8.3.1 Conclusions and Recommendations

New residential development or redevelopment of land adjacent to a major roadway should consider noise- compatible site design as the first priority for noise abatement. These measures include, placement of parking lots, open spaces, garages, recreation areas and other non-habitable uses of the property in the noise affected area between the noise source and the residential unit. Site design, which orients the front of a row of single family attached dwellings towards and parallel to the roadway, provides a barrier to noise at the deck or patio level behind the unit. Acoustical treatment of external façade, particularly windows and doors, landscaped berms can also be more effective, but often have aesthetic impact on building façade.

8.4 Water Bodies

In Baijnath-Paprola Planning Area, water discharge is monitored at the Binwa khad discharge station. The data from 2013-2015 has been considered to assess the water quality in the Planning Area.

Table 8-2Mean and Standard Deviation for Water Quality Assessment of Binwa khad in Baijnath-Paprola Planning Area during April, 2013- March, 2015

Value	pH	Dissolved Oxygen (DO)
Mean	7.81	7.90
Standard Deviation	± 0.58	± 0.90

Source: Himachal Pradesh Pollution Control Board (April 2013- March 2015)

In Baijnath-Paprola Planning Area, the concentration of pH, Dissolved Oxygen and Biochemical Oxygen Demand is under the permissible limits (Refer Map 8-1 Forest area under Baijnath-Paprola Planning Area) and the quality of water falls in Class-A[24].

8.4.1 Conclusions and Recommendations

The existing river Binwa shall have green buffer zone and no building activity shall be allowed within 10 m width along the high flood line of the river however, channelization of River as per its present course is necessitated to avoid soil erosion and landslides.

The construction shall be allowed after distance of 3 m and 5 m from Nallah and Khad's High Flood Line boundary respectively[25].

To check depletion of water bodies the master plan recommends the following-

a) Stop dumping of waste in the water bodies
b) Stop earth filling of water bodies
c) Encourage suitable recreational facility around water body to keep surveillance

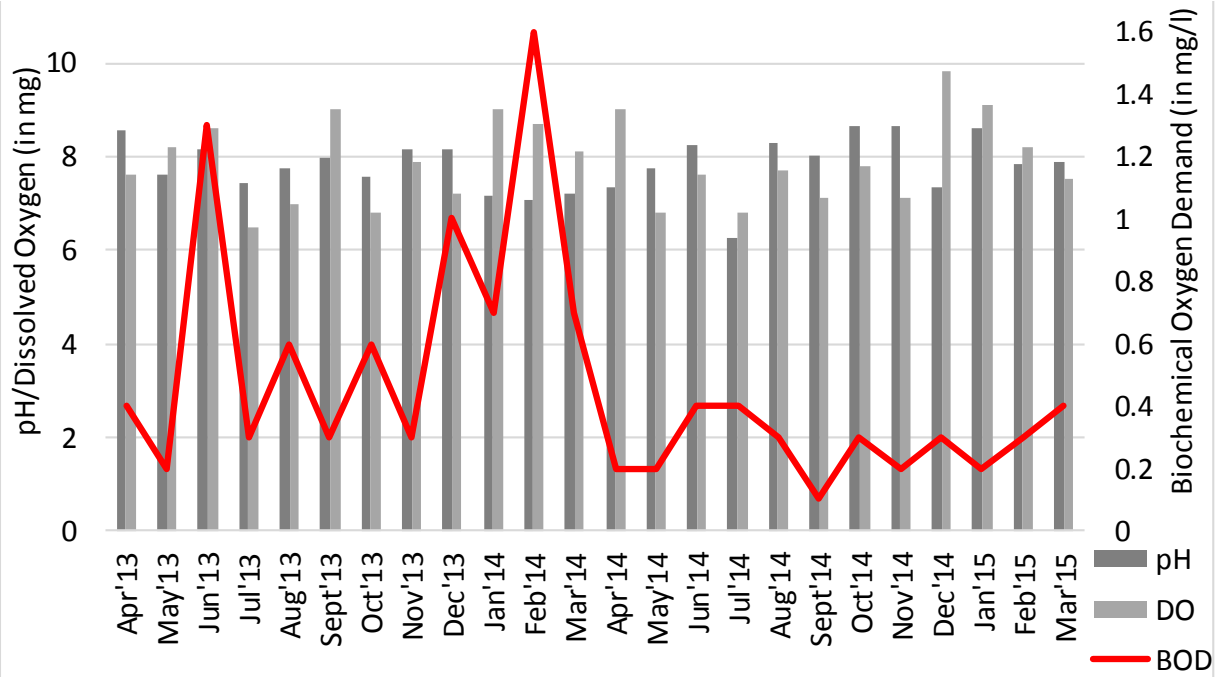


Figure 8-2Water Quality Assessment in Discharge of Binwa Khad, 2013-15
Source: Himachal Pradesh State Pollution Control Board

8.4.2 River Pollution

A cattle shelter (*Goushala*) and a cremation ground are located downstream near Baijnath temple on the bank of river Binwa with an approximate area of 3000 sq. m. each. One more cremation ground is located on the other side of Binwa River opposite to the temple which is approximately 2000 Sqm. The River Binwa is being polluted due to disposal of waste from *Gaushala*, and Baijnath temple. People also dispose the waste in river, after performing the cremation and rituals.

[24] *According CPCB, Class-A is considered to be the best quality water whereas Class-E is the worst quality*
[25] *Himachal Pradesh Town and Country Planning (Amendment) Rules, 2015*

8.4.3 Conclusions and Recommendations

The Development Plan recommends to allocate approximately 100 Sqm. land for constructing Bio-gas Plant (Gobar Gas Plant) near the existing cowshed, such that waste coming out of cowshed should not be discharged directly into the river and can be used for creating clean fuel.

The Plan also advises to construct small pond of around 100 Sqm. adjoining the cremation grounds for performing rituals so that the river can be saved from being polluted due to religious activitie

8.5 Disaster Vulnerability Profile

The disaster vulnerability data and information is not available at Planning Area level, hence, the district level information has been studied to draw the micro level consclusions. District Kangra is prone to various hazards both natural and manmade. In the district the geological hazard, mainly earthquakes, landslides and soil erosion are most critical, the flash flood, cloud burst, drought and forest fire is also hydro metrological hazard. Road accidents, wind storms, epidemics and domestic fire could also occur but cause damage locally only.The main disasters to which Baijnath-Paprola Planning Area is vulnerable includes earthquake, cloud bursts leading to flash floods and narrow roads and access, pathways; making it vulnerable for stampede during mass gatherings near temples.

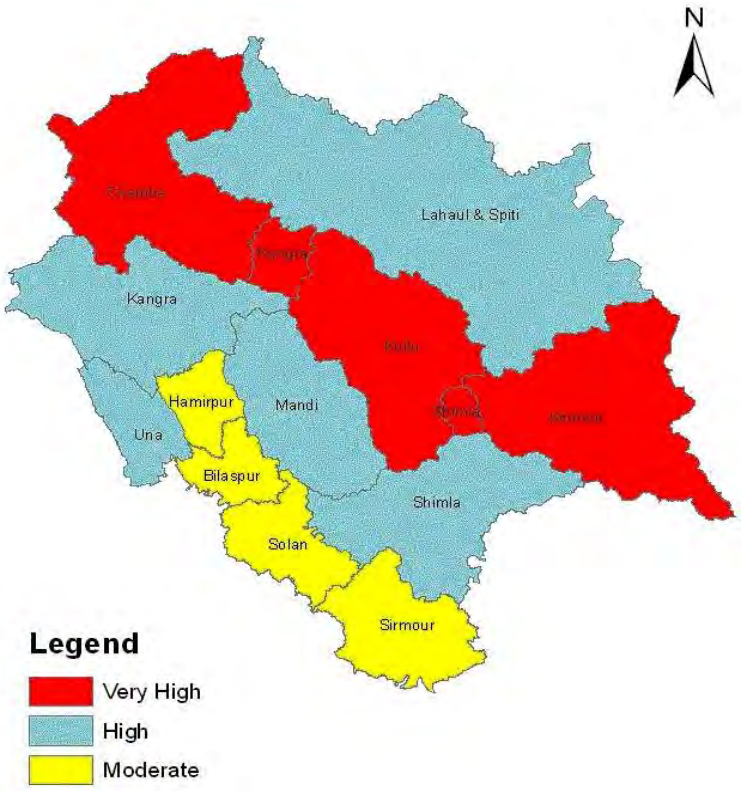


Figure 8-3Overall Vulnerability Map of Himachal Pradesh
Source: HP State Council for Environment Science and Technology

1. **Earthquake:** Entire Kangra district is vulnerable to earthquakes of severe intensity and the Baijnath-Paprola Planning Area falls in Seismic Zone V of earthquake (Refer Figure 8-4Earthquake Hazard Vulnerability map of Himachal Pradesh). In the following map, the epicentre of various earthquakes that had hit the region in the past are shown along with their intensity on Richter scale. The population at the risk of earthquake has also been shown with the buffer along the thrust and fault line. It shows that Baijnath-Paprola Planning Area falls under zone V and has a substantial population that is at risk from earthquake. Majority of the earthquakes that had shaken Kangra district are of the intensity ranging between 6.1 to 8 on the Richter Scale. This plan suggests that all new development should comply strictly with National building code on earthquake resistant building code and Development Control Regulations of Development Plan.

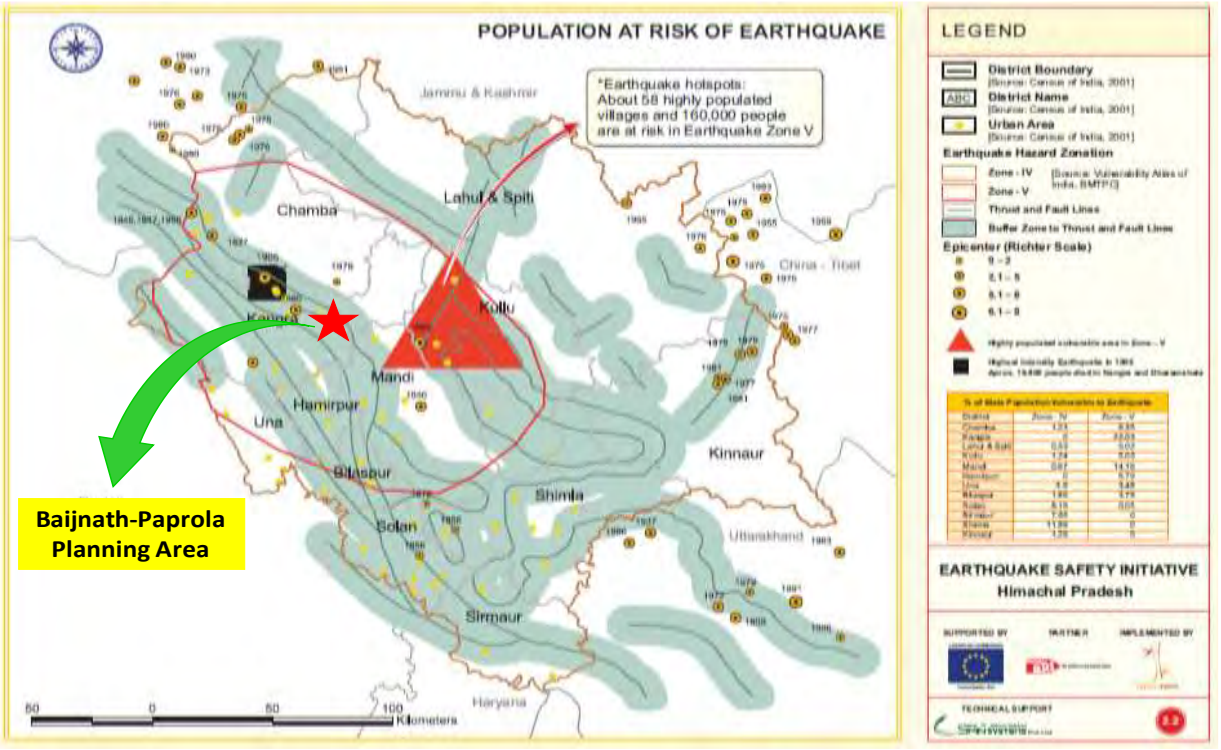


Figure 8-4Earthquake Hazard Vulnerability map of Himachal Pradesh
Source: SEEDS India, Himachal Pradesh Vulnerability Atlas, 2009, European Union and Christian Aid. Available on http://www.hpsdma.nic.in/ResourceList/Maps/VulneabilityAtlasStateHPlow.pdf

2. **Flash Floods:** Baijnath-Paprola Planning Area is rich in water resources i.e. there is Binwa River which is a tributary of Beas River flowing through the centre of the Planning Area dividing Baijnath and Paprola. Apart from this, Neugal, Awa, Binwa, Naker, Gaj and Dehar are few *khads* that are falling under Baijnath-Paprola Planning Area. The *khads and Rivers* are snow fed and perennial in nature. The Northerly flowing tributaries '*çhoes*' are temporary and result in flash floods during monsoon.

   During the night of 29th and 30th July, 2001, a flash flood occurred in Binwa khad and its tributaries that had disrupted the normal life of people by causing extensive damage to life and property in Baijnath.

3. **Stampede:** Himachal is popularly known as '*Devbhoomi*'[26] (Land of the Gods). In Baijnath-Paprola Planning Area, there is a popular ancient temple, namely, Baijnath temple and in the vicinity of the Planning Area, there are places of religious importance i.e. Mahakal temple (5 km), Mukutnath temple (8 km) and Sherab Ling Monastery (8 km).

   Such religious places draw several thousand devotees a day. In hilly regions, the approach roads or stairs are very narrow which sometimes lead the devotees to a vulnerable situation which is commonly known as 'stampede'. Human stampedes often occur during mass gathering events or at the places of mass gathering such as temple sites, resulting in loss of innoscent human lives.

[26]PHD Chamber, 2012, *Tourism in Himachal Pradesh and the way ahead, KPMG Network*, p.6. Available at http://www.kpmg.com/IN/en/IssuesAndInsights/ThoughtLeadership/Tourism-in-himachal-pradesh.pdf

4. **Land Slide Prone area:** The area adjoining the river Binwa bank starting from Binwa Bridge to Kheer Ganaga ghats is vulnerable to natural landslide disaster during raiy season. This area is approximately 27800 Sqm. which is nearly 500 m in length.

   This area shall be considered as non-developable land and no-construction activity should be allowed here. In order to sustain the existing structures adjoining this area, the Development plan recommends to have retaining walls along the sliding and sinking area and to grow vegetation and trees in this area so as to avoid soil erosion.

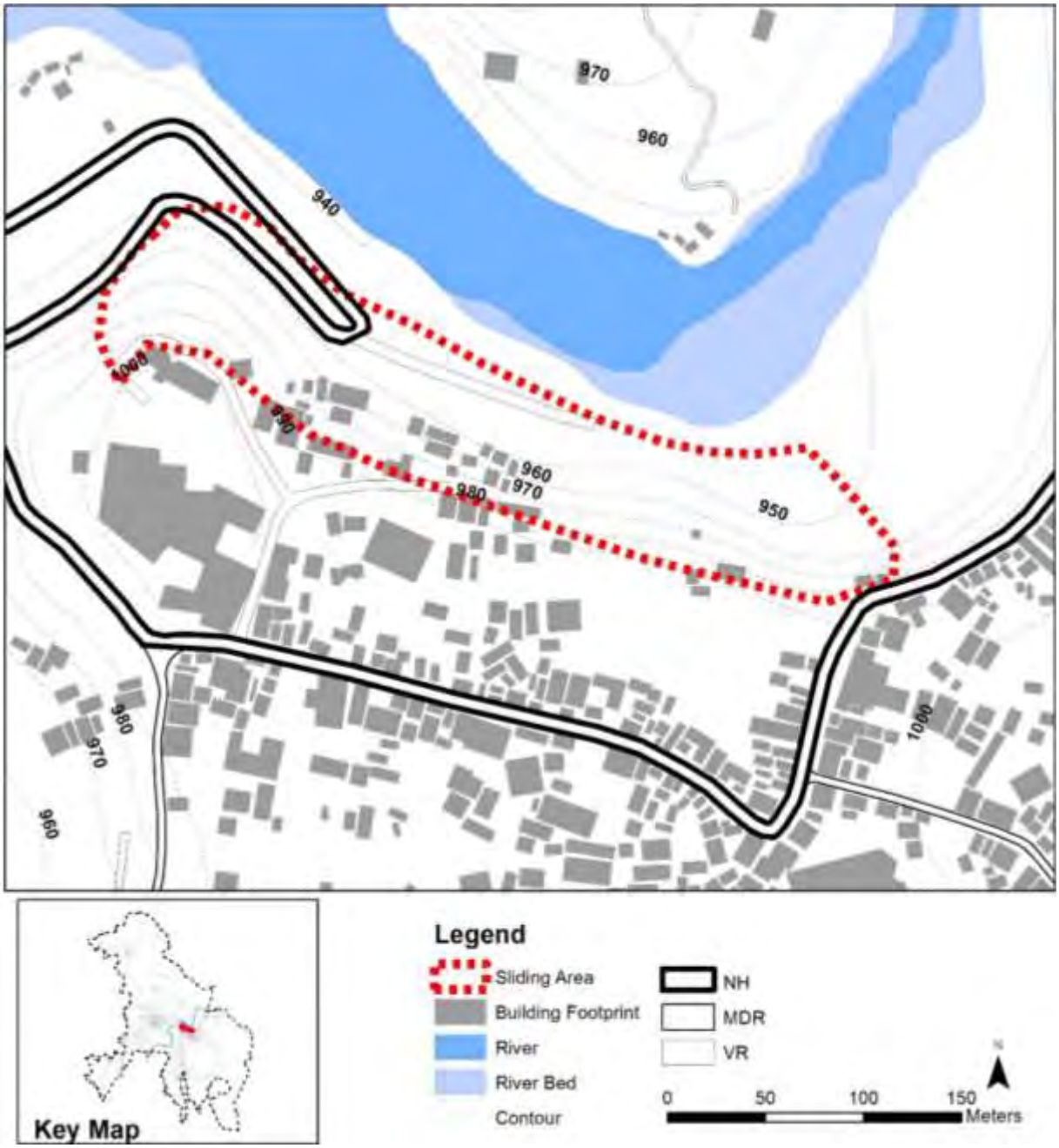


Figure 8-5 Land Slide prone area within the Planning Area
Source: Google Earth imagery and primary consultation

8.6 Disaster Prone Areas in Kangra District

Table 8-3: Showing overall Vulnerability of District Kangra to Various Hazards

Elements at Risk	Degree of Vulnerability to Various Hazards								
	Earth quake	Land slide	Flash floods/ GLOF	Snow avalanche	Drought	Forest Fires	Domestic Fires	Dam Faliure	Road Accidents
Community	Very high	High	Very high	Low	High	High	Very high	High	High
Infrastrutre	Very high	Very high	Very high	Low	Moderate	Moderate	Low	High	Low
Houses	Very high	Very high	High	Low	Low	Low	Very high	High	Nil
Social Sector	Very high	High	Moderate	Low	Moderate	Moderate	Very high	Low	High
Livelihood sector	Very high	High	Moderate	Low	Very high	High	High	High	Low
Environment	Very high	Very high	Very high	Low	Very high	Very high	Very high	Very high	Low

Source: District Disaster Management Plan, Kangra (H. P.) – 2012

From theTable 8-3: Showing overall Vulnerability of District Kangra to Various Hazards,it is evident that the vulnerability of the district to various hazards is high to very high. The district being situated in undulating terrain and earthquake zone 4 and 5, the area is prone to flood, land slide and earthquake.

8.7 Key Issues

8.7.1 Social and GovernanceIssues

- Lack of pre-planning to deal with any disaster at local level
- Require trained people at village and town level
- Unavailability of strong mechanism for Early Warning System
- Participation of local NGOs/SHGs and other local bodies
- Unplanned development and no integration of planning processes and programmes
- Lack of holistic approach for planning in pre-disaster period
- Lack of clarity of roles of various Govt. departments and stakeholders

8.7.2 Physical Issues

- Lack of earthquake resistance buildings
- Presence of dilapidated buildings in populated areas
- Congested pedestrian pathways/ areas and road
- Community Facility Buildings e.g. hospital, school, community centres etc are not planned to handle any emergency/ disaster Communication – land and mobile based communication only
- The district control room is not equipped and no trained manpower to handle it

8.7.3 Financial Issues

- Lack of fund at district level

- No efforts have been taken to transfer the risk by way of insurance etc
- Unavailability of insurance foragriculture procedure and losses

8.8 Measures for Disaster Management

The adverse effects of disasters can be minimized if mitigation policies, plans, and projects are undertaken. The following measures would help in dealing with disasters in the district:[27]

- Preparation of Disaster Management Plans at District and Local Level
- Implementing of Disaster Management Plans
- Holding regular meetings at District and Sub-Division level to reviewing the readiness of the administrative machinery to deal with disasters
- Constitution of Relief Committees at all levels
- Regular training programmes of Government functionaries, PRIs, ULBs and other stakeholders in various facets of disaster management
- Public awareness and education in disaster management
- Community training and empowerment
- Taking preventive and mitigation measures for the identified hazards
- Integration of Disaster Risk Reduction (DRR) into on-going development programmes of all departments
- Establishing effective early warning system for the vulnerable areas and communities
- Improving the response capacities of the search and rescue teams
- Conducting regular mock drills

27 District Disaster Management Plan, Kangra (H. P.) – 2012, Prepared by: -
District Disaster Management Authority (DDMA) Kangra under The Government of India - UNDP
Disaster Risk Reduction (DRR) Programme
(2009-12)

9 HERITAGE AND TOURISM

9.1 Introduction

1. **Cultural Hertiage:** Baijnath-Paprola Planning Area has the following tangible heritage structures:

a) Baijnath and Sidhnath temples are the heritage structures as per Archaeological Survey of India

2. **Natural Heritage:** There are no defined or marked natural heritages in and around the Planning area but few beautiful landscapes that need the focus in terms of its promotion and conservation:[28]

a) The Bir-Biling Paragliding site, situated at a distance of 15-20 km from Baijnath Paprola Planning Area with picturesque green hills and valleys which attracts tourists from around the globe.

b) The River Binwa flows through the Planning area and creates a picturesque valley inside the Planning Area. A number of home stays have been set up on the banks of the river. Baijnath Temple is situated on the left bank of the Binwa River.

9.2 Conservation of Heritage Structures

The Archaeological Survey of India (ASI) is in charge of protection and maintenance of Baijnath and Sidhnath temple complexes in the Planning Area.

9.3 Tourist Destinations in and around the Planning Area

The town offers splendid views of the Dhauladhar Ranges and numerous mountain streams.The Places of Interest in and around the Baijnath Planning area are as follows-

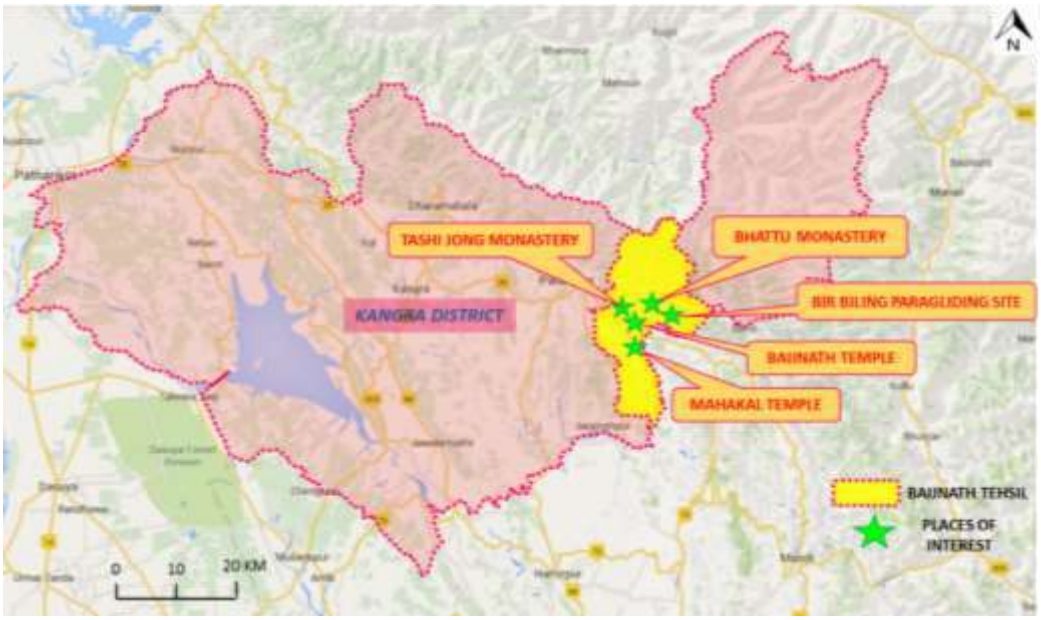


Figure 9-1Places of Interest in and around Baijnath Town

[28] *interaction with the Stakeholders*

Source: Google Earth Image and Primary Consultation

Baijnath Temple

Figure 9 3 Sidhnath Temple
Source: Field Survey

Figure 9-2Baijnath Temple
Source: Filed Survey

Baijnath town has derived its name from famous Baijnath Temple. The temple re-built during the 13th Century has a large number of images of great beauty and iconographic importance. The temple is heavily ornamented with floral and geometrical designs along with the images of various gods and goddesses, including a unique composite of Lord Vishnu and Goddess Lakshmi. Lord Shiva's vahan Nandi rests outside the temple on the compound, sculpted out of just one piece of stone. The temple attracts tourists from different parts of India and overseas. The temple has a great historical value due to which more than lakhs of devotees gather every year on the day of Shiv Ratri in the town for giving their offerings to lord Shiva. Large/big fair is organised during the shiv Ratri days for seven days which generates substantial employment opportunities for the local people. Throughout the year the temple receives large number of pilgrims.

Sidhnath Temple

The temple is also situated in Baijnath. The monument is of national importance according to ASI. The temple is located in a very dense commercial zone along the edge of NH-154.

Mahakal Temple

Mahakal temple of Himachal Pradesh is one of the famous Shiv temples in India which is located at Mahakal Town at a distance of 7km from Baijnath Town.

Tashi Jong Monastery

Tashi Jong is famous for its rich history among the Buddhists, located at a distance of 4km from Baijnath Town. It is located adjacent to the Planning Area boundary neighbouring Beth Jhikli village in Dhauladhar range. It provides education courses on different Buddhistphilosophies. There are approximately three hundred people and one hundred monks living together in the Tashi Jong community a

Figure 9-3Tashi Jong Monastery
Source: Field Surevy

"Little Island of Tibetan Culture" surrounded by its Indian neighbours. It houses village level micro scale units of clothing and food items made by the monks and local village people.

Sherab Ling Monastery

SherabLing Monastery situated in the foothills of Kangra Valley is Palpung SherabLing Monastery the seat of the XIIth Kenting Tai Stupa in India. The monastery is located in Bhattu, near Bir village which is 7km away from Baijnath town. The monastery is also known as Bhattu Monastery. It offers periodic courses on Buddhist Meditation and Philosophy. The monastery has shrine halls with a very beautiful Buddhist shrine which attracts pilgrims from around the globe, a monastic college, a school, a library, a museum, an exhibition hall and a dispensary, and all these are nestled deep inside the pine forest. The inner hall is beautifully decorated in golden hue. The monastery was the venue of inauguration ceremony of Paragliding world cup in 2015 which brought it on the international tourist map.

Figure 9-4 Sherab Ling Monastery
Source: Field Survey

Bir Biling

Known as the 'Paragliding Capital of India', the towns of Bir and Billing are extremely popular places for adventure sports and other attractions. Bir is the take-off site while Billing is the landing spot. Bir is situated 15 km uphill of Baijnath town. Bir is famous for its Tibetan colony and various Buddhist monasteries. The Tibetan colony is one of the earliest Tibetan refugee settlements in India and was established in 1962. The Deer Park Institute is a famous centre for the study of classical Indian wisdom traditions which was established by Dzongsar Khyentse Rinpoche.[29]

Figure 9-5 Bir Biling Paragliding Site
Source: Field Survey

9.4 Tourism

Baijnath is located at a trategic location in between two tourist circuits marked by Himachal Pradesh Tourism Department viz., the Dhauladhar circuit and Beas circuit.

[29] *Source: http://travel.india.com/kangra/places-to-visit/adventure-bir-billing/*

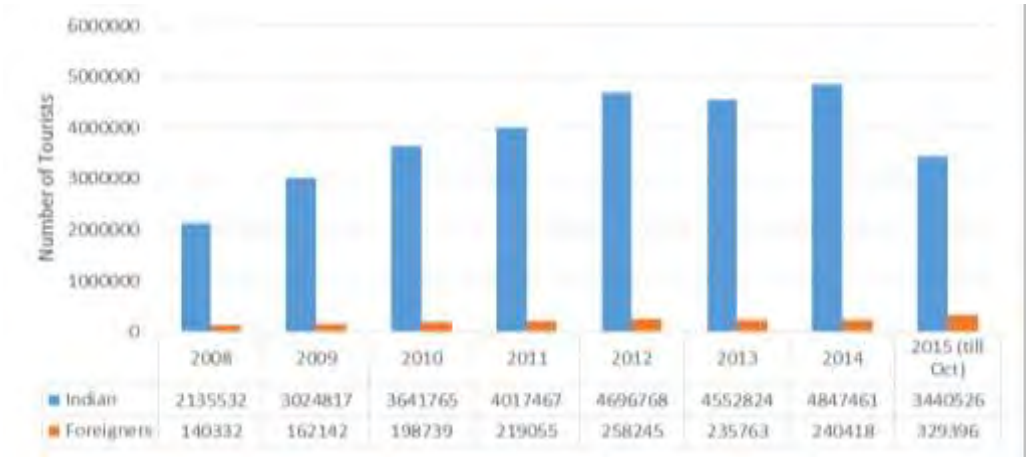


Figure 9-6Tourist Arrivals, Kangra District
Source: Tourism Office, Dharamshala, Kangra

The touris statistics for the planning area is not available readily, hence the data at the district level is used. Kangra district receives a significant percentage of foreign and national tourists every year. The above graph shows that national and domestic tourist arrivals in the district have increased from 22,75,864 in 2008 to 50,87,879 in 2014. Kangra district receives almost 28 % and 44 % of the total Indian and foreign tourists arriving in Himachal Pradesh.

Baijnath area receives almost 40-45 % of the total tourists of Kangra district. Out of the total tourist arrival in Baijnath, 75% to 80% tourists are mainly the through tourists and other 20 % stay in town for half days or one day. The average duration of stay is one day in this town.

Tourists prefer to stay in Baijnath during the Shiv Ratri festival only which is celebrated in the town for five days[30]. Rest of the year Baijnath receives the through tourist traffic going to Mandi or Manali.[31]

The key tourism activity is the pilgrimage tourist attributed by the Shiv Temple which attracts a vast number of pilgrims every year during the Shiv Ratri Festival. Other places such as Mahakal Temple and Tashi Jong monastery also attract few pilgrim tourists.

9.5 Tourism Infrastructure

9.5.1 Hotel and Lodges

Baijnath is a town with limited number of hotels and lodges. There are few hotels in the town which offer general accommodation to the pilgrims. There is no star category hotels in the Planning area. A PWD Rest House is located near the temple which provides accommodation in a very reasonable and economical rate. There are few homestays in Baijnath which offer fair to good accommodation within the planning area in reasonable price.[32]

Table 9-1Existing Tourist Infrastructure in Baijnath and Bir

Sl. No.	Accommodation	Baijnath-Paprola Planning Area
1	No. of hotels	7
2	Rest houses	1

[30] *Source: http://www.baijnathtemple.com/fairs.html*
[31] *Source: Official Records, Tourism Department Office, Dharamshala, 2016*
[32] *Source: Himachal Pradesh Tourism Department and Field Visit*

3	Number of homestays	3
4	Restaurants	5

Source: Field Survey

There are few budget hotels within a radius of 500 m from the main Shiv Temple in Baijnath. There are two homestays located near the Petrol Pump in Baijnath and one at Kothi village.

At regional level, good number of the star category hotels and homestays are available at Palampur town and Bir village.

9.5.2 Issues and Concerns

The following issues and concerns need the focus from the concerned authorities:

1. The heritage structures are not promoted appropriately, hence, the tourist footfall is very less in Baijnath
2. Out of the total tourists, mostly (60 %) are through tourists
3. No designated parking area is available for tourist vehicle. The parking near the temple is used by the local taxi owners. It has become a taxi stand than a vehicle parking stand
4. Parking demand increases manifolds during Mahashivratri festival and Mela period (fair)
5. The 52 and 62 seat tourist buses face problems to turn inside the town due to the low turning radius of the main road inside the town
6. Fair to Good and reasonable accommodations are available either at Palampur, 18 km away from Baijnath town or at Bir Biling villages which is about 12-13 km far
7. The planning area is not properly maintained and promoted on the existing Dhauladhar Tourist Circuit
8. Tourism industry of the planning area suffers from seasonality factor
9. Inadequate tourist infrastructure

In spite of the excellent facilities available to the tourists the number of foreign visitors to Himachal state is almost negligible compared to domestic tourists.[33] The major reason for this is inadequate marketing. It is the same case in Baijnath-Paprola town which receives a dismal number of foreign tourists. One of the main reasons for this poor performance is lack of effective marketing strategy.

9.5.3 Tourist Forecast

Tourist traffic follows a seasonal trend in Baijnath-Paprola.Kangra districtregistered 34,40,526 domestic tourists and 3,29,396 foreign tourists during the year 2015.

The estimation of future tourist arrivals is mainly based upon an analysis of the past trends in tourist arrivals (both domestic and foreign).

Table 9-2 Projections for Tourist Traffic – 2011 to 2021

Kangra District	Indian	Foreign	Total
CAGR (2011)	3%	8%	-
2011	12,93,893	96,439	13,90,332
CAGR (2021)	2%	5%	-
2021	30,25,118	2,94,506	33,19,624

[33] *Source: Article on Tourism Promotion in Himachal Pradesh: An Opinion Survey of Foreign Tourists, Sushma Rewal Chugh, Associate Professor, M.T.A. Dept., H.P.University, Shimla.*

Source: Final report on 20-Year Perspective Plan for Sustainable Tourism Development in Himachal Pradesh Part I March 2003, Department of Tourism Market Research Division, Ministry of Tourism and Culture Government of India.

The CAGR for the period 2011 to 2021 for Domestic and Foreign tourists are 2 % and 5 % respectively. There is an expectation of an approximate drop of 50 % of tourist traffic because of the saturation on infrastructure in the main locations, and even in some secondary locations.

Considering average CAGR for the period 2016 to 2035 for Domestic and Foreign tourists 5 % and 9 % respectively in Kangra district, the tourist influx has been explained in the following graphs.

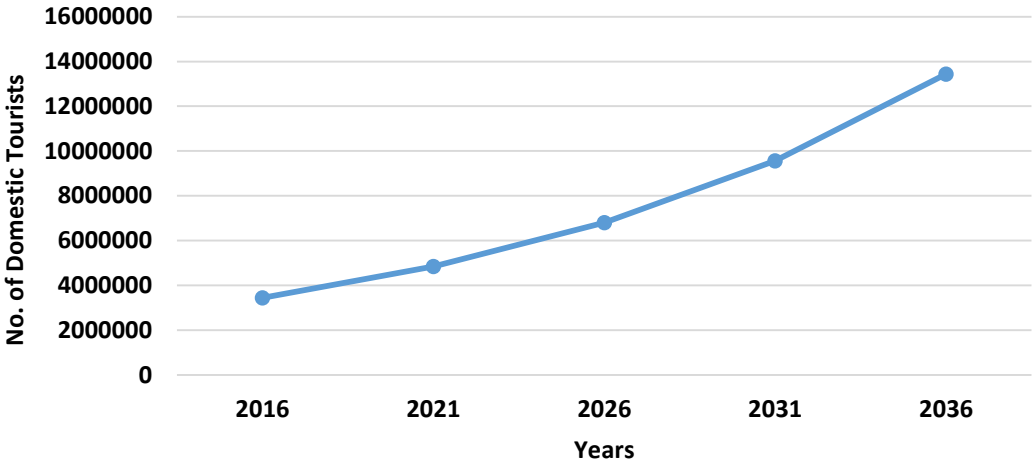


Figure 9-7 Projections for Domestic Tourist Traffic for Kangra District – 2015 to 2035
Source: Estimation based on the trend database

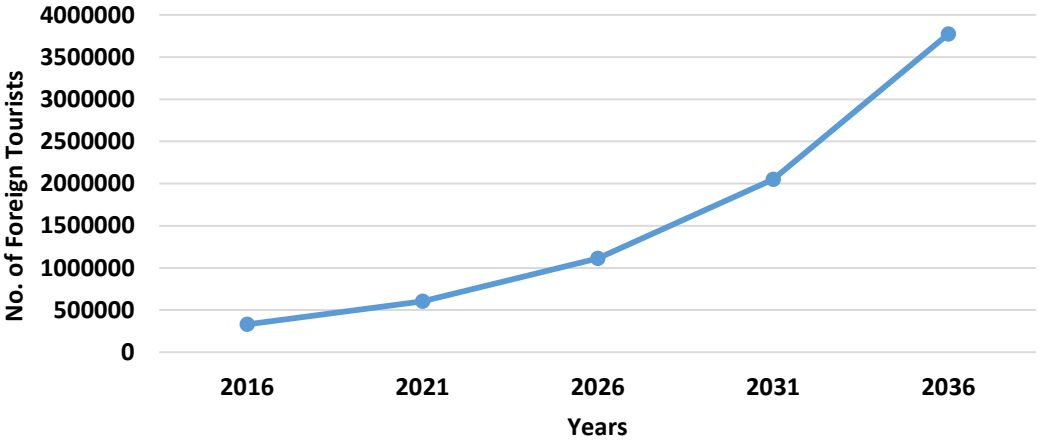


Figure 9-8 Projections for Foreign Tourist Traffic for Kangra District – 2015 to 2035
Source: Estimation based on the trend database

Among the total number of tourist visit to Kangra district for the period 2015 to 2035, it is envisaged about 30 % of the tourists will visit Baijnath Paprola planning area.

9.5.4 Tourist Accommodation

Based on the future tourist forecast, the future capacity requirement in accommodation has been worked out for Kangra district. The existing demand supply gaps and future peak time capacity requirements for accommodation for Kangra district for the state has been worked out.

Bed requirements during peak season considering duration of stay and desirableoccupancy rate have been worked out on the following assumptions as given by hotel interviews-

- Average stay of foreign tourist and domestic tourist centers as 3 nightsand 2 nights per district respectively.
- Domestic peak season lasts for 90 days.

Thus by the year 2035 an additional capacity of 1,48,696 beds needs to be created in Kangra district. Among the total number of beds required for Kangra district for the period 2015 to 2035, out of which about 30 % of the beds is required for the Planning Area.

9.5.5 Recommendations and Strategies

Given that such large amount of additional capacity needs to be added in ashort period, in addition to the standard forms of accommodation facilities (hotels and paying guests), accommodation in the form of camping sites could be developed as they are relatively easier to set up and would also be a more economical alternative.[34]

People undertake travel and tourism activity to have a change from the day-to-day monotonous routine so that they can rejuvenate themselves. The tourist has to select a destination, which can be any place in the world. Here comes the role of marketing of tourism.

(A) The Strategic Action Plan will cover the following areas-

- Marketing and Branding of tourism
- Development of new circuits/destinations
- Creation of new tourism products
- Employ trained personnel in hospitality and tourism
- Tourism to be considered as a means for area development
- Creation of tourism relevant infrastructure
- Exploring opportunities to increase Tourism Revenues
- Make the programs which act as catalyst in investments by private sector
- Propounding projects and programs at the national level

(B) The recommendations for tourism development in the planning area are as follows:

- Identification of tourist destinations and preparation of Tourism Master Plan and Mobility Planfor the planning area
- The tourism department in co-ordination with the private sector should develop these circuits towards making tourism an important economic sector
- Promote responsible tourism that will be welcomed as both preferred employer and community industry
- Use Tourism as a means of providing new employment opportunities in rural, tribal and remote areas of the planning area
- Increase private sector participation in tourism, both as means of generating employment and providing new infrastructure
- During mela period the demand for basic physical infrastructure increases for which the plan

[34]*Source: Final report on 20-Year Perspective Plan for Sustainable Tourism Development in Himachal Pradesh Part I March 2003, Department of Tourism Market Research Division, Ministry of Tourism and Culture Government of India.*

recommends to have mobile toilets and additional water supply system in the mela ground. These toilets should be connected to septic tanks that are suggested to be constructed within the mela ground

- ASI norms to be followed for Baijnath and Sidhnath temples
- Eco-tourism though a relatively new concept can be developed around the tea gardens and factory in Ustehar. Tea garden shall be promoted and activities like tea tasting, visit to tea factory, tea plucking and processing can be encouraged.
- Camping sites to be developed along with viewing decks in the Planning Area, one towards the north at Bheth Jhikli and the other at Dhar Baggi.

Figure 9-9 Camping Site

Figure 9-10Viewing Deck

- A botanical garden and recreational complex including zoo is also proposed adjoin the forest areas near Tashi Jong Monastery to promote the recreational tourism.
- Nature's trail is proposed to be developed connecting the camping sites, viewing decks, zoological park, monastery area, temple complex etc.

Efforts are needed to step up measures to promote adventure tourism more aggressively, so as to tap its potential to the maximum.

- Devote special attention to the promotion of religious tourism. Development of Hindu Temple Destinations - Jwalamukhi - Brajeshwari - Chintpurni - Naina Devi -BaijnathTemple - Manimahesh-Chaurasi Temples and Buddhist Circuits. These destinationsneed to be created, branded and promoted.

(C) Identified tourist destinations in and around the planning area are-

- **Destinations within Proximity(10-15km Radius)**

1. Baijnath Shiv Temple
2. Mahakaal Temple
3. Sidhnath Temple
4. Mukut Nath Temple
5. Khir Ganga Ghats
6. Bir-Billing
7. Tashi Jong Monastery
8. Sherab Ling Monastery

9. Shobha Singh Art Gallery
10. Mahavatar Baba Ji Meditation Centre
11. Binwa Hydro-Electric Project
12. Baijnath Tea Garden

➢ **Regional Destinations (within 100 km radius)**

1. Kangra Fort
2. Billing Paragliding
3. Masroor Rock Cut Temple
4. Brajeshwari Devi Temple
5. Jawali Ji Temple
6. Baglamukhi Temple
7. Bhagshunath Temple
8. Kareri Lake
9. Kangra Art Museum
10. Tibet Museum
11. Mcleodganj - Dharamsala
12. Taragarh Palace
13. Maharana Pratap Sagar
14. Dhauladhar National Park
15. Indrahar Pass
16. Tatwani Hot Spring
17. Chamunda Devi Temple of Devi
18. Kaleshwar Mahadev Temple
19. Hanumanji Ka Tiba
20. Judge's Court, Pragpur

- Undertake industry training and man-power development to achieve excellence in quality of services.
- Collaborate with government in the promotion and marketing of destinations.
- Promotion and development of handicrafts and setting up of infrastructure to promote handicraft at various tourist destinations.
- There is an increasing demand for Health tourism products in the market. Developing Health tourism may be a worthwhile endeavor as it helps diversify tourism product. As a part of promoting this concept Health tourism can be promoted in various forms, they include-

1. Ayurvedic and Tibetan Health Clinics
2. Health Spas
3. Yoga and Medication Centres

Development of tourism in the Planning Area can be achieved by further enhancing the existing Tourist Circuits and by creating /developing new circuits along with promotion of lesser-known places in the Planning Area.

10 SWOT ANALYSIS

10.1 SWOT Analysis

Strength	Weakness
• **Location and Connectivity:** Baijnath - Paprola Planning Area is located at a strategic location along the National Highway 154 which connects Kangra-Dharamshala-Palampur-Paprola-Baijnath-Jogindernagar-Mandi. Public transport system, bus connectivity is good. HRTC buses and private buses run from Baijnath to all the major towns and places of Himachal and to Delhi as well. • **Infrastructure:** Baijnath - Paprola Planning Area along with its surrounding towns and villages is self-sustainable in terms of both physical and social infrastructures for local people. • **Economy:** In terms of GDDP distribution, Kangra district has high share compared to other districts of Himachal Pradesh. The main priority and growing sector in the Planning Area is tertiary sector, which has generated maximum district domestic product in the last decade, and more than 50% of the people are engaged in different types of service sector related activities. • **Hydro Power Project:** Binwa Hydro power project with an installed capacity of 6MW comprising 3 units each, is located near Baijnath Planning Area. The project is situated at 25 km from Palampur and 14 km from Baijnath. • **Tourism:** The 13th-century Baijnath temple dedicated to Lord Shiva, at Baijnath - Paprola is a famous destination.Apart from that there are some other tourist destinations in and around the planning area. These places are located within 15km from Baijnath town. • Existing Rajiv Gandhi Govt. Post Graduate Ayurvedic College at Paprolahas beendeveloped as a Centre of Par	• 48% of the Planning Area is comprised of Undevelopable Land like Protected Forest, steep slopes, river/khad buffers etc, restricting future development. • **Tourism:** The place is not properly mentioned and promoted on the existing Dhauladhar and Beas Tourist Circuits. • The Baijnath temple lacks basic amenities like parking area, toilets and other tourist facilities. • The tourist infrastructure facilities are poor in Baijnath - Paprola as well as the surrounding areas. • Inadequacy of transport facilities, marketing and information channels, including through electrnic and digital media. • Existing Ribbon development along NH-154 causing haphazard and unplanned growth of infrastructure which is a threat to the environment. • Insufficient health related and safety related facilities for tourists.

Excellence in the country attracting students at regional level, thus popularizing Ayurvedic System and facilitating quality education, research and higher studies in the Ayurvedic Medicine in the planning area. • Tertiary Sector has good potential to further boost up because of tourism activities. • Adventure sites are complemented with other cultural resources, support activities.	
Opportunity	**Threats**
• There is an opportunity for developing a tourist circuit connecting Baijnath – Paprola, Kangra, Palampur, Mcleodganj – Dharamsala, interiors of the Dhauladhar and halting place at Baijnath, for tourists' enroute to Kullu Valley. • Development of Hindu Temple Circuit- Jawalamukhi -Brajeshwari - Chintpurni - Naina Devi, Baijnath - Manimahesh - Chaurasi temples and Buddhist Circuits. • Given the climate and topography, potential for Adventure Sports in Bir-Biling, Leisure tourism, Eco-tourism and Cultural tourism can be harnessed with improvements in infrastructure in the Planning Area. • The Planning Area comprises of 66% Agriculture land. This gives the opportunity to develop Agro Processing Industries at Kasba Paprola. • Agro based Cottage Industries can come up at household level to promote the local economy and boost employment opportunities for different types of workers in the surrounding rural areas. This will support the ayurvedic college and medicine productions. • Based on its strategic location and connectivity, the Planning Area has a huge potential to be developed as a Tourism Hub with immense economic opportunities	• Kangra district is a seismically-prone area. Baijnath-Paprola Planning Area falls under seismic zone V, which has very high risk. • Flash Floods. • Un-authorised mining. • Landslides.

11 DEVELOPMENT PROPOSALS

11.1 Land Suitability Analysis

The development plan for Baijnath-Paprola Planning Area has been proposed on the basis of Land Suitability analysis. The following indicatros have been selected for land suitability analysis:

- Steep Slope greater than 30^0
- Elevation and Contours
- Forest Areas
- Existing Landuse
- River and Stream Buffers (10 m buffer at both banks)
- Availablity of Government Land

The study attempts to introduce decision support system used for site suitability analysis. Geographic Information System (GIS) has been applied to select suitable sites for proposed development. For this purpose, various thematic layers such as Slope, Elevation, Drainage Catchment, Land Use/Land Cover (LU/LC), Population Density and Geomorphology maps have been generated in ArcGIS. Highly suitable areas for urban development is either agricultural and open forest type and the low suitable areas is mostly areas having slope greater than 30^0, river and stream buffers and existing residential areas. Total government land available in the Planning Area is 292 ha. Out of this 180.65 ha. fall under open forest and 61.21 ha. fall under steep slope greater than 30^0 leaving only 50.14 ha. as developable.

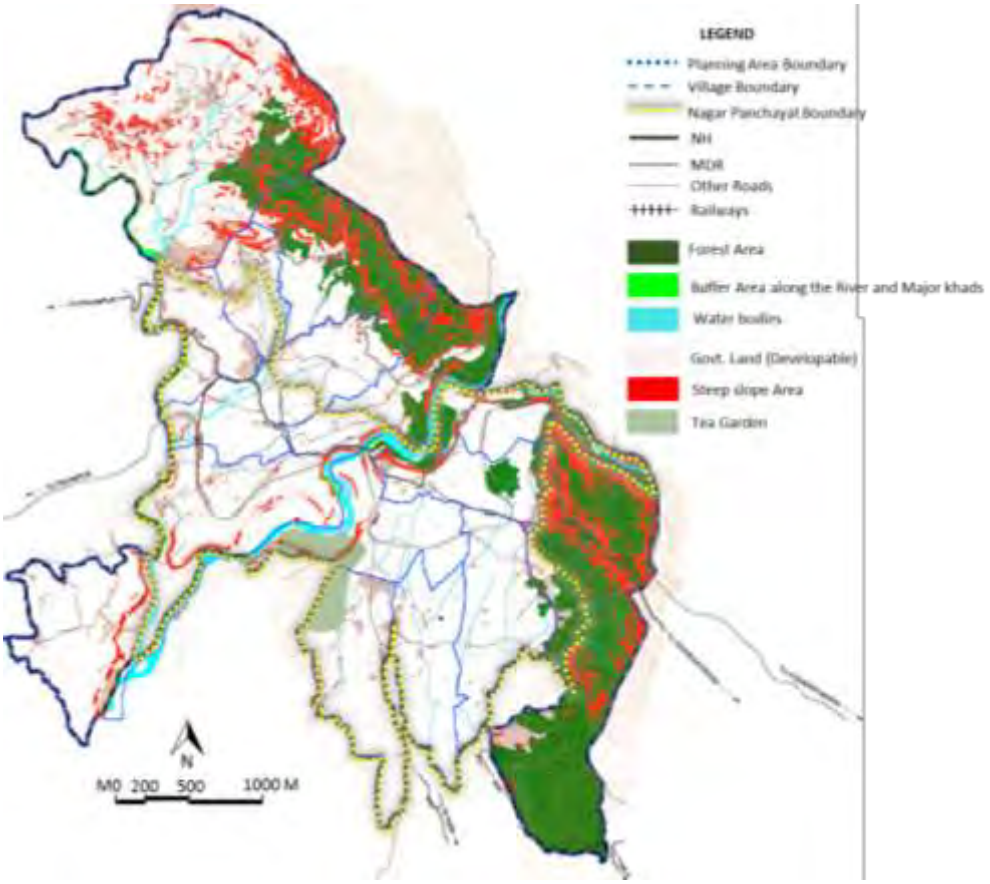


Figure 11-1 Development Limitations in Baijnath-Paprola Planning Area

Source: Analysis based on the Satellite Imagery

11.2 Development Proposals

Sector based development methodology has been followed in the Planning Area for the purpose of preparing the proposed land use. Baijnath town area has been kept as the old city area. The other sectors are Residential, Commercial, Industrial, Public Semi-Public and Recreational. The projected population for the Planning Area for the vision year 2035 is 28,553. The population density considered is 75 pph. The Development Plan focuses on accommodating an approximate additional population of 8600 people in the Planning Area.

After working out the total requirement of area under different uses, the proposals have been drafted with due consideration to various limitations like paucity of funds for acquisition of land in public sector, private ownership of land and rights of people to develop according to their requirements etc. A part of Demarcated Protected Forest, Un-Demarcated Protected Forest, Un-classed Forest area, steep slopes and areas occupied by the river, nallahs and streams have been kept unaltered.

The Development Plan contemplates allocation of land for different uses to meet requirements for the next 20 years, i.e., up to the year 2035. Various land uses have been proposed keeping in view availability of developable land in each sector, holding capacity in terms of population and other activities, existing land use of the area, development potentials, conformity of land use to its surrounding areas, threshold population for facilities, locational attributes of facilities and services, site characteristics, convenient distance of work areas from residential areas, land values, etc. Further detailing of proposals will have to be done in accordance with prescribed zoning and sub-divisions regulations by the local bodies in primarily built up areas.

Uses pertaining to various economic activities alike trade, commerce, tourism, agro industries and income generating amenities have not adequate sustainability, if they are segregated and provided separately in patches. Similarly, facilities and services alike schools of lower order, nursing homes, banks, telephone exchange and other financial institutions can be well run on the first or second floors of pre-dominant economic activities' areas. On the contrary though Government and Semi-Government Offices, Postal Facilities, Police Service etc. are essentially needed by the town and sectors, they do not find any viable placing on the ground and thus have answer for their establishments on the subsequent floors of the buildings meant for economic activities. The Development Plan, therefore, addresses the central and local activities for town level and sectoral pursuits respectively. The related requirements thereof including parking, parks, open spaces and circulation network are to be detailed out in view of the local setting in accordance with the prescribed zoning regulations. Following are the proposals for development of Baijnath-Paprola Planning Area.

1. Special Area Around Baijnath and Siddhnath Temple

The temples of Baijnath and Siddhnath are structures of national as well as regional importance. They get high footfall during festivals and attract tourists, which is one of the major source of economy of the town. These temples are also mentioned in the list of protected monuments as Grade - I by Archaeological Survey of India. Accordingly, as per the law Ancient Monuments Preservation Act, the three zones around any heritage monument of national importance i.e. prohibited (demarcated heritage property), restricted (100 m from monument) and regulated (300 m from monument) must be demarcated.

An integrated heritage management plan for the Baijnath and Sidhhnath temple is in need which will suggests detailed proposals and regulations addressing movement, activities and buildings with in the impact region of the temple of national importance, still the regulations and proposals to be followed with in the region of the temple's restricted and regulated area are mentioned accordingly.

- To improve connectivity along with facilitating and encouraging the pedestrian movement in and around the temple area, a pedestrian bridge connecting the paprola railway station to the river bed downhill of Baijnath temple on the opposite side is proposed. This bride will help mitigate congestion issues during peak festivals decreasing the possibilities of casualties and stampede.
- The river bed area below temple cliff is proposed as open cultural activity area/ mela ground with Ghats etc.
- Within the demarcated region around temples of national importance activities, built use and landuse must be regulated depending upon the primary religious tourism character of the place. Native and old residential, if any needs to identified and restored, activities generating heavy vehicular traffic must be moved out, a low rise tourist centric economies must be promoted.

2. Strengthening Agro based Informal Sectors

Baijnath region has a long cultural lineage for agriculture, sericulture, floriculture and medicinal plantation. Presence of several Ayurvedic institutes and research centers in the region responds to this local potential. To further explore the possibilities in order to generate revenue for locals, a structure to promote this agriculture of specific type is proposed. Both the sides of Biswa river crossing Baijnath – paprola planning g boundary is retained and further restricted for special agriculture where the land use cannot be changed. A government based storing, packaging, loading and unloading centre is also proposed in koti village towards south west of village and a road connecting this area starting from the Ayurvedic institute towards truck terminal/ wholesale market/ tourism centre/ shopping area (multi-functional district) and further connecting NH-154 outside the town. This newly proposed road adjacent to railway line has mixed use belt to promote residential based small and medium scale agro based industries. The overall proposal will certainly strengthen the local economy.

3. Decongestion of Core Town

The NH - 154 crossing through Baijnath and Paprola Planning Area boundary is the primary connectivity of the town with surrounding areas. As Baijnath and Paprola lies on comparatively flatter terrain, still major linear/ribbon development along the road sides can be seen in the towns. These roads get more congested during annual and regional festivals. A restructuring of road network system is proposed to further improve the movement and liveability of the town.
First proposed road connects Ayurvedic institute to NH - 154 along the railway line.
Second proposed road acts as a bypass to the town, most importantly used during festivals to control high footfall in the town. This bypass also limits the town growth by retaining agriculture and fertile land further to towards the north of town. Also, the road is strategically planned after the proposed truck terminal to avoid heavy vehicle congestion with in the town.

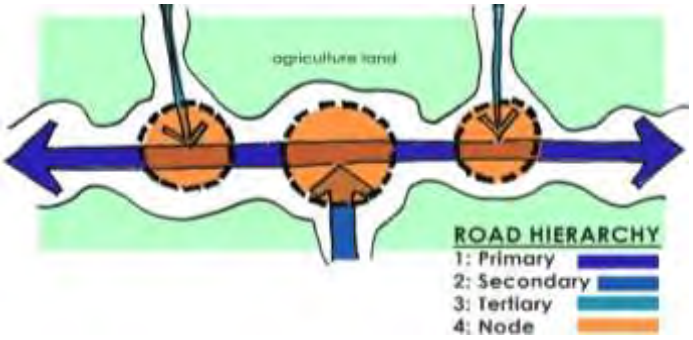
4. Ribbon development along the roads, especially on the fringes

Ribbon development especially in hilly regions is a very common phenomenon. It is considered as haphazard in nature and grows incrementally adjacent to major roads radiating outside the city core/centre. If kept unplanned it is certain to put additional pressure over the infrastructure and generate numerous conflict zones. To convert this "ribbon development" in to an asset a detailed

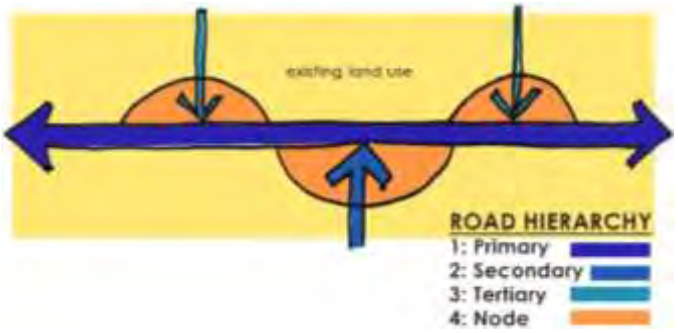
area based planning is in need. Although, the generic development regulations catering to this type of development are as follows:

i. **Polycentric nodes and their hierarchy**
   Development needs to be considered curbing the haphazard ribbon development on the road edges along National highway.
ii. **Access**
   At 500 m and 300 m offset
iii. **Existing land use along the belt**
   (Based on the mentioned case references.)
iv. **Buffer zone/ green belt**
   (Based on the mentioned case references)
v. **Service road**
   (Based on the mentioned case references)

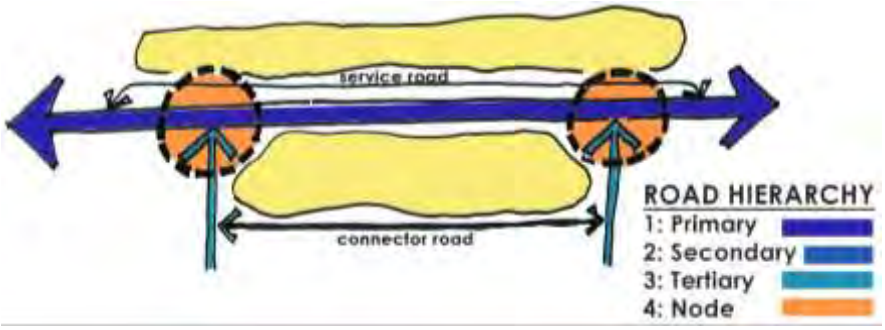
Case 1:



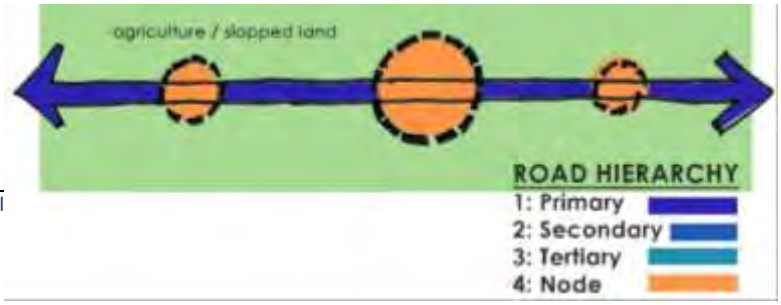
Case 2:



Case 3:



Case 4:



The identified stretches (3 no's) in Baijnath-Paprola

radiating outside the city core with in the planning boundary are as follows:

Stretch 1: NH - 154 from Paprola railway station towards Paprola municipal boundary in North-West of town has scattered edge development on both sides. The development is majorly mixed use and residential with patches of agriculture transforming frequently. A special consideration for curbing ribbon development is required in the stretch after proposed bypass road junctionon NH - 154 leading towards Palampur.

Stretch 2: NH - 154 which connects Baijnath to Bir - Billing and Jogindarnagar towards South-East has sparse edge development and is under continuous transformation.

Stretch 3: State Highway which connects Baijnath to Neri has a regional character and needs to be retained for nodal development. This major city road is on a flatter and wider terrain and caters one of the most important institutions and public functions of the town.

12 LANDUSE PLAN

12.1 Landuse Classification

The land use plan for Baijnath Paprola Planning Area has been prepared on the contoured Base Map provided by AGISAC (Aryabhatta Geo Informatics Space Application Centre), Department of Environment, Science and Technology, Shimla. The Base Map has been prepared on World View-2 satellite image having 0.45 m resolution. After interpretation of land utilisation or land cover from the satellite imagery, a predominant land use survey was conducted to identify the various land uses within the settlement area. The 100 % door-to-door survey conducted by the Town and Country Planning Department was utilised to verify the existing land uses.

As the Planning Area comprises of urban as well as rural areas, the land use classification adopted is composite of urban and regional land uses. Two level classification is adopted as presented in Table 12-1.

Table 12-1: Land use Classification

Sl. No.	Landuse Classification	Land Use Sub-Classification	Code
1	**Residential Use: R**	1. Existing	R-1
		2. Proposed	R-2
2	**Commercial Use: C**	1. Retail Shopping Zone and Service Sector: C1	C-1
		2. Hospitality: C2 Hotels/Lodges	C-2
		3. Wholesale, Go-downs, Warehousing/ Regulated markets: C3	C-3
3	**Mixed Use: M**	1. Residential and Commercial	M-1
		2. Residential and Household Industries	M-2
4	**Industrial Use: I**	-	I
5	**Public/Semi-Public Use: PS**	1. Govt./ Semi Govt. / Public Offices: PS 1	PS-1
		2. Educational and Institutional: PS 2	PS-2
		3. Medical and Health: PS 3	PS-3
		4. Heritage and Socio-Cultural: PS 4	PS-4
		5. Public Amenities/Utilities and Services PS 5	PS-5
		6. Govt Land (Undetermined)	PS-6
6	**Recreational Use: P**	1. Playgrounds/ Stadium/ Sports Complex	P-1
		2. Parks and Gardens – Public open spaces	P-2
		3. Multi-open space (Maidan)	P-3
7	**Transport Use: T**	1. Road	-
		2. Railway	T-1
		3. Bus Depots/ Truck Terminals	T-2
		4. Parking	T-3
8	**Primary Activity Use: PA**	1. Agriculture: PA 1	PA-1
		2. Plantation: PA 2	PA-2
		3. Forest: PA 3	PA-3
		4. Brick Klin: PA 4	PA-4
9	**Protected and**	1. Water bodies: E1	E-1
		2. Forest	E-2

Sl. No.	Landuse Classification	Land Use Sub-Classification	Code
	Undevelopable Use: E	3. Green Belt/Buffer: E3	E-3
10	**Special Area**	-	S

Source: Based on URDPFI Guidelines

12.2 Existing Landuse Distribution

Baijnath-Paprola Planning Area is 1823 ha., out of this total land only 395.39 ha. i.e., 22 % is developed and remaining 1428.18 ha. i.e., 78 % is non-developable. Of the total developed land, about 78.03 % is residential area. Transportation, which includes roads, parking areas, bus terminal, bus stands, railway lines and railway stations, constitutes an area of 45.04 ha. i.e. 11.40 % of the total area. The commercial area and public and semi-public area in Baijnath-Paprola Planning Area account for nearly 3.47 % of total developed area of Baijnath-Paprola Planning Area. The developed area of Baijnath-Paprola Planning Area has nearly 2.54 ha. under recreational green i.e. 0.64 % of the total developed land. Table 12-2 shows the existing land use distribution and Proposed land uses for Baijnath-Paprola Planning Area.

Table 12-2 Existing Landuse Distribution and Proposed Land Uses

Land Use Categories	Hill Towns Standards	Tourism Towns Standards	Existing Area (Ha)	Existing %	Additional Area Requirement (Ha)	% of Additional Area in comparison to Existing Area	Proposed Area in Hactare	Proposed %
Residential	50-55	35-40	308.53	78.03	1.73	2.96	310.3	68.38
Commercial and Mixed	2-3	5-7	13.71	3.47	5.23	8.96	1.6	0.34
Mixed Use				0.00			17.4	3.83
Public & Semi-Public	8-10	10-12	25.53	6.46	-1.47	-2.52	24.1	5.30
Industrial	3-4	4-5	0.00	0.00	0.00	0.00		0.00
Recreational	15-18	10-12	2.54	0.64	1.78	3.05	4.3	0.95
Transportation	5-6	12-14	45.08	11.40	51.08	87.54	96.2	21.19
Total (A)			**395.39**	**100.00**	**58.35**	**100.00**	**453.7**	**100.00**
Undevelopable Area (B)			619.58	33.99				
Water Bodies			39.12	2.74			39.1	2.86
Agriculture and Open Area			808.03	56.60			738.4	53.92
No construction Zone or Buffer Areas			0.00	0.00			35.4	2.58
Forest			532.71	37.31			508.6	37.15
Tea Garden			40.70	2.85			40.7	2.98
Special Area			7.1	0.49			7.1	0.51

Roads in Undeveloped Area			0.00	0.00			0.0	0.00
Total (C)			1427.61	100.00			1369.3	100.00
Total Area (A+B)			1823.00				1823.00	

Source: Land use Map based on Base Map prepared by AGiSAC

Considering the total land under Baijnath-Paprola Planning Area, about 46.95 % land is under primary activities which includes agriculture and plantation activities (tea gardens); nearly 29.22 % land is under forest which is basically an eco sensitive area. River Binwa, Pun khads and other small nallahs cover about 2.14 % of the total area under Baijnath-Paprola Planning Area.

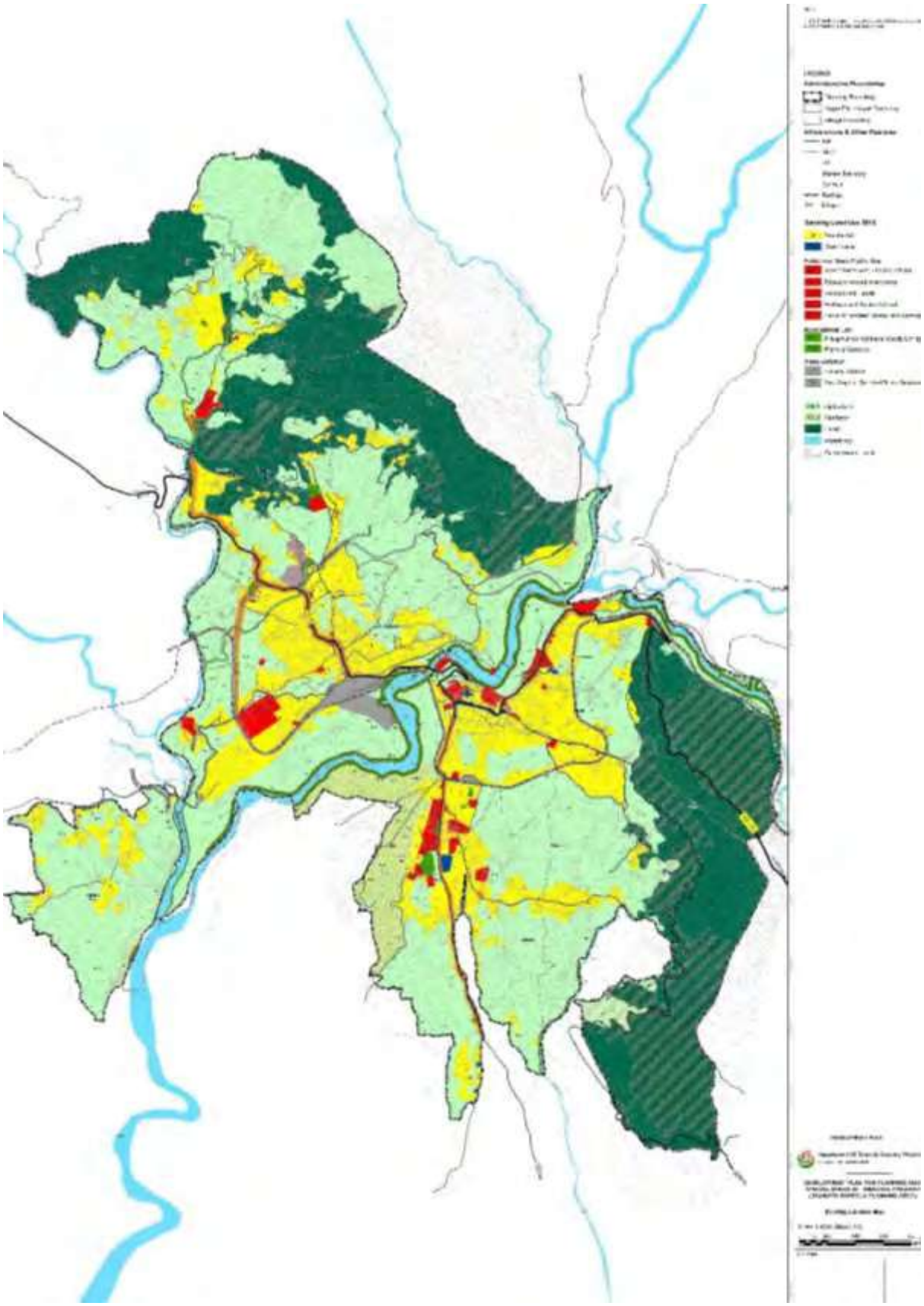


Figure 12-1 Existing Land Use Map of Baijnath-Paprola Planning Area

12.3 Land Allocation Mechanism

Allocation of developable land for different uses to meet with the requirements for the next 20 years i.e. upto the year 2035 is made and proposed land-use structure devised accordingly.

As the Government land is scarce almost entire infrastructural development including roads, commercial activities, residential activities, has to take place on private land in accordance with population of the area, topographical conditions and potentials and propensities of land. The land owners, however, resist for any sort of proposal for community uses and compel the authorities to change the proposals. Therefore, approach of negotiated proposals has, been envisaged in the Development Plan. Further detailing of proposals will have to be done in accordance with prescribed zoning and sub-divisions regulations by the local bodies in primarily built up areas, the Revenue Department and the development agency through limited land acquisition, land pooling reconstitution mechanism involving land owners in the new areas.

Uses pertaining to various economic activities like trade, commerce, tourism, industries and income generating amenities if, segregated and provided separately in patchesare unsustainability. Similarly, facilities and services like schools, nursing homes, banks, telephone exchange and other financial institutions also needs to be close proximity of the habitation. On the contrary, Government and Semi-Government Offices, Postal Facilities, Police Service etc. are essentially town level facilities which can be at a central location away from the habitation as well. The Development Plan, therefore, addresses the central and local activities for town level/regional and sectoral pursuits respectively. The related requirements thereof including parking, parks, open spaces and circulation networks are to be detailed out in view of the local setting in accordance with the prescribed zoning regulations.

12.4 Proposed Landuse Plan

The vision behind this proposed Development Plan right from its conception to the present day is that there will be an intense and close interrelationship between the Town Area and the outside rural area, including the demarcated open forest, which will be of a synergical nature. Each would complement the other, and support the activities in the 'urban' and 'rural' sectors, thus reducing the urban and rural divide that has crept into urban planning so far, and encouraging a rural - urban continuum.

The new built-up area, consisting of buildings and developments for Residential, Manufacturing, Commercial, Public Semi-Public and Utility Uses and Open Spaces, would evolve around the old twin towns of Baijnath and Paprola.

The largely unbuilt part consisting of agricultural uses, demarcated protected forests, river, drains, channels and a number of green activities linked to the promotion of sustainable development, wouldencircle thisnew development and act as interface between the town and its bio-region. However, the proposals for road widening have taken some areas that are already under forest, public and semi-public land uses. The existing land use has considered commercial and mixed and use under same head where as while preparing the proposed plan the two were considered as different land uses.

a) Residential Use

Based on the analysis and population projections the future requirements for residential area has been calculated. The existing overall population density is approximately 51.9 pph which is on the lower side. Considering an increase of approximately 20 percent in the population density for target year it is recommended to plan for 63 pph which is within the standard range recommended for Hilly towns by URDPFI guidelines. On the basis of residential density of 63 persons per hectare, maximum living space per person has been proposed by redensification of the existing towns of Nagan, Paprola Khas, Koti, Pandteher, Kharanal, Ghartholi, Ustehar, Pandtahar and Gankheter has been proposed. The residential areas are proposed to be developed in and in the surroundings of the Nagar Panchayat Areas around the existing settlements. The remaining area has been allocated for the natural growth of the village abadis. The local activities of cluster level such as nursery and primary schools, dispensaries, parks, toilets etc. form an integral part of the residential areas and are to be detailed out during the course of preparation of Sectoral Plans and Schemes. 310.3 ha. of residential area has been proposed in the Development Plan.

b) Commercial Use

A total area of 1.6 Ha has been proposed for Commercial Use. Most of the commercial facilities have been proposed within the urbanisable area in order to carter to the residing population. Shopping centres are proposed to be developed alongwith sizeable shops and requisite infrastructure, along the NH-154. Moreover, the Development Plan envisages to prepare improvement schemes for the existing shopping centre to ensure improvement in environmental quality.

c) Mixed use

A total area of 17.4 Ha has been proposed under mixed use development along the NH-154, MDR - 43 and other major transit roads. Two types of mixed uses have been proposed,

i) residential with commercial (M-1) which is to be developed along the transi corridors and ii) residential with household industries (M-2) which is to be developed along the proposed road in Kothi connecting the Agro-Industrial Unit with the proposed truck terminal at Paprola Khas.

d) Public and Semi-Public Use

The Public and Semi-Public Use includes utilities, facilities, services, Government and Semi Government offices and Institutions. The Utilities i.e. water supply, sewerage, drainage, electricity, telephone establishments, garbage disposal etc. and facilities like education, health, postal, police, fire fighting, banking etc. besides Government and semi Government offices etc have been given due consideration for allocation of land for this purpose in the Development plan. These Institutions have extraneous influence zone beyond the immediate hinterland. These institutions are proposed to be developed through their own mechanism by the respective authorities. Accordingly, 24.1 ha. of land is propose under Public and Semi-Public use in the Planning Area by the year 2035.

e) Parks and Open Spaces Use

An area of 4.3 Ha has been proposed for organised parks and open spaces. The parks and gardens are proposed at different villages in the Planning Area. Besides, Botanical Garden and Zoological Park have also been proposed near Bheth Jhikli village. Conservation of open spaces within the Planning Area will be promoted.

f) Transportation Use

Transport influences economic development, population distribution, the shape of towns/cities, energy consumption, access to markets and quality of life. As the town has grown along National Highway 154, there is a lot of regional traffic on these narrow roads for which improvement in road network is proposed in the shape of bye-pass road. Parking areas have been proposed along NH-154 near to the Choubin Chowk and Paprola petrol pump. The Bus and truck terminal at Paprola Khas has also been proposed to ease the movement of the trucks.

The Development Plan envisages to provide parking lots and road widening, by-pass also an additional bridge over the River Binwa to meet the requirements of increasing traffic volume on major entry points to already congested town. An area of 96.2 Ha has been proposed for Traffic and Transportation Use.

g) Special Area

The special area has been demarcated around the Baijnath temple complex. The special comprises of the Baijnath Temple, Kheer Ganga ghat, Siddhnath temple and the old bazar area. This area should be planned properly and proposed to be developed as the restrictive zone in terms of parking, construction etc. An area of 7.1 Ha has been demarcated as the Special Area.

h) Primary Activities

The area under primary activities comprises of agricultural land and plantation areas, specifically the tea gardens. An area of 738.4 Ha is proposed to be as agricultural lands. The agricultural land is subject to land use change for residential purpose. An area of 40.7 Ha is to be retained as the tea garden. The tea garden is subject to no land use change policy.

i) Protected and restricted areas

Protected and restricted areas include the forest areas, water bodies, river buffer areas. These conjointly form an area of 584.7 Ha which should be demarcated as the protected area and no development works and no constructions would be promoted on these lands.

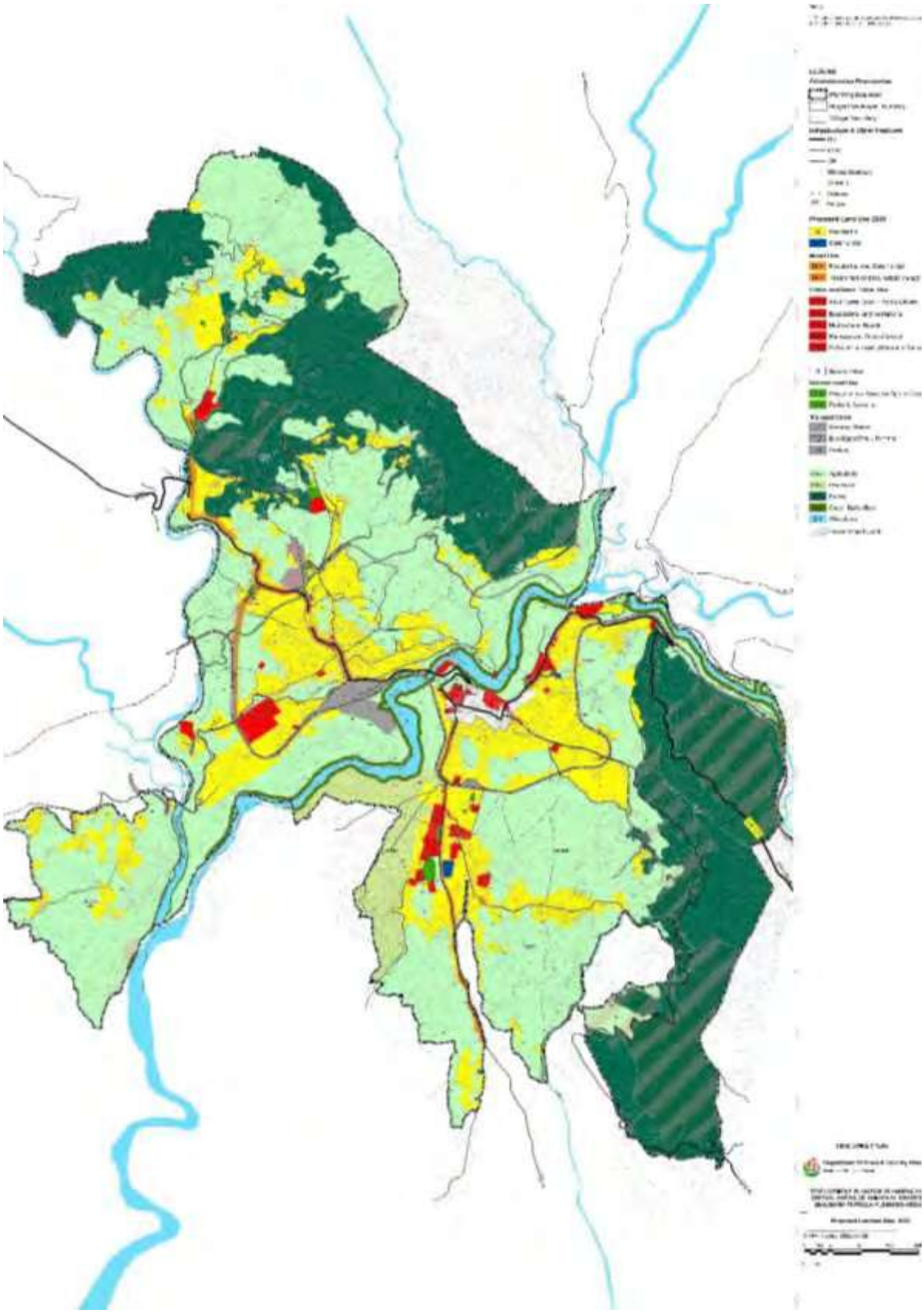


Figure 12-2 Proposed Landuse Map 2035 of Baijnath-Paprola Planning Area

13 LANDUSE ZONING AND DEVELOPMENT CONTROL REGULATION

13.1 Zoning Regulations

The regulations have been formulated keeping in mind the character of each zone along with their relevant activity mix. The use related guidelines detail the permissible, restricted and non-permissible activities in each zone.

13.2 Use Zones Designated

There shall be 7 land use zones, each representing a set of activities permitted under each zone.

Table 13-1: Land Use Zones and Activities Permitted under each Zone

Legend			
S. No.	**Land use**	**Activities Permitted**	**Code**
1	Residential	Residential, Shop, Kiosks, AttaChaki, Canteen/Foodcourt, Petrol –Diesel Pump, Bank, Telecommication Centre, Guest house, Hostel, Orphanage, School, Creche, Old age home, R&D Centre, Marriage hall, Health Centre, Health club, Meditation Centre, OHT, Electric Sub Station, Parking, Parks/Play ground.	R
2	Commercial	Professional /personal/Agent office, Bank, Commerce/ Trading office, Guest house, Boarding house, Day care cente, Vocational institute, Post office, Police/Fire station, Libary, Health centre, Health club, Dance/music/art centre, Banquet hall, OHT, Electric Sub Station, Parking, Parks/Play ground, Garage,	C
3	Mixed use	Mix of two or more land uses which are not obnoxious in nature	MU
4	Public - Semi Public	Administrative Offices, Institutional, Public Utilities/ Services/ Tele Communication centre , Grouping Housing ,Retail shop, Repair shop, Vending booth, Kiosks, Food court, Petrol-Diesel Pump,Multiplex, Guest House,Hostel, Boarding house, Jail,OHT, Electric Sub Station, Parking, Parks/Play ground ,Garage, Swimming pool.	PS
5	Transportation	Roads/Bus Stand/Parking Space/Taxi Stand, Repair Shop, vending booth, Coal/wood Selling area, Building material market, Cold storage, Hotel, Serviced apartment, Foodcourt, Govt-semi Govt office, Police Line/Station, Telecommication Centre, Guest House, Night Shelter, OHT, Parks/Play ground.	T
6	Recreational	Park/ Garden/ Zoo/ Playground, Residential, Retail shop, Vending booth, Kiosks, Food court, Govt-Semi office, Telecommication Centre, Guest House, Night shelter, Police post/station, Fire station, Libary, Health Club, Dance/Music centre, Meditation centre, Soical /Welfare centre, OHT/Water works, Electric Sub- Station, Parking, Bus stand/Rain shelter.	P
7	Agriculture/ Non-Built-up/ Open land	Agricultural fields/ Farms/ Orchard/ Plant Nursery/ Social Forestry, Residential/Group Housing, Retail shop, Wholesale market, Coal/wood Selling area, Vegitable/Fruit market, Cold	NB

Legend			
S. No.	**Land use**	**Activities Permitted**	**Code**
		Stroage, Petrol-Diesel Pump, Gas Godown, Sugar/Rice/Floor mill, Milk Collection centre, School, Health Centre, STP, OHT/water works, Compost plant, Tele communication tower, Religious, Golf/racecourse, Recreational club/Swimming pool, Botanical /Zoological garden, Shooting range.	

For each zone, besides the activities permitted, there will be certain activities/utilities which shall be prohibited or conditionally permitted as per the criteria stated below:

Uses Permitted

Activities/ utilities which are ancillary to the Main Land Use are planned and permitted.

A. Conditionally Permitted

Activities/ utilities planned and permitted under certain terms and conditions. The terms and conditions are as follows:

1. Residential area on the upper floors except the ground floor
2. 5 percent of the total planning area (maximum 5 percent of the total planning area)
3. On minimum 5m road
4. On minimum 7m road
5. On minimum 9m road
6. On minimum 12m road
7. On minimum 9m road for maximum up to 20 bed health facility

All the above seven listed conditions may be over ruled on special ground/ under special circumstances by the Director, Town and Country Planning Department.

B. Specially Permitted

These activities will be planned or permitted after specific permission of the Authority keeping in view the infrastructure and their environmental impact on the surrounding area etc. i.e. on the basis of the merits and demerits each case. The required terms and conditions are further exemplifies in the zoning matrix (Table 14-2).

C. Uses Prohibited

These activities will not be permitted in the designated Land Use Zone. The details of regulations regarding uses permitted, permitted conditionally, specialy permitted and uses prohibited are stated through the index table below and Land Use Matrix.

Index			
Use Permitted	**P.**	Specially Permitted**	SP
Conditionally Permitted*	1 to 7	Uses prohibited***	NP

* Refer point A

** Refer point B

*** Refer point C

Each use zone is sub-divided into use premises and permission of use premises in each use zone at the time of layout preparation will be governed by the matrix below.

Table 13-1 Zoning Matrix

S. No.	Land Use	Residen-tial	Comme-rcial	Mixed Use	PSP	Transp-ortation	Recrea-tional	Agriculture/ Non Built Up Land/ open space
	Activities	1	2	3	4	5	6	7
1	**Residential**							
	Residential House / Plot	**P.**	NP	1	NP	NP	3	**P.**
	Group Housing	**P.**	NP	**P.**	2	NP	NP	SP
2	**Commercial**							
	Retail shop	4	**P.**	**P.**	**P.**	NP	SP	SP
	Repair shop	4	**P.**	**P.**	4	**P.**	NP	NP
	Vending booth	4	**P.**	**P.**	**P.**	SP	SP	NP
	Showroom	NP	**P.**	**P.**	NP	NP	NP	NP
	Weekly Market	4	**P.**	**P.**	NP	NP	SP	SP
	Convenience shopping centre	4	4	4	**P.**	NP	NP	NP
	Local/ Sector level Shopping centre	4	4	4	NP	NP	NP	NP
	Shopping Mall	NP	5	5	NP	NP	NP	NP
	Informal Commercial Unit (Kiosk)	3	**P.**	**P.**	SP	NP	SP	NP
	Wholesale Market/ Mandi	NP	**P.**	SP	NP	NP	NP	SP
	Confectionary / Atta Chakki	3	**P.**	**P.**	NP	NP	NP	NP
	Coal / Wood Selling Area	NP	**P.**	**P.**	NP	**P.**	NP	SP
	Building Material Market	NP	NP	NP	NP	**P.**	NP	NP
	Vegetable / Fruit Market	NP	**P.**	**P.**	NP	NP	NP	SP
	Cold Storage	NP	NP	SP	NP	SP	NP	SP
	Hotel	NP	4	**P.**	NP	SP	NP	NP
	Serviced Apartment	**P.**	SP	**P.**	SP	SP	NP	NP
	Restaurant / Canteen / Food Court	5	**P.**	**P.**	**P.**	**P.**	**P.**	NP
	Petrol/ Diesel/ Gas Filling Station	6	SP	**P.**	6	NP	NP	4

S. No.	Land Use	Residen-tial	Comme-rcial	Mixed Use	PSP	Transp-ortation	Recrea-tional	Agricult ure/ Non Built Up Land/ open space
	Activities	1	2	3	4	5	6	7
	Gas Godown	NP	NP	SP	NP	NP	NP	SP
	Cinema/ Multiplex	NP	5	5	SP	NP	NP	NP
3	**Industrial**							
	Small/ Light Industry	NP	NP	4	NP	NP	NP	NP
	Suger Mill, Rice rollers / Flour Mill	NP	NP	NP	NP	NP	NP	SP
	Milk Pasteurization and collection centre	NP	NP	NP	NP	NP	NP	SP
4	**Offices**							
	Govt. / Semi Govt. / Public Undertaking/ Local Body Office	4	NP	**P.**	**P.**	**P.**	SP	NP
	Professional/ Personal/ Agent Office	**P.**	**P.**	**P.**	**P.**	**P.**	NP	NP
	Bank	SP	4	**P.**	**P.**	**P.**	NP	NP
	Commerce / Trading Offices	4	**P.**	**P.**	**P.**	**P.**	NP	NP
	Labour Welfare Centre	NP	NP	SP	**P.**	**P.**	NP	NP
	P.A.C. / Police Lines	NP	NP	SP	**P.**	SP	NP	NP
	Satellite/Wireless/ Telecommunication Centre	SP	NP	SP	**P.**	SP	**P.**	NP
5	**Public Semi Public**							
	Guest House/ Lodging	SP	SP	**P.**	**P.**	**P.**	**P.**	NP
	Boarding House / Night Shelter	3	SP	**P.**	SP	**P.**	**P.**	NP
	Hostel	3	NP	**P.**	SP	NP	NP	NP
	Reformatory	SP	NP	**P.**	NP	NP	NP	NP

S. No.	Land Use	Residen-tial	Comme-rcial	Mixed Use	PSP	Transp-ortation	Recrea-tional	Agriculture/ Non Built Up Land/ open space
	Activities	1	2	3	4	5	6	7
	and Orphanage							
	School for mentally/ Physically Challenged Persons	3	NP	SP	SP	NP	NP	NP
	Jail	NP	NP	NP	SP	NP	NP	NP
	Creche & Day care centre	**P.**	SP	**P.**	4	NP	NP	NP
	Old age home	**P.**	NP	**P.**	NP	NP	NP	NP
	Primary Educational Institutions	3	NP	SP	SP	NP	NP	SP
	Senior Secondary School	5	NP	SP	SP	NP	NP	NP
	Vocational Institute	5	3	**P.**	**P.**	NP	NP	NP
	Post office	3	**P.**	**P.**	**P.**	NP	NP	NP
	Telephone, Radio and Television Office / Centre	NP	NP	**P.**	SP	NP	NP	NP
	Police Station / Police Post / Fire Station	4	**P.**	**P.**	**P.**	**P.**	**P.**	NP
	Library	3	**P.**	**P.**	**P.**	NP	**P.**	NP
	R & D Centre	SP	NP	**P.**	**P.**	NP	NP	NP
	Health Centre/ Family Welfare Centre/Dispensary	**P.**	**P.**	**P.**	**P.**	NP	NP	SP
	Hospital	NP	NP	SP	7	NP	NP	NP
	Nursing Home	6	NP	**P.**	7	NP	NP	NP
	Clinical Lab / Diagnostic Centre	NP	NP	**P.**	NP	NP	NP	NP
	Health Club/ Gymnasium	**P.**	SP	**P.**	SP	NP	**P.**	NP
	Dance/ Music/ Art Centre	3	3	**P.**	NP	NP	**P.**	NP

S. No.	Land Use	Residen-tial	Comme-rcial	Mixed Use	PSP	Transp-ortation	Recrea-tional	Agriculture/ Non Built Up Land/ open space
	Activities	1	2	3	4	5	6	7
	Yoga/ Meditation Centre	3	NP	**P.**	NP	NP	**P.**	NP
	Banquet Hall/ Barat Ghar	SP	SP	4	SP	NP	NP	NP
	Socio-cultural Centre	5	5	4	SP	NP	**P.**	NP
	Social Welfare Centre	NP	NP	**P.**	**P.**	NP	**P.**	NP
	Cremation/ Burial ground/ Crematorium	NP	NP	NP	**P.**	NP	NP	NP
6	**Utilities**							
	Sewerage Treatment Plant / Sanitary Landfill Site	NP	NP	NP	SP	NP	NP	SP
	Tube well/ Over head tank/ Electric sub-station	**P.**	**P.**	**P.**	**P.**	**P.**	**P.**	**P.**
	Water Works	NP	NP	SP	NP	**P.**	**P.**	SP
	Compost Plant	NP	NP	NP	NP	NP	NP	SP
	Slaughter House	NP	NP	NP	NP	NP	NP	NP
	Cellular / Mobile Tower	SP	SP	SP	SP	NP	SP	SP
7	**Transportation**							
	Open parking	**P.**	**P.**	**P.**	**P.**	**P.**	SP	NP
	Taxi/ Auto / Rickshaw stand	**P.**	**P.**	**P.**	**P.**	3	3	NP
	Bus Stand/ Shelter	4	**P.**	4	**P.**	**P.**	**P.**	NP
	Bus Terminal	NP	NP	5	NP	**P.**	NP	NP
	Motor Garrage/ Service Garrage/ Workshop	NP	**P.**	**P.**	SP	4	NP	NP
	Loading / Unloading Platform	NP	NP	**P.**	NP	4	NP	NP
	Weighing Bridge	NP	NP	5	NP	**P.**	NP	NP
8	**Parks and**							

S. No.	Land Use	Residen-tial	Comme-rcial	Mixed Use	PSP	Transp-ortation	Recrea-tional	Agricult ure/ Non Built Up Land/ open space
	Activities	1	2	3	4	5	6	7
	Recreation							
	Parks/ Playgrounds	**P.**	**P.**	**P.**	**P.**	**P.**	**P.**	**P.**
	Multipurpose open spaces (Ramlila Ground/ Exhibition/ Circus etc.)	NP	NP	SP	SP	NP	**P.**	NP
	Golf / Race course	NP	NP	SP	NP	NP	**P.**	SP
	Stadium / Sports training centre	NP	NP	NP	NP	NP	**P.**	NP
	Amusement Park	NP	SP	SP	SP	NP	**P.**	NP
	Recreational Club / Swimming pool	4	SP	SP	SP	NP	**P.**	SP
	Botanical/ Zoological garden, Bird sanctuary, Aquarium	NP	NP	**P.**	NP	NP	**P.**	SP
	Shooting Range	NP	NP	NP	NP	NP	**P.**	SP
8	**Agriculture**							
	Orchard/ Plant Nursery/ Social Forestry	**P.**	**P.**	**P.**	**P.**	**P.**	**P.**	**P.**
	Farm House	NP	NP	NP	NP	NP	NP	2
	Dairy farm	NP	NP	NP	NP	NP	NP	**P.**
	Poultry farm	NP	NP	NP	NP	NP	NP	**P.**
	Agricultural equipment workshop/ service centre	NP	NP	**P.**	NP	SP	NP	SP
	Dhobi Ghat	NP	NP	NP	NP	NP	NP	**P.**

Note: In the event of an activity in land use not specifically mentioned in the table above and the activity restricted/ not permitted in land uses mentioned above may be provided at the discreation of the Comptent Athourity, keeping in view the requirement, general benefit of public as well as Town design.

13.3 Development Control Regulations (DCR)

Regulations/Building Bye Laws are legal tools used to regulate coverage, height, architectural design and construction aspects of buildings so as to achieve orderly development of an area. They are mandatory in nature and serve to protect buildings against fire, earth quake, noise, structural failures and other hazards. Regulations/Building Bye Laws help to avoid encroachments and protect the right of way.

All mandatory Master Plan/ Development Control Regulations regarding use, coverage, FAR, set-backs, open spaces, height, number of storeys, number of dwelling units, parking standards etc., for various categories of buildings, including modifications therein, made from time to time, shall be applicable mutatis-mutandis in these Building Regulations. All amendments/ modifications made in these Regulations will automatically be included as part of these Regulations.

13.4 Jurisdiction of Regulations

These Regulations shall apply to the sub-division of land and building activities in the Baijnath-Paprola Planning Area.The detail of Revenue villages falling in Baijnath-Paprola Planning Area is as under: -

Sl. No.	Name of Revenue Village	Hadbast No.	Area (in Hectares)	Population (2011 Census)
1	Kasba (NP)	871	88	1861
2	Baijnath (NP)	870	70	2349
3	Gankheter (NP)	869	68	721
4	Ghartholi (NP)	1023	97	1956
5	Pandtehar (NP)	872	80	696
6	Ustehar (NP)	875	98	909
7	Paprola Khas (NP)	820	46	860
8	Kasba Paprola (NP)	822	58	1979[35]
9	Nagan	826	64	835
10	Koti (NP)	823	142	1698
11	Jherkher (NP)	825	9	774
12	Khatrehar (NP)	829	22	958
13	Kharanal	819	123	660
14	Malgota	827	84	613
15	Pandtehar (NP)	821	65	688
16	Bheth Jhikli	817	318	1715
17	Dhar Baggi	1025	273	233
18	Majehrna Khas	779	118	1016
Total			**1823**	**20,521[36]**

13.5 Applicability of Regulations

These Regulations shall be applicable to all building activities and be read in conjunction with the Himachal Pradesh Town and Country Planning Act, 1977 and the Himachal Pradesh Town and Country Planning Rules, 2014 as amended from time to time and shall be applicable for a period

for which this Development Plan has been prepared, after which these shall be reviewed. Till such time the reviewed Regulations are notified, these will continue to be in force.

13.6 Part Contruction

In case of part construction, where the whole or part of a building is demolished or altered or re-constructed, except where otherwise specifically stipulated, these Regulations shall apply only to the extent of the work involved.

13.6.1 Re-construction

The re-construction in whole or part of a building which has ceased to operate due to fire, natural collapse or demolition having been declared unsafe, or which is likely to be demolished, as the case may be, these Regulations shall apply.

13.6.2 Existing approved buildings

Nothing in these Regulations shall require the removal, alteration or abandonment, nor prevent continuance of the lawfully established use or occupancy of an existing approved building unless, in the opinion of the Competent Authority, such a building is unsafe or constitutes a hazard to the safety of adjacent property or to the occupants of the building itself.

13.7 Development Permission

Development or re-development shall carry out including sub-division on any plot or land (not forming part of any approved layout plan or scheme) after obtaining approval for the layout plan from the Competent Authority only.

13.8 Building Permission

13.8.1 Building Permission

Any person intending to erect, re-erect or make addition/ alterations in any building or cause the same to be done shall first obtain appropriate building permission for each such building from the Competent Authority.

The following item of works are exempted from the above Regulation:

i) Plastering/cladding and patch repairs, except for the Heritage Buildings where Heritage Conservation Committee's permission is required.
ii) Re-roofing or renewal of roof including roof of intermediate floor at the same height.
iii) Flooring and re- flooring.
iv) Opening windows, ventilators and doors opening within the owners' plot.
v) Rehabilitation/repair of fallen bricks, stones, pillars, beams etc.
vi) Construction or re- construction of sunshade not more than 0.45 Metre in width within one's own land and not overhanging over a public street.
vii) Construction or re-construction of parapet and also construction or reconstruction of boundary walls as permissible under Bye Laws.
viii) White washing, painting etc. including erection of false ceiling in any floor at the permissible clear height provided the false ceiling in no way can be put to use as a loft /mezzanine floor etc.

ix) Reconstruction of portions of buildings damaged by storm, rains, fire, earthquake or any other natural calamity to the same extent as existed prior to the damage as per sanctioned plan, provided the use conforms to provisions of Development Plan.
x) Erection or re-erection of internal partitions provided the same are within the preview of the Bye-laws.
xi) For erection of Lifts in existing buildings unless it does not affect the free movement.
xii) Change/ Installation/ re-arranging/ relocating of fixtures or equipments without hindering other's property/ public property shall be permitted.
xiii) Landscaping
xiv) Toilet/Washroom, Security Room, up to a maximum area of 9.00 M^2 only (permitted within setback area, provided it does not obstruct fire vehicles movement) in plot more than 3000 M^2.
xv) A Porta cabin up to 4.50 M^2 permitted within setback area, provided it does not obstruct fire vehicles movement.

13.9 Grant, Refusal and Deemed to be Sanctioned

If within the time limit stipulated in the Himachal Pradesh Town and Country Planning Act, 1977 as amended from time to time for various categories of buildings specified therein or the Competent Authority fails to intimate in writing to the person, who has applied for permission of its refusal or sanction or any intimation, the application with its plans and statements shall be deemed to have been sanctioned;

Provided that the fact is immediately brought to the notice of the Competent Authority in writing by the person; and

Subject to the conditions mentioned in these Bye-laws, nothing shall be constructed to authorize any person to do anything in contravention or against the terms of lease or titles of the land or against any other Regulations, Bye-laws or Ordinance operating on the site of the work.

In case the Competent Authority rejects the application due to any reasons, the applicant can re-submit the building plan along with fees and with compliances.

13.10 Already Permitted Buildings

Building permission issued by the Competent Authority before these Regulations come in to effect and where construction is in progress and has not been completed within the specified period from the date of such permission, the said permission shall be deemed to be valid and shall only be eligible for re-validation thereunder. Accordingly, where the validity of permission has expired, such construction shall be governed by the provisions of these Regulations. If the validity of permission has not expired and construction has not been started such applicants may revise the layout plan as per these regulations.

13.11 Procedure for Obtaining Permission

13.11.1 Application and Fee

The application for development of land to be undertaken on behalf of the Union or State Government under Section 28 and under Section 29 by a Local Authority or any Authority specially constituted under the Himachal Pradesh Town and Country Planning Act, 1977 as amended from time to time shall be accompanied by such documents as prescribed under Rule-

14 of the Himachal Pradesh Town and Country Planning Rules, 2014. The application for development of land to be undertaken under Section 30 by any person not being the Union or State Government, Local Authority or any Authority specially constituted under the Himachal Pradesh Town and Country Planning Act, 1977 shall be in such form along with the Specifications Sheet and Schedule attached with these forms and containing such documents and with such fee as prescribed under Rule 16 of the Himachal Pradesh Town and Country Planning Rules, 2014. All the applications shall be made online.

13.11.2 Documents Required

Apart from above, the applicant shall furnish the following additional documents namely:

i) Location Plan in the Scale of 1:1000, showing North direction indicating the land in question, main approach roads, important physical features of the locality/area, important public buildings like School, Hospital, Cinema, Petrol Pump, existing land uses /building uses surrounding the land.
ii) Site Plan in the scale of 1:200, showing North direction indicating the proposed site, approach road, adjoining buildings, the existing drainage and sewerage showing the built up and open area clearly. Site must tally with the shape and dimensions of plot shown in the Tatima or as per actual at site duly verified by the competent authority.
iii) Building plan, showing elevation and section in the scale of 1: 100.The architectural drawings duly signed by the applicant and licensed/registered Architect/ Planner/ Engineer/ Draftsman along with his/ her address and Registration number.
iv) Recommended notation for colouring of plans: The site and building plans shall be coloured as specified in the table given below. Where items of work are not identified, the colouring notation used shall be indexed.

Colouring of Plans

Sl. No.	Item	Site/ Building Plan
1.	Plot lines	Yellow
2.	Road/ Street/ Path	Black
3.	Proposed building line	Red
4.	Existing work (Outline)	Green
5.	Work proposed to be demolished	Orange
6.	Sewerage	Dark Brown
7.	Water Supply/ RWH System	Sky Blue
8.	Drainage	Dark Blue

i) A copy of Treasury Challan Form/ receipt vide which requisite fee has been deposited shall be uploaded online after approval of the case in principle by the department.
ii) Ownership documents, i.e. latest original Jamabandi.
iii) Latest original Tatima showing Khasra number of land in question, adjoining Khasra numbers from all sides of plot and approach path with dimensions.
iv) In the Site Plan, the distance of electricity line, from development as per Indian Electricity Rules, in case any electricity line is passing over or nearby the proposed site be shown.
v) A certificate from the Nagar Panchayat or Gram Panchayat or Development Authority or Local Authority, as the case may be, shall be enclosed to claim compensatory benefit in support of taking over the land surrendered for development in public interest such as

road or path and designating it as Public Street/ infrastructure shall be submitted. The land surrendered for development of Public Street/ infrastructure shall be registered by the Revenue Authority. Provided further that the applicant shall be compensated by allowing additional Floor Area Ratio (FAR) in lieu of surrendering the land for public purpose. The extra FAR shall not exceed the area surrendered for public purpose.

Important- Total plot area will also include the area surrendered for path so that applicant gets compensation in form of FAR for any land surrendered in public interest.

vi) The Structural Stability Certificate shall be submitted by the applicant on submission of planning permission case and at the time of completion of structure duly singed by the registered Structural Engineer, including soil investigation report and structrual design basis report as per provisions for safety against natural hazard.

13.12 General Regulations

The following general regulations shall apply to all development activities in each of the land use zones in the left out area: -

i) No building or other structure shall be erected, re-erected or materially altered without the permission of the competent authority.

ii) No yard or plot existing at the time of coming into force of these regulations shall be reduced in dimension or area below the minimum requirement set forth herein. The yards or plots created after the effective date of these requirements shall meet at least the minimum requirements established by these regulations. All the plots registered prior to coming into force of these regulations shall be treated as plots irrespective of their size subject to the condition that 3.00 m wide path abutting one side of the plot will be the basic requirement. If 3.00 m wide path is not available at site in newly developed area and if it is less in width, then the owner shall surrender the remaining land from his plot to make the path as 3.00 m wide. The construction would be allowed on hereditary owned smaller plots and the regulations for maintaining minimum plot size/area shall not be insisted on such hereditary owned smaller plots.

- The height of a building shall further be related to the width of abutting path:
- For path less than 3.0 M and non-vehicular - 10 Meters
- For path less than 3.0 M but vehicular - 13 Meters
- For path between 3.0 M to 5.0 M - 15 Meters

iii) The building height shall be the vertical distance measured: -

iv) In the case of flat roofs from the plinth level to the highest point of the building.

v) In case of pitched roofs from the plinth level to the highest point up to the point where the external surface of the outer wall intersects the finished surface of the sloping roof.

vi) In the case of gables facing the road midpoint between the eaves level and the ridge. Where plinth level is the finished floor level of the floor just above the existing natural ground level.

vii) The following structures shall not be considered in regulating the height of the building: -

viii) Roof tanks and their supports not exceeding 2.00 Meter in height.

ix) Mechanical, electrical, HVAC, lift rooms and similar service equipment.

x) Staircase mumty not exceeding 3.00 Meter in height.

xi) Architectural features serving no other function except that of decoration, chimneys, poles, parapet and other projections not used for human habitation, may extend beyond the prescribed height limits, not exceeding 1.50 Metre in height, unless the aggregate area of such structures exceeds 1/3rd of the roof area of the building on which these are erected.

xii) Solar panels installed on the roof.

xiii) These height regulations shall not apply to the structures housing main seat of Deity /Sanctum / Sanctorum which are part of religious buildings e.g. Temples, Mosques, Gurudwaras, Churches, etc. provided it is so designed and approved by the Competent Authority. The height restrictions shall apply to the ancillary structures like Dharamshala, Sarai etc.

xiv) Maximum acceptable slope for development shall be 45 degrees.

xv) Maximum height of plinth level shall be 4.00 Meters.

xvi) Area zoned for public and semi-public uses and parks and open spaces shall not be built upon or used for any purpose other than parks, play grounds and recreation. These may, however, with the prior permission of the competent authority be permitted temporarily for a period not exceeding 30 days to be used for public entertainment purposes and shall be removed at the end of the period and shall in no case be permanently erected.

xvii) The existing non-conforming uses of land and buildings, if continued after coming into force of this Development Plan, shall not be allowed in contravention of provisions of Section-26 of the Himachal Pradesh Town and Country Planning Act, 1977.

xviii) Normally the cutting of the natural profile shall not exceed more than 3.50 Meter. However, in extraordinary cases where hill cut or excavation is more than 3.50-meter site development plan/Cross section showing retaining/breast wall etc. would be prepared by the Structural Engineer.

xix) No wall fence and hedge along any yard or plot shall exceed 1.50 m in height.

xx) On a corner plot bounded by a vehicular road in any land use zone, nothing shall be erected, placed, planted or allowed to grow in such a manner so as to materially impede the vision to avoid accidents and for smooth running of vehicular traffic.

xxi) No planning permission for development shall be granted unless the road/path on which land/plot abuts is properly demarcated and developed.

xxii)Drainage shall be regulated strictly according to natural profile of land with a view to prevent landslides, soil erosion and to maintain sanitation.

xxiii) In case of petrol filling station, the layout plan/ norms of the Indian Oil Corporation (IOC) shall be adopted. However, on National Highways and State Highways the front setback shall be kept as 8.00 m from acquired width of the Highway or as mandate of HPPWD. If the rear and side setbacks are not mentioned in the layout plan of IOC, the sides and rear setbacks shall be 2.00 m minimum.

xxiv) Minimum building width of 5.00 metre be ensured without insisting on setbacks on smaller plots.

xxv)In case of irregular plot or in case of site constraints, uniformity of setbacks shall not be insisted. In such case the competent authority would consider the maximum coverage or minimum open area while approving such cases.

xxvi) There would be mixed land use in Development Plan as per matrix, however, such uses which are obnoxious, hazardous or industries emanating pollution would not be allowed. Hence, this will not attract any change of landuse in the entire Planning Area.

xxvii) All commercial/ public and semi-public buildings above 15-meter height shall have the provision of elevator.

xxviii) Minimum front set back from the line of controlled width of Highways and other Himachal Pradesh Public Works Department's scheduled roads falling within the Planning Area or Special Area limits (excluding the land, included in the inhabited sites of an village as entered and demarcated in the Revenue record or on sites in notified Municipal /Nagar Panchayat area that are already built up) shall be 3.00 M. Minimum front setback for non-scheduled roads and Municipal/ Nagar Panchayat roads shall be 3.00 M.

xxix) Maximum width of path/road abutting one side of plot shall be 3 m in case the plot is located on existing or proposed roads/path having following Right of Way (ROWs),

the front setback shall be left as under: -

Sl. No.	Proposed Right of Way (m)	Front Setback (m) from Acquired line of road
1	18	8.00
2	15	5.00
3	12	5.00
4	09	3.00
5	07	3.00
6	05	3.00

i) Construction other than as is permissible under the Himachal Pradesh Road Side Control Act, 1972 would not be allowed on the controlled width of National Highway Authority of India (NHAI) or Himachal Pradesh Public Works Department (HPPWD).

ii) In open area of permissible set backs (other than controlled width) small temple, porch, garage, swimming pools, detached toilet/ store, septic tanks, other services/stairs would be permissible.

iii) Sky view impression on the ground should be such that nothing including projections and appendages such as AC outdoor units/sign boards etc. should project on the streets/roads/other's land.

iv) Water, sludge and sewage should also not trickle on the streets or roads. Septic Tank and provision to lay our sewerage service line or connecting with the existing sewerage lines shall be mandatory.

v) Every building should have a clear means of access from a street or road. The competent authority may require the provisions of an access lane or access road within the site of any new building. Where for the purpose of this Regulation, it is necessary to determine the width of any road or street, the same shall be determined by the competent authority.

S.No.	Description of Space	Particulars	Min Area/ Width Required
a	Habitable room	Minimum floor area	9. 50 Sqm.
		Minimum width	2.40 m
b.	Kitchen	Minimum floor area	4.50 Sqm.
		Minimum width	1.80 m
c.	Bath Room	Minimum floor area	1.80 Sqm.
		Minimum width	1.20 m
d.	Water Closet	Minimum floor area	1.10 Sqm.
		Minimum width	0.90 m
e.	Toilet	Minimum floor area	2.30 Sqm.
		Minimum width	1.20 m
f.	Corridor	(i) For residential	
		Minimum width	1.00 m
		(ii) For other uses	
		Minimum width	1.20 m
g.	Stair	(i) For residential	
		Minimum width	1.00 m
		(ii) For Hotel/ Flats/ Hostel/ Group Housing/Educational Institutions like school. College et.	
		Minimum width	1.50 m
		(iii)Hospital/Auditorium/Theatre/Cinema Hall	
		Minimum width	2.00 m
h.	Width of treads without nosing	For residential	25 Cm minimum for internal staircase
		For other uses	30 Cm minimum for internal staircase
i	Height of riser	For residential	19 Cm maximum (15 Nos. maximum in a flight)
		For other uses	15 cm maximum (15 Nos. steps maximum in a flight)
j.	Spiral staircase	In commercial building of 3 or more storeys, provision of spiral staircase not less than 1.50 M dia with adequate head height shall be permissible, as fire escape in addition to regular staircase.	
k.	Openings	For sufficient air and light, the windows and ventilators provided should have minimum area equivalent to 1/6th of the floor area.	
l.	Balcony projection	1.20 m wide balcony completely open at two sides with restriction up to 50% of building frontage, where minimum front setback is 3.00 M shall be permissible. Roof slab/ chajja projection over door/ window opening shall be upto 1.00 m. over 3.00 mt setbacks on all sides. However, it will be limited upto 0.45 m. on the setbacks less than 3.00 m. on all sides.	

vi) The habitable basement and attic/mezzanine floor shall be counted as an independent storey.

vii) The Apartments and Colonies shall be dealt with as per Regulations contained in Appendix-7 of HPTCP Rules 2014.

viii) Though minimum area of plot has been defined in Regulation, yet the plots allotted by the Central or State Government under various Social Housing Schemes including Gandhi Kutir Yojana, Indira Awas Yojana, Rajiv Awas Yojana, Affordable Housing Schemes, launched by the Central or State Government, may be considered and permission accorded in relaxation of Regulations. However, the minimum area of plot for the

persons belonging to the Economically Weaker Sections and Low Income Groups of society should not be less than 45 M² and 80 M² respectively.

ix) The following shall not be included in covered area of FAR calculations:

- Machine room for lift on top floor as required for the lift machine installation.
- Rockery, lift/lift well, escalator well and well structures, plant nursery, water pool at any level (if uncovered), platform around a tree, water tank, fountain, bench, chabutra with open top and/or unenclosed sided by walls, open ramps, compound wall, gate, slide swing door, fire staircase, fire towers, refuse area, fire control room, overhead water tank or top of building/open shafts, cooling towers.
- Mumty over staircase on top floor maximum 3.00 M height.
- Watch and ward cabins of total area not more than 4.50 sqm. and 6.00 sqm. with W/C each at entry and exit, within the property line having plot area not less than 500 sqm. and front setback not less than 5.00 m.
- Entrance porch, canopies, pergolas, sunshade elements and balconies.
- Plinth steps.
- Area of all staircase(s), Fire Exit(s).
- Service floor having services like HV AC(Heating, Ventilation and Air Conditioning), MEP installation, Janitor rooms, AHU Room, Electric room, LT room, CCTV room, laundry, Meter Room with HT/LT panel, DG Room, AC Plant room, CCTV room/ Control room, Fire control room or any other similar services shall be considered free from FAR.
- Building service shafts like electrical shafts, communication shafts, fire shafts MRP and HVAC shall not be counted in FAR.
- Common toilets served by a public corridor shall be free from FAR.

x) Parking floor shall not be counted in FAR. However, twin parking floors shall also be excluded from FAR in Public & Semi- public and commercial buildings. Maximum height of parking floor shall be 3.00 Meters for residential use and 4.00 Metres for other uses. Shear walls shall be constructed on all the three sides of parking floor, so that it does not behave as a soft storey. In case, space as per requirement for parking is available in open, over and above the set backs, condition of parking floor shall not be insisted. Fee for parking floor(s) shall have to be payable in all cases.

xi) Every room used or intended to be used for the purpose of an office or for habitation in any building shall have a height of minimum 2.75 Meters. The chimneys, elevators, poles, tanks and other projections not used for human occupancy may extend above the prescribed height limits. The cornices and window sills may also project into any required Set Backs.

xii) The outer facade of the building should be in conformity to the Hill Architecture.

xiii) Sloping roof shall be mandatory which may be CGI, GI sheet or slate roof with facia. The roof shall be painted with post office red or forest green or natural roofing material such as slates. Height of sloping roof zero at eaves and maximum 2.75 Meters at centre shall be permissible. The Dormer at suitable distance on either side of the roof shall be permissible subject to the condition that the ridge of Dormer shall be below the ridge line of main roof. Roof top @ 12 M² per 1 Kilo Watt peak (KWp) shall be used for Solar Photo voltaic (PV) installations.

xiv) Construction in terraces shall be allowed to have a provision of storeys as permissible subject to fulfillment of FAR provision.

xv) 1/3rd area of the top floor shall be permissible as open terrace.

xvi) The applicants shall not be insisted for submission of No Objection Certificate (NOC) from National Highway Authority of India (NHAI) or Himachal Pradesh Public Works Department (HPPWD) authorities. However, applicant will submit his layout plan with clearly demarcated acquired and controlled width etc.

xvii) Distance from Electric Lines :- The distance in accordance with the Central Electricity Authority (Measures Relating to Safety and Electric Supply) regulations, 2010 as amended from time to time and as defined in National Building Code of India, 2016 is to be provided between the building and overhead electric supply line as under :-

Clearances from Electric Supply Lines

Sl. No.	Type of Supply Line	Vertical Clearance	Horizontal Clearance
1	Voltage lines and service lines not exceeding 650V	2.50 Metre	1.20 Metre
2	High voltage lines above 650 Volts and including 11,000 Volts	3.70 Metre upto and including 33KV	1.20 Metre
3	High voltage lines above 11,000 Volts and upto and including 33,000 Volts	3.70 Metre	2.00 Metre
4	Extra high voltage lines additional 33,000 Volts	3.70 Metre plus 0.30 Metre for every additional 33,000 Volts or part thereof	2.00 Metre plus 0.30 Metre for every additional 33,000 Volts or part thereof

xviii) Building shall not be put to use prior to issue of Completion Certificate by the competent authority.

xix) Issuance of No Objection Certificate (NOC) for water supply and electricity connections shall be as under: -

a) Temporary at plinth level

b) Permanent on completion of dwelling unit/floor/whole of the building

xx) Any subsequent deviations made in the building constructed after getting the plan approved and after grant of No Objection Certificate (NOC) issued by the Department shall entail the entire building unauthorized and NOC so issued shall be withdrawn and the services shall be disconnected.

xxi) No construction shall be allowed within a radius of 5.00 m from the Forest/Green belt boundary and within a radius of 2.00 m from an existing tree. The distance shall be measured from the circumference of the tree.

xxii)Reconstruction shall be permissible on old lines. The plinth area and number of storeys shall remain the same as existing before reconstruction. Any addition, if required, shall be allowed to the extent of 20% of existing built up area of ground floor subject to fulfillment of other planning regulations.

xxiii) The provision for Rain Harvesting Tank shall be proposed in the plan @20 litre per sqm. of the roof top area for those buildings having roof top area more than 200 sqm.

xxiv) Construction on sandwiched vacant plots falling within built up areas shall be permissible as per existing building line irrespective of the width of path/road abutting the site, provided existing buildings are authorized.

xxv)In the proposals for 3 and more dwelling units on plots of more than 200.00 Sqm. an adequate fire safety measures, provisions of an additional fire escape stair case and rain water harvesting shall be made.

xxvi) The construction shall be allowed at distance of 3.00 Metre, 5.00 Metre and 10.00 Metre (after HFL) of Nallah, Khud and river respectively.

xxvii) Construction of cellar shall not be counted as a storey and should be constructed within the prescribed setbacks and prescribed building lines and subject to maximum coverage on floor i.e. entrance floor and may be put for following uses:-

- Storage of household or other goods of ordinarily combustible material; Minimum width of path/road abutting one side of plot shall be 5.00 M.
- Strong rooms, bank cellars etc;
- Air conditioning equipment and other machines used for services and utilities of the building; and parking spaces.

The cellar shall have following requirements: -

- All the walls shall be kept dead and below the natural ground level except the portion kept for ventilation purpose
- Every cellar shall be, in every part, at least 2.40 M in height from the floor to the underside of the roof slab or ceiling
- Adequate ventilation shall be provided for the cellar and any deficiency in ventilation requirements may be met by providing mechanical ventilation in the form of blowers, exhaust fans and air conditioning system etc
- The minimum height of the ceiling of any cellar shall be 0.90 M and the maximum 1.20 M above the average surrounding ground level
- Adequate arrangements shall be made such that surface drainage does not enter the cellar
- The walls and floors of the cellar shall be watertight and be so designed that the effects of the surrounding soil and moisture if any, are taken into account in design and adequate damp proofing treatment is given
- The access to the cellar shall be separate from the main and alternative staircase providing access and exit from higher floor. Where the staircase is continuous in the case of buildings served by more than one staircase, the same shall be enclosed type, serving as a fire separation from the cellar floor and higher floors. Open ramps shall be permitted, if they are constructed within the building line subject to the provision of clause (v) above
- In case partition in the cellars is allowed by the Authority, no compartment shall be less than 50.00 M^2 in area and each compartment shall have proper ventilation provision and the cellar partition shall however, conform to the norms laid down by the Fire Services
- In no circumstances, construction of Toilet, Bath, and Kitchen etc. shall be allowed in the cellar

xxviii) Minimum permissible distance between two Blocks constructed on a plot shall be 5.00 m.

xxix) Every development proposal shall have explicit mention of sewage disposal.

xxx) No permission shall be granted in areas notified by the Archaeological Survey of India as protected monuments or areas, without prior clearance from the competent authority as prescribed for the purpose.

xxxi) Structural Stability Certificate should be submitted along with the project drawings and report for obtaining building permission. The structure should be vetted by a qualified structural engineer having experience of building designs in hilly and earthquake sensitive areas.

xxxii) No Development permission shall be allowed in the sliding zone. However, in exceptional case of larger public interest development permission shall be granted by the Competent Authority only after taking Soil Investigation Report as per Form -15 of HPTCP Rules, 2014.

xxxiii) No development permission shall be granted on the land having “Forest” classification in the revenue record until and unless specific clearance is granted by the competent authority i.e. Forest Department. However, the recreational activities shall be allowed after mandatory permission from the competent authority.

13.13 Sub-Division of Land Regulations

i) The Sub-Division of land into plots amounts to 'Development' under the Himachal Pradesh Town and Country Planning Act, 1977; as such no person will sub-divide the land unless permitted by the competent authority.

ii) Similarly, no Registrar or the Sub-Registrar will register any deed or documents of any sub-division of land, unless the sub-division of land is duly approved by the competent authority, as provided under Section 16 of the Himachal Pradesh Town and Country Planning Act, 1977 and the Sub-Division of Land Regulations as prescribed herein.

iii) The application for sub-division of land shall be submitted as per the procedure provided under Para 14.10. These shall be kept in view while permitting sub-division of land.

iv) The sub-division of land shall be permitted in accordance with natural profile/ topography as shown on the contoured map along with drainage of land, access, road orientation, wind direction and other environmental requirements and according to prescribed Land Use in the Development Plan. Natural flora and fauna shall be preserved. Unless site conditions prohibit, plots shall be permitted at right angle to the road with proper shape and dimension, so that optimum use of the land is ensured.

v) Development proposal for a part of land or khasra no. shall be considered. However, proposal for complete land holding/khasra No. shall be submitted even if planning permission is required for part of the land provided further that atleast one ROW of adequate width in view of total area of complete land holding/khasra No. shall have to be proposed to ensure access for balance area.

vi) The development of land shall not be permitted in area where basic services like paved roads, water supply, drainage, sewerage disposal, electricity, street lighting etc. do not exists or unless the applicant undertakes that these services shall be provided at his own cost.

i	Minimum width of pedestrian links to smaller cluster of plots, not exceeding 5 in number.	3.00 M.
ii	Minimum width of vehicular access, if number of plots is above 5.	5.00 M (with cul-de-sac) at the end.
iii	Minimum area for open/green space for the scheme having more than 5 plots	10%
iv	Minimum area for soak pit etc. (irrespective of number of plots).	5% of the scheme area/ Individual septic tank and soak pit can be proposed in each plot also.
v	Orientation of the plots shall be provided in such a manner so as to be in conformity with the integration of existing plots/infrastructure, wind direction, natural flow of surface drainage to allow un-obstructed rain water discharge.	–
vi	Layout of plots shall be governed by easy access having acceptable grades minimum 1 in 15 and which may not obstruct view or vista.	–

i) The minimum width of road for sub-division shall be 7.00 m. However, in view of geographical constraints, width of road/ path may be relaxed to 3.00 m for maximum plot upto 5 in number. The minimum width of path/ road abutting one side of plot shall be 5.00 m to cluster of plots from 6 to 10 in number. For group of plots between 11 to 20 in number (2000 to 4000 Sqm.) on one particular access, the minimum vehicular access shall be 7.00 m wide. In case of plots exceeding 20 in number (more than 4000 Sqm.) the minimum width of road of road shall be 9.00 m.

ii) In case of plots or land abutting the existing or proposed roads/paths, width of the same shall be increased to meet with the requirements of this Development Plan.
iii) Average slope gradient for regional roads shall have to be 1:20 However, local roads in town may be allowed with slope gradient up to 1:10 and additional width of carriageway shall be provided on curves for ensuring smooth flow of vehicular traffic, which may not obstruct view or vista.
iv) Minimum area of plot for detached house shall not be less than 150 Sqm.
v) Semi-detached house construction shall be allowed on plots upto max. 250 Sqm and row housing on plots upto 120 Sqm. Subject to maximum number of such plots do not exceed 8 in row after with a gap of 7.00 m shall be left. Although minimum size of plot for construction in a row with two common walls, has been kept as 90 Sqm, yet in exceptional circumstances, considering economic/site conditions the minimum size of plots in a row, with two common walls, up to 60 Sqm for houses may be allowed so as to provide smallest possible residential construction in a planned manner for the benefit of economically weaker sections of the society.
vi) The plots allotted by the Government under Gandhi Kutir Yojna, Indira Awas Yojna, Economically Weaker Section (EWS) Schemes etc. may be considered and permission accorded in relaxation to regulations to accommodate the target groups.
vii) The minimum area for open or green space in a Scheme having more than 5 plots (1000.00 Sqm) shall be 10% of the scheme area. Where a sub-division of land involving plots exceeding 10 in number (2000 Sqm) by individual colonizer or any society is proposed, the provisions of parks or tot-lots and open spaces shall be made on a centre suitable location in the scheme. Such parks cannot be built upon and sold in any manner in future. Provision shall also have to be made for education, medical, firefighting, religious, socio-cultural and other community facilities, based on actual requirements, in the cases of sub-division of land in accordance with prescribed norms and standards. The ownership of such land shall be transferred/ surrendered to the Development Authority or Local Authority for its development and future maintenance. In case, basic educational facilities are available within walkable distance, reservation of area shall not be mandatory.
viii) While carving out the plots, orientation of the plots shall be provided in such a manner, so as to be in conformity with the integration of existing plots, infrastructure, wind direction and natural flow of surface drainage to allow un-obstructed rain water discharge.
ix) Minimum area for septic tank and soak pit irrespective of number of plots shall be 5% of the scheme area. However, the same can also be proposed within boundary of each plot.
x) Provision for rain water harvesting for surface run off other than that of structures shall have to be ensured to ease the water supply problem.
xi) Provision for decomposition of biodegradable waste shall have to be made in accordance with requirements of particular sub-division of land by earmarking space at suitable location.

13.14 Regulations for Each Land Use Zone

The following Regulations shall apply to each of the Land Use Zones as specified below: -

13.14.1 Residential Zone

The General Regulation as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

The plot area, maximum coverage, setbacks and maximum Floor Area Ratio (FAR) shall be as under: -

Sr. No.	Description and Minimum Plot Area	Minimum Set Backs (in Metre)				Maximum Floor Area Ratio	Maximum Height in Metres*
		Front	Left	Right	Rear		
1.	Detached Houses						
	(i) 150 M^2 to 250 M^2	2.00	1.50	1.50	1.50	1.75	21.00
	(ii) Above 250 M^2 to 500 M^2	3.00	2.00	2.00	2.00	1.75	21.00
	(iii) Above 500 M^2	5.00	3.00	3.00	2.00	1.75	21.00
2.	Semi-detached Houses with common wall on one side						
	Upto 120 M^2	2.00	1.50	-	1.50	1.75	21.00
	Above120 M^2 to 250 M^2	2.00	1.75	-	1.50	1.75	21.00
3.	Row Houses with common wall on two sides						
	90 M^2 to 120 M^2	2.00	Nil	Nil	1.50	1.75	18.00

Note: - No projections and opening shall be provided on the sides of common wall, in case of row housing and semi detached housing. However, the owner of the plots of either side shall have an option to construct a common wall.

13.14.2 Commercial Zone

The General Regulation as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

The minimum Plot Area, minimum Set Backs and maximum Floor Area Ratio (FAR) for the construction in this zone shall be as under: -

Sl. No.	Description and Minimum Plot Area	Minimum Set Backs (in Metre)				Maximum Floor Area Ratio	Maximum Height in Metres*
		Front	Left	Right	Rear		
1.	Booths upto 10 M^2	1.00	Nil	Nil	Nil	-	4.00
2.	Shops						
	(i) Above 10 M2 to 30 M2	2.00	Nil	Nil	1.00	-	6.00
	(ii) Above 30 M2 to 100 M2	2.00	Nil	Nil	1.00	1.75	9.00
	(iii) Above 100 M2to 250 M2	3.00	Nil	Nil	1.50	1.75	12.00
	(iv) Above 250 M2 to 500 M2	4.00	1.50	1.50	2.00	1.75	15.00
3.	Shopping Complex						
	(i)500 M^2 to 1500 M^2	5.00	3.00	3.00	3.00	1.75	21.00
	(ii) Above 1500 M^2 to 4000 M^2	10.00	5.00	5.00	5.00	1.75	21.00
	(iii) Above 4000 M^2	12.00	7.50	7.50	6.00	1.50	21.00
	Parking						
	(i) 500 M^2 to 1500 M^2 = 1.50 ECS per100 M^2 of built up area						
	(ii)1500 M^2 to 4000 M^2 = 2.00 ECS per100 M^2 of built up area						
	(iii) Above 4000 M^2 = 3.00ECS per100 M^2 of built up area						
4.	Tourism Unit						
	(i) 250 M^2 to 500 M^2	3.00	2.00	2.00	2.00	1.75	21.00
	(ii) Above 500M^2 to 1500 M^2	5.00	4.00	4.00	3.00	1.50	21.00
	(iii)Above 1500 M^2	7.50	5.00	5.00	4.00	1.50	21.00

Sl. No.	Description and Minimum Plot Area	Minimum Set Backs (in Metre)				Maximum Floor Area Ratio	Maximum Height in Metres*
		Front	Left	Right	Rear		
	Parking (i) 250 M^2 to 500 M^2= 1.00ECS per 100 M^2 of built up area. (ii) Above 500 M^2 to 1500 M^2= 1.50ECS per 100 M^2 of built up area. (iii) Above 1500 M^2= 2.00 ECS per 100 M^2 of built up area. (iv) Tourism Units, can be known by the name of Hotel or Guest House or Eco-Tourism or by any other name. (v) In existing built up areas like Bazaars, the building line can be maintained.						
5.	Cinema / Cineplex 4000 M^2 and above	15.00	7.50	7.50	6.00	1.50	21.00
	Parking (i) 3.00 ECS per 100 M^2 of built up area (ii) Other Regulations as per Cinematography Act shall also apply.						
6.	Multiplexes 4000 M^2 and above	15.00	9.00	9.00	9.00	1.50	21.00
	Parking (i) Permissible within the complex. (ii) Parking space to be provided within Multiplex @ 3 ECS for every 100 M^2 of built up area. (iii) Other Regulations as per Cinematography Act shall also apply. (iv) Multiplex complex shall mean an integrated entertainment and shopping centre/ complex having at least 2 Cinema Halls. The minimum area on which this use shall be permitted should not be less than 4000 M^2. Apart from Cinema Halls, the Multiplexes may also have Restaurant, Fast Food, Outlet, Pubs, Health Spas/ Centers, Hotels and other Re-creational activities. The shopping center may have Retail Outlet, Video Games, Parlours, Bowling Alleys, Health Centers, Shopping Malls, Office space.						
	Note:- 1.00 ECS (Equivalent Car Space) shall mean as under:- (i) For parking in open = 23 M^2 (ii) For parking in stilts or ground floor = 28 M^2 (iii) For parking in basement floor = 32 M^2						
7.	Multi-level parking (i) 500 M^2 to 1500 M^2 (ii)Above 1500 M^2 to 4000 M^2 (iii) Above 4000 M^2	 5.00 10.00 12.00	 3.00 5.00 7.50	 3.00 5.00 7.50	 3.00 5.00 6.00	 1.75 1.75 1.50	 21.00 21.00 21.00

***Note.—The Maximum height of building further be depicted by the General Regulation clause No 2.**

The Hotels/Guest Houses shall be permitted provided following regulations: -

1. The proposed Guest Houses/Hotels must have a vehicular access at least with a width of not less than 3.00 M.
2. Each suit shall have an attached independent toilet.
3. If a commercial building/plot abuts on two or more streets (path/road building/ plot shall be deemed for the purpose of this regulation to phase upon the street (path/road) that has greater width.

13.14.3 Industrial Zone

The General Regulation as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

Type of Industry, minimum Plot Area, minimum Set Backs, maximum Floor Area Ratio (FAR) and maximum height of building: -

Sl. No.	Type of Industry and Minimum Plot Area	Minimum Set Back in Metres				Maximum FAR	Maximum Height in Metres from Mean Sea Level above 1000M
		Front	Left	Right	Rear		
1.	Small Scale Industries 250 M^2 to 500 M^2	3.00	2.00	2.00	2.00	1.75	12.00
2.	Service/ Light scale Industries Above 500 M^2 to 1000 M^2	5.00	2.00	2.00	3.00	1.50	12.00
3.	Medium Scale Industries Above 1000 M^2 to 5000 M^2	10.00	5.00	5.00	5.00	1.25	15.00
4.	Large and Heavy Scale Industries Above 5000 M^2	15.00	7.50	7.50	7.50	1.00	15.00

Note: -

1. Service area required for pharmaceutical units or such type of Industries under requirement of Goods Manufacturing Practice (G.M.P) shall not be included for calculation of FAR, provided it is only used for utilities and services but not in any case for production.
2. For ancillary uses like security post/room shall be allowed in setback area i.e. one wall shared with the boundary wall and shall be counted in the FAR.

13.14.4 Public and Semi Public Zone

The General Regulation as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

i. Minimum area of plot

The minimum area of plot shall depend on the specific requirements; however it should not be less than 150.00 Sqm.

ii. Maximum number of storeys

For public and semi-public buildings, maximum number of storeys shall be 4+1 mandatory parking floor. The short fall in parking, if any, shall be met out in open area, over land above the setbacks.

iii. Maximum height of building.

The maximum height of public and semi-public buildings shall be 18.80 m (including 2.50 m maximum height of sloping roof and 2.70 m height of compulsory for parking floor).

The maximum coverage, setbacks and FAR shall be as under: -

Sl. No.	Description	Maximum Coverage	Minimum Setback (M)				Maximum FAR
			Front	Left	Right	Rear	
1	Educational Buildings	40%	8.00	2.50	2.50	2.50	2.00

Sl. No.	Description	Maximum Coverage	Minimum Setback (M)				Maximum FAR
			Front	Left	Right	Rear	
2	Police Station, Fire Station Buildings	40%	8.00	2.50	2.50	2.50	2.00
3	Medical Buildings	40%	8.00	2.50	2.50	2.50	2.00
4	Community Hall	40%	8.00	2.50	2.50	2.50	2.00
5	Library/Religious Buildings	40%	8.00	2.50	2.50	2.50	2.00
6	Government-Semi Government Offices Buildings	40%	8.00	2.50	2.50	2.50	2.00

Note: -

i) Up to 50% of open area shall be utilized for open parking and rest shall be landscaped.
ii) In case of petrol/diesel filling stations, the layout plan/norms prescribed for setbacks etc. by the Indian Oil Corporation (IOC) shall be adopted. However, on National Highway and State Highways the front setback shall be kept 8.00 m If rear and side setbacks are not mentioned on the layout plan of (IOC), then the sides and rear setbacks shall be kept as 2.00 m
iii) In the case of godowns for Liquefied Petroleum Gas (LPG) cylinders. The norms as prescribed by the Oil and Natural Gas Commission (ONGC) shall be adopted. However, on National Highway and State Highways the front setback shall be kept 8.00 m from acquired width of the Highway. If the rear and side setbacks are not mentioned on the layout plan of (ONGC), then the side and rear setbacks shall be kept as 2.00 m
iv) In case of existing institutional buildings, Government and Semi-Government Office buildings in Zones, other than this Zone, the permission on special grounds may be given by the Competent Authority, to construct such institutional buildings according to the requirements and Regulations of that particular Zone.
v) Every plot should have minimum vehicular access of 5.00 m

13.14.5 Traffic and Transportation

The General Regulation as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

In case of construction of any building incidental to traffic and transportation use, such as, convenient shopping, hotel/ dhabas, ware-housing, waiting hall, etc. the Regulations as applicable to Commercial Zone shall also be applicable to this Zone.

13.15 Risk Based Classification of Buildings

In order to mitigate any disasters, risk based buildings have been classified in three categories namely -

i. High Risk Buildings
ii. Moderate Risk Buildings
iii. Low Risk Buildings

Risk Based Classification of Buildings

Sl. No.	Risk	Buildings	Planning Permission Time *
1.	Residential Buildings		

Sl. No.	Risk	Buildings	Planning Permission Time *
(a)	High	Group Housing Schemes, above 3 Storey buildings, buildings on slopes more than 30º, any building raised on landfill, reclaimed land, buildings2.00 M abovetheHighest Flood Level (HFL) upto a distance of 10.00 Metre, buildings with communication towers and buildings falling under the corridor of HT/LT lines.	Within 60 days.
(b)	Moderate	All 2-3 storey buildings, buildings on slopes above 15º and upto 30º.	Within 30 days.
(c)	Low	Single Storey Buildings Constructed On Slope Less than 15º.	Within 20 days.
2.	**Commercial Buildings**		
(a)	High	Commercial Shopping Complexes, Multiplexes, Tourism Units, Marriage palaces, Automobile Showrooms, any building raised on landfill, reclaimed land, buildings within the minimum setback from HFL as prescribed in respective DPs, buildings with communication towers and buildings falling under the corridor of HT/LT lines.	Within 60 days.
(b)	Moderate	Double storey shops	Within 30 days.
(c)	Low	Single storey shops	Within 20 days.
3.	**Industrial Buildings**		
(a)	High	Buildings above two storeys, any building above 10 meters height, any building raised on landfill, reclaimed land, buildings within the minimum setback from HFL as prescribed in respective DPs, buildings with communication towers and buildings falling under the corridor of HT/LT lines.	Within 60 days.
(b)	Low	Single storey buildings of 10 meters or less than 10 meters' height.	Within 20 days.
4.	**Public and Semi-Public**		
(a)	High	All buildings except for the buildings mentioned under Low Risk category	Within 60 days.
b)	Low	Toilets, rain shelters, pump houses and crematoriums.	Within 20 days.
5.	**Mixed Land Use Buildings**		
(a)	High	All buildings.	Within 60 days.

- **As amended from time to time by the State Govt.**

Note:-

(i) The High Risk category of constructions will be supervised by the Registered Private Professionals and the Structural Safety Certificate & Design will be submitted by the Registered Structural Engineers.

(ii) The Moderate Risk and Low Risk Category buildings would be given fast track approval.

13.16 Other Regulations

Regulations for Solar Passive Building Design, for Development of Barrier Free Environment for the Persons with Disabilities in Public and Semi Public Building & Re-creational Areas within the limits of Economic Capacity, for collection of Rain Water Harvesting, for Development of Apartments and Colonies in Real Estate Projects and for Installation for Communication Towers shall be as prescribed in the Himachal Pradesh Town and Country Planning Rules, 2014.

13.16.1 Fire and Life Safety

The provisions of fire and life safety as enshrined in the National Building Code of India, 2016 shall be applicable to buildings having height of 15.00 Meter or above and having floor area more than 500 M2 on any one or more floors and in case of Institutional Buildings it shall be applicable to the buildings having height of 9.00 Meter and above.

13.16.2 Relaxations

In the public interest and in the interest of town design or any other material consideration the Competent Authority may relax minimum size of plot, setbacks and Floor Area Ratio (FAR). The decision of the Competent Authority shall be final.

13.16.3 Parks and Open Spaces

The General Regulations as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

In case of construction of any building incidental to parks and open spaces use, such as, public toilets, fast food kiosks, stadium, sports room etc. the Regulations as applicable to the Public and Semi-Public Zone as envisaged under Regulation 13.12.4 shall also be applicable to this Zone.

13.16.4 Agriculture

The General Regulation as laid down under para 13.10 shall be kept in view while permitting any development in this Zone.

i. Sub-Division of land in this Zone shall be allowed only for agriculture purposes and for the purposes incidental to agriculture use.
ii. The predominant landuse will remain agriculture. However, mixed landuse shall be permitted on special grounds by the competent authority.

13.16.5 Heritage cum Conservation areas

I. The temples of Baijnath and Siddhnath are structures of national as well as regional importance. These temples are also mentioned in the list of protected monuments as Grade-I by Archaeological Survey of India. Accordingly, as per the law Ancient Monuments Preservation Act, the three zones around any heritage monument of national importance i.e. prohibited (demarcated heritage property), restricted (100 m from monument) and regulated (300 m from monument) must be demarcated.
II. If any construction/addition/alteration which is necessary required to be undertaken in the premises of heritage areas, it should follow the architectural style of such features. Adequate setbacks and open spaces should be left around the heritage features.
III. As far as possible Hill Architecture imperatives shall have to be ensured and incorporated

in the designs in terms of facades, sloping roof, windows, doors etc. in hilly areas.

IV. Other Regulations and instructions as issued by the Government from time to time shall be adhered strictly.

14 PLAN IMPLEMENTATION

14.1 Introduction

The Development Plan contains provision for a projected population of 28,553 which is anticipated to reside in Baijnath Paprola Planning Area by the end of year 2035 through period of 20 years. The total area covered within Baijnath Paprola Planning Area is 1823 ha. The 532.71 ha of land covered under forest and 39.12 ha under Water Bodies has been retained as such. An acute shortage of funds for acquisition of land for public purposes is a great challenge to the administration to ensure a sustainable integrated development pattern. It has, therefore, been proposed to adopt a people's participatory approach for an optimum accomplishment. It will only be possible with the joint efforts of Nagar Panchayat and the Gram Panchayats included in the Baijnath Paprola Planning Area and the Department of Town and Country Planning which is nodal agency for planning in the State.

Out of 1823 ha of the Planning Area, area required for various uses up to the year 2035 works out to be 453.7 ha. Though Phasing, costing and implementation of Development Plan is to be contemplated by integrating it as part of Five Year Plans and keeping in view development priorities to meet needs of growing population, yet in view of socio-economic dynamics likely to persist after the course of five years on one hand and in consonance with the national policy of preparation of rolling plans on the other. The programme for implementation of each successive phase has to be worked out in view of reviewing at interval of 5 years' time frame i.e. after each phase. For implementation of Development Plan, services land have necessarily to be developed in view of planning provisions to the channelized growth of the town according to the Development Plan. In implementation of this Development Plan, Nagar Panchayat Baijnath Paprola and Gram Panchayats are proposed to play an instrumental role for bulk services, however, the State Govt. has to make allocation either to the Department of Town and Country Planning or to Infrastructural Departments.

14.2 Development Proposals

The Development Plan is a regulatory instrument to guide the development through 20 years. Since it is not possible to clearly foresee the entire scenario with reference to the financial aspects that is likely to emerge over such a long period, therefore, the Development Plan is considered to be a long term policy document which is to serve as a guide for development and must be reviewed after every five years to incorporate all the changes on priorities. The first phase is very important as it gives lead to the development pattern that is to be followed in subsequent phases.

To implement the proposals made in previous chapter in a phased manner, following phases have been proposed: -

Phase I **2016-2021**

Phase II **2021-2026**

Phase III **2026-2031**

Phase IV **2031-2035**

Details of activities to be undertaken in each phase is given below

Table 14-1: Phasing of Different Projects

Sl. No.	Activities/Use	Phase I 2016-21	Phase II 2021-26	Phase III 2026-31	Phase IV 2031-36
1	**Commercial**				
a	Hotels and Restaurants	✓			
b	Service Sector Repair shops	✓			
2	**R&D Centres and Industrial Development**				
a	Skill Development centre near Dhar Baggi	✓			
b	R&D Institute for Agro based Industries	✓			
c	Agro-processing Industries at Kasba Paprola	✓			
	Development of land for Agriculture and Horticulture purposes at Koti	✓	✓		
3	**Traffic and Transportation**				
a	Proposed Bypass Road to NH-154	✓	✓		
b	Widening of NH-154 to 12m	✓	✓		
c	Junction Improvements	✓			
d	Tehsil level Mandi at Paprola Khas		✓		
e	Relocation of Bus Terminal near to proposed mandi		✓		
f	Widening of existing roads	✓	✓		
g	Parking at strategic locations	✓	✓		
h	Taxi Stand at Old Bus Stand Area	✓	✓		
i	Basement Parking at Temple complex	✓			
4	**Tourism**				
a	Baijnath Temple Area upgradation	✓			
b	Wellness Tourism hub at Baijnath (near Binwa River)	✓	✓		
c	Upgradation of surrounding areas of Tashi Jong Monastery		✓		
d	Binwa Riverfront beautification	✓			
e	Nature's Trail from Malgota to Bheth Jhikli	✓	✓		
f	Camping sites at Malgota	✓	✓		
g	Viewing deck and allied infrastructure along the nature's trail	✓			
h	Tourism Resort for high end tourists at Majehrna Khas		✓		
5	**Facilities**				
a	Veterinary Centre	✓			
b	Banquet Hall	✓			
6	**Recreational Spaces**				
a	Housing Area Park	✓	✓	✓	✓
b	Neighbourhood Park		✓		
c	Botanical Garden		✓	✓	
d	Zoological Garden		✓	✓	
7	**Infrastructure**				
a	Water supply	✓	✓	✓	✓
b	Sewerage	✓	✓	✓	✓
c	Strom water drains	✓	✓	✓	✓
d	Solid Waste Management	✓	✓	✓	✓
e	Power and Telecommunication	✓	✓	✓	✓

Source: Based on the previous analysis

14.3 Costing

The Plan envisages that the residential development is to be ensured by the land owners by sub-divisions and Nagar Panchayat and Gram Panchayats through mechanism of 'Land Pooling and Reconstitution'.In case the "Land Pooling and Reconstitution" mechanism does not succeed, the land has to be acquired for implementation of the Development Plan.

Roads with width 6.00 metres and less are to be developed by Nagar Panchayats and Gram Panchayat by raising funds from the beneficiaries. Roads with a width of 9.00 metres and 12.00 metres are to be implemented by the PWD by raising development charges through implementation and realization of remunerative uses in the activity zones. However, the cost of arterial roads (18.00 metres) including bye passes, bulk water and electric supply is to be borne by obtaining funds through plan allocation from the State Government and the same is to be realized subsequently from the beneficiaries.

The cost of various infrastructure projects envisaged in the Development Plan accounts of about 111 crores. This includes-

1. Construction of new roads and road widening on proposed roads.
2. Construction of storm-water drains along the roads.
3. Construction of Water Treatment Plan and laying of water supply distribution network.
4. Construction of Sewerage Treatment Plant and laying of sewer network.
5. Augmentation of existing electric sub-station and laying of over-head electrical lines.
6. Street-lighting and telecommunication networking.
7. Solid waste management.

14.4 Financing

The cost of residential development including road network, sewerage, drainage, electrification, parks, open spaces, parking, local convenient shopping etc., is to be borne by the land owners either themselves in respect of their land holdings or by way of land pooling and reconstitution mechanism in respect of small irregular holdings of different owners. The benefits likely to occur by way of sale of plots by virtue of enhancement of land values due to planned efforts would be more than sufficient to meet with the cost of development. On the basis of demarcation of plots in view of duly approved sub-division land pooling and reconstitution scheme by the Director, Town and Country Planning Department. Himachal Pradesh. The land owner may get advance from the likely purchasers for development purposes.

Wellness Tourism hub of 3.25 ha will be resourced by HP Tourism Department in collaboration with Forest Department. The revenue income will be shared between two departments for the O&M purpose.

The Freight Complex with 5.1 ha is to be developed by the Nagar Panchayat/Gram Panchayat/PWD by raising funds from the beneficiaries in due course of time, by charged parking.

The HP Department of Industries/HP State Industrial Development Corporation will be responsible for development of agro based industries. R&D centre and ITI will be resourced and set up by HP Directorate of Higher Education.

Similarly, the respective Departments/Government undertaking by raising resources from the beneficiaries will be responsible for development of utilities, facilities and services including water supply, sewerage, drainage, electrification, telephone etc. in Planning Area.

The Government and Semi-Govt. offices are to be developed by the respective Departments either by raising their own resources or by obtaining funds from the Government.Town and sector level parks may be developed by the Nagar Panchayat and Gram Panchayat by arranging land for the purpose.

Table 14-2: Block Cost

Sl.No.	Description	Unit	Rate	Total Quantity	Total Amount
1	**Roads and Pathway**				
1A	Asphalt Carriage Way	Sq.m	3,300	66976	22,10,20,130
1B	Minor Bridges (RCC)	Sq.m	80,000	924	7,39,20,000
	Sub Head Total				**22,10,20,130**
2	**Storm Water Drainage**				
2A	Drains	Meter	21,000	19136	40,18,54,782
3B	Culverts (RCC) Big	Meter	70,00,000		
2B	Culverts (RCC) Road Crossings	Each	20,000	970	1,94,08,000
	Sub Head Total				**42,12,62,782**
3	**Water Supply**				
3A	Potable Water Supply Distribution Network	Meter	3,500	9568	3,34,87,899
3B	WTP	MLD	3,00,00,000	6.90	20,70,00,000
	Sub Head Total				**3,34,87,899**
4	**Sewerage**				
4A	Waste Water network	Meter	5,750	9568	5,50,15,833
4B	STP	MLD	3,50,00,000	5.00	17,50,00,000
	Sub Head Total				**23,00,15,833**
5	**Solid Waste Management**	**TPD**	**3,00,000**	**200.00**	**6,00,00,000**
6	Power and Telecommunications				
6A	11kV OH Network (renovation, modernization and upgradation)	km	381145	**3.00**	**11,43,435**
6B	New 11kV OH Network	km	602557	**7.60**	**45,79,433**
6C	L.V Network with Pole Mounted Distribution Transformers	km	918298	**7.20**	**66,11,746**
6D	Street lighting on the existing OH Infrastructure	km	500000	**9.03**	**45,15,000**
6E	Telecommunications / Data Network Conduiting	km	250000	**6.65**	**16,62,500**
	Sub Head Total				**1,85,12,114**
	Total				**98,42,98,758**
	Add for Misc.and unforeseen items		5%		4,92,14,938
	Escalation (per annum)		7%		7,23,45,959
	Total (Cost as On 2016)				**1,10,58,59,654**
	Totalin Crore				**110.59**

14.5 Implementation

Besides landowners, Nagar Panchayat, and Gram Panchayats shall be responsible for creation of services land. However, overall control on implementation of proposals of Development Plan in terms of landuse, zoning and sub-division regulations shall vest with the Director, Town and Country Planning Department, Himachal Pradesh. To assess achievements of each phase and to orient the

Development Plan according to changing needs as well as to cater for unforeseen factors, it is envisaged to review this Plan after the completion of period of each phase.

In order to ensure inter-departmental coordination, a committee under the chairmanship of SDM, Baijnath is hereby recommended. It shall have following members:

a. S.D.M, Baijnath, Chairman
b. Tehsildar, Baijnath
c. Executive Engineer (B&R), H.P.PWD, Baijnath
d. Assistant Engineer (I&PH), Baijnath
e. Assistant Engineer (HPSEB), Baijnath and Paprola
f. DFO, Baijnath
g. Pradhan, Nagar Panchayat, Baijnath Paprola
h. Executive Officer, Nagar Panchayat, Baijnath Paprola
i. Regional Manager, HRTC, Palampur
j. Pradhans, Gram Panchayats in Baijnath Paprola Planning Area
k. Executive Engineer (NH)
l. Three Key NGO's or public representatives
m. Town and Country Planner, Kangra Member Secretary

The Committee may meet at least twice in a year and devise ways and means to ensure implementation of development plan proposals.

14.5.1 Implementation Arrangements

The implementation of the Development Plan will be undertaken by the Local Authorities and allied line departments guided by the Department of Town and Country Planning and Special Area Development Authorities. Table 14-3 shows the institutional arrangement responsible for different sectors in the Development Plan:

Table 14-3: Project Implementation Arrangement

Sl. No	Sector	Competent Authority	Project Implementation framework
1	Land	Tehsildar, Sub – Divisional Magistrate (SDM)	All land acquisition, land pooling and land utilization processes will be as per the Act after approval from the Sub-Divisional Magistrate
2	Built Up	Town and Country Planning Department (TCPD)	All building construction and land use pattern will be as per the Development Control Regulations drafted in the Himachal Pradesh Town and Country Planning Rules, 2014
3	Water Supply	Himachal Pradesh Irrigation and Public Health Department (HPIPH)	Laying of new water lines and improvement of water infrastructure will be as per the approval of the HPIPH
4	Power Supply	Himachal Pradesh State Electricity Board (HPSEB)	Laying of new transmission lines and improvement of power infrastructure will be as per the approval of the HPSEB
5	Transport ation	Public Works Department (PWD)	Construction of new roads and provision of drainage infrastructure is as per the approval from the PWD
6	Education	Department of Higher Education (DHE), Himachal Pradesh	Construction of new schools will be as per the approval of the DHE although Universities and college approval is done by

Sl. No	Sector	Competent Authority	Project Implementation framework
			the State Education Board
7	Health	Health and Family Welfare Department (HFW), Himachal Pradesh	Construction of new health centers and improvement of health service infrastructure is as per the approval of the state HFW
8	Tourism	Department of Tourism and Civil Aviation (DTCA), Himachal Pradesh	Proposal for new tourism products or improvement in tourism infrastructure will be as per the approval of the DTCA

Figure 14-1: Institutions involved in Implementation activities
Source: Field Survey and Stakeholder's consultation

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ANNEXURES

Household Survey Format

Development Plan for Planning/Special Areas of Himachal Pradesh

Department of Town and Country Planning, Shimla

Household Survey

NAME OF SURVEYOR: …… DATE: …… DAY: ……

NAME OF RESPONDENT: …… AREA SURVEYED: ……

1. HOUSEHOLD PROFILE

sL. No.	Relationship with the Respondent	Age	Sex	Education a. Illiterate b. Literate b. Primary c. Higher Secondary d. Graduate e. Post-Graduate f. Others (please specify)	Occupation a. Student b. Business c. Government Service d. Private professional e. Retired f. Home maker g. others (please specify)	Monthly Income a. <5000 b. 5000-10000 c. 10000-20000 d. 20000-30000 e. 30000-40000 f. 40000-50000 g. >50000	Work Places a. Within Village b. In urban areas (planning area) c. Within planning area d. Outside planning area	Education Institute	Mode of transport a. Walk b. Cycle c. Two-Wheeler d. Car e. Taxi/Auto f. Bus g. Tractors h. Others

1.1 Housing typology ☐ Plotted ☐ Flats ☐ Others, specify ……

1.2 No. of floors ☐ G ☐ G+1 ☐ G+2 ☐ G+3 ☐ Others, specify ……

1.3 When was this house built? ☐ 0-10years ☐ 10-20years ☐ More than 20years

1.4 House ownership ☐ Owned ☐ Rented ☐ Govt. allotted

1.5 If rented, Monthly Rental Rs

……

2. HOUSING STRUCTURE PROFILE

2.1 Plot size (m^2).....**Property / Land Value**

.....

2.2 No. of rooms .....

2.3 Floor Wise Building Use

Floor	Use (Residential/ Commercial/ Others)	Remarks (specify if others)
Ground Floor		
First Floor		
Second Floor		
Third Floor		

2.4 Building Material

a) Floor ☐ Cement ☐ Mud

b) Wall ☐ Brick ☐ Wooden

c) Roof ☐ RCC ☐ Concrete

☐Asbestos ☐ Thatch ☐ Tiles

☐ Tin sheet

3. MIGRATION:

3.1 CITY/TOWN SPECIFIC

a) Duration of stay of head of household ☐ Since birth ☐ No

b) If no, When did you move here ☐ 0-2 years ☐ 2-5 years ☐ 5-10 years

☐More than 10 year

c) From where did you migrate?

.....

d) What was the reason for migration?

☐ Employment ☐ Education ☐Marriage ☐Due to Disaster ☐Others, specify .....

4. PHYSICAL INFRASTRUCTURE

4.1 WATER SUPPLY

a) Source: ☐ Supply by IPH ☐ Bore well ☐ Hand pump ☐Community Tap

☐Others

b) If municipal supply, Duration of supply per day ☐ Irregular ☐< 1hour ☐ 1-2hour ☐>2hour

c) Do you pay tariff for water ☐Yes ☐No

c-1) If yes, how much amount you pay per month?

.....

4.2 SANITATION and SEWERAGE

a) Toilet Facility ☐ Within Housing Block ☐ Within Premises ☐ Community Toilets ☐Open

b)Sewerage system ☐ Individual Septic Tank ☐Community Septic Tank ☐ City Sewer line

b-1) If septic tanks then the frequency of cleaning septic tanks

☐Monthly ☐Quarterly ☐Half-yearly ☐Yearly

b-2) Method of cleaning the septic tanks ☐Manually ☐ Mud pipe ☐ Others

4.3 STORM WATER

a) Type of Strom Water Drains ☐Open ☐Closed ☐None

b) Any Problems with Strom Water Drains ☐Water logging ☐Blockage ☐Smell ☐ Mosquito breeding

c) Frequency of cleaning ☐Daily ☐Weekly ☐Fortnight ☐Monthly

d) Any water harvesting facility practiced? ☐Yes ☐No

d-1) If yes, ☐ Individual ☐ Community level

4.4 SOLID WASTE MANAGEMENT

a) Method of Solid Waste Collection

☐ Door-to-door collection ☐ Community Level Collection ☐ None

b) Waste Dumping

☐ Individually to the nearest bin ☐ Individually to the dumping ground ☐ Community level dumping ☐ Others

c) Distance to nearest garbage bin/ dumping ground (in km)

……

4.5 POWER

a) Do you have Metered Electricity Connection ☐Yes ☐No

c) Are there any power cuts? ☐ Yes ☐ No

c-1) If yes, for what time/ hours per day……

d) How much tariff do you pay for electricity?

☐ per unit…… ☐ per month……

e) Do you have access to solar power? ☐ Yes ☐ No

e-1) If yes, for what purpose you use? ☐ Lighting ☐ Solar Heating system

☐ Cooking ☐ Other, specify…….

4.6 TRANSPORT

a) Vehicle ownership

Type	4-wheeler	2-wheeler	Cycle	Other	None
No.					

b) Details of Household trips

Sl.No.	Gender	Mode of Transport a. Walk b. Cycle c. Two-Wheeler d. Car e. Taxi/Auto f. Bus	Origin	Destination	Travel Purpose	Travel Time	Travel Cost

Sl.No.	Gender	Mode of Transport a. Walk b. Cycle c. Two-Wheeler d. Car e. Taxi/Auto f. Bus	Origin	Destination	Travel Purpose	Travel Time	Travel Cost

b-1) Are you satisfied with the frequency of bus service in your area? ☐ Yes ☐ No

b-1.1) If no,

why?.....

5. SOCIAL INFRASTRUCTURE

Social Services/Infrastructure	Location e. Within village f. In urban areas (planning area) g. Within planning area h. Outside planning area	Frequency of use a. Daily b. Twice a week c. Weekly d. Rarely	Satisfaction Unsatisfied - 0-3 Fair - 4-5 Good - 6-7 V.Good - 8-10
(A) **Health**			
Dispensary/ Clinic			
Hospital			
(B) **Shopping**			
Convenience Shopping			
Weekly Market			
Local Shopping			
Others, specify			
(C) **Services**			
Community Hall			
Post Office			

Social Services/Infrastructure	**Location** **e. Within village** **f. In urban areas (planning area)** **g. Within planning area** **h. Outside planning area**	**Frequency of use** a. Daily b. Twice a week c. Weekly d. Rarely	**Satisfaction** Unsatisfied - 0-3 Fair - 4-5 Good - 6-7 V.Good - 8-10
Police Booth/ Station			
Fire Station			
(D) **Recreational**			
Parks			
Playground			
Others			
(E) Utilities			
Taxi stand/ Bus stop			
(F) **Education**			
Nursery School/ Anganwadi			
Primary School			
Secondary School			
Sr. Sec. School			
College			

6. DISASTER AWARENESS and MANAGEMENT

6.1 AT INDIVIDUAL LEVEL

a) Which are the most common/likely disaster in your area

☐ Flood ☐ Earthquake ☐ Cloud Burst ☐ Drought

☐ Forest Fire ☐ Landslide ☐ Fire Incident ☐ Other…….

b-1) Does any of the above mentioned event took place in your area/nearby in last 10 years? □ Yes □ No

b-1.1) If yes, name the event ……..

b-1.2) Date of the event …….

b-1.3) Impact ☐ Devastating ☐Moderate ☐Mild

c) If your family prepared to face disaster?☐ Yes ☐ No

c-1) If yes, what steps will you take to mitigate the impact

…….

6.2 AT COMMUNITY LEVEL

a) Did you receive any mock drill on any of the disaster event at community level in your area? □ Yes □ No

a-1) If yes, on what event? …….

a-2) Who organized it? …….

a-3) Frequency of such drills? ☐Monthly ☐Quarterly ☐Half-yearly ☐Yearly

7. Problems and Prospects

i. **What are the basic problems that the housing area faces, example, drainage, water supply, waste disposal, safety and security?**

……

……

……

ii. **Who is responsible for the management of the housing area? What major works have they done in the past?**

……

……

……

iii. **What are the benefits of living in the area, for example connectivity, accessibility to facilities, etc**

……

……

……

iv. **Do you suggest some changes that could help improve the housing area?**

……

……

……

v. **What kind of improvements and development are you expecting in your area?**

……

……

……

8. What are your priorities for Improvement?

☐ Security ☐ Health ☐ Water ☐ Employment ☐ Roads

☐ Education ☐ Housing ☐ Sanitation ☐ Electricity

Traffic Volume Count Survey Format

TRAFFIC VOLUME COUNT SURVEY FORMAT

Name of Enumerator: ..... Date / Time: .....

Name of Road / Location: ..... Direction of Traffic: .....

Time Period	Car	2 Wheeler	LMV (Passenger)		HMV (Passenger)		LMV (Goods)		HMV (Goods)	Tractor		Non – Motorized Vehicles				
			3 W	4 W	Mini Bus	Standard Bus	3 W	4 W	Truck	With Trailer	Without Trailer	Cycle	Rick-Shaw	Hand-cart	Bullock cart	Others

Origin Destination Survey Format

ORIGIN – DESTINATION SURVEY FORMAT

Name of Enumerator: …….. Date / Time: ……

Name of Road / Location: …… Direction of Traffic: ……

Time Period	Vehicle type	Passenger or Goods	Origin (Place/District/ State)	Destination (Place/District/ State)	Purpose of Trip	No. of Passengers	Type of Goods	No. of Trips (in days/ weeks/ months)	No. of working days (in days/ weeks/ months)	Route mostly preferred or adopted

Traffic Projections

Survey Point I – Tashi Chowk

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2016	3322	667	3064	16	34	351	101	332	283	2	26	1	0	0	8	0	0	0	0	8207	8068	
2017	3488	700	3217	17	36	369	106	349	297	2	27	1	0	0	9	0	0	0	0	8617	8472	
2018	3663	735	3378	18	38	387	112	366	312	2	29	1	0	0	9	0	0	0	0	9048	8895	2 Lane
2019	3846	772	3546	18	40	406	117	385	327	3	30	1	0	0	10	0	0	0	0	9501	9340	
2020	4038	810	3724	19	42	427	123	404	343	3	32	1	0	0	10	0	0	0	0	9976	9807	
2021	4240	851	3910	20	44	448	129	424	361	3	33	1	0	0	11	0	0	0	0	10474	10297	
2022	4452	893	4105	21	46	470	136	445	379	3	35	1	0	0	11	0	0	0	0	10998	10812	
2023	4674	938	4311	22	48	494	143	468	398	3	37	1	0	0	12	0	0	0	0	11548	11353	
2024	4908	985	4526	24	50	519	150	491	417	3	38	1	0	0	13	0	0	0	0	12125	11920	
2025	5154	1034	4753	25	53	545	157	516	438	3	40	1	0	0	13	0	0	0	0	12732	12517	
2026	5411	1086	4990	26	56	572	165	541	460	4	42	1	0	0	14	0	0	0	0	13368	13142	
2027	5682	1140	5240	27	58	600	173	568	483	4	44	1	0	0	14	0	0	0	0	14037	13799	
2028	5966	1197	5502	29	61	630	182	597	507	4	47	1	0	0	15	0	0	0	0	14739	14489	
2029	6264	1257	5777	30	64	662	191	627	533	4	49	1	0	0	16	0	0	0	0	15475	15214	
2030	6577	1320	6066	32	68	695	201	658	559	4	52	1	0	0	17	0	0	0	0	16249	15975	
2031	6906	1386	6369	33	71	730	211	691	587	5	54	1	0	0	18	0	0	0	0	17062	16773	
2032	7252	1455	6687	35	75	766	221	725	617	5	57	1	0	0	18	0	0	0	0	17915	17612	

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2033	7614	1528	7022	37	78	805	232	762	648	5	60	1	0	0	19	0	0	0	0	18811	18493	
2034	7995	1604	7373	38	82	845	244	800	680	5	63	1	0	0	20	0	0	0	0	19751	19417	
2035	8395	1685	7741	40	86	887	256	840	714	6	66	2	0	0	21	0	0	0	0	20739	20388	
2035	8814	1769	8129	42	91	931	269	882	750	6	69	2	0	0	22	0	0	0	0	21776	21407	
2037	9255	1857	8535	44	95	978	282	926	787	6	72	2	0	0	24	0	0	0	0	22864	22478	
2038	9718	1950	8962	47	100	1027	296	972	827	7	76	2	0	0	25	0	0	0	0	24008	23602	
2039	10204	2048	9410	49	105	1078	311	1021	868	7	80	2	0	0	26	0	0	0	0	25208	24782	
2040	10714	2150	9880	51	110	1132	327	1072	911	7	84	2	0	0	27	0	0	0	0	26468	26021	
2041	11250	2258	10374	54	116	1189	343	1125	957	8	88	2	0	0	29	0	0	0	0	27792	27322	4 Lane
2042	11812	2371	10893	57	121	1248	360	1182	1005	8	92	2	0	0	30	0	0	0	0	29181	28688	
2043	12403	2489	11438	60	128	1311	378	1241	1055	8	97	2	0	0	32	0	0	0	0	30640	30122	
2044	13023	2614	12010	62	134	1376	397	1303	1108	9	102	2	0	0	33	0	0	0	0	32172	31629	
2045	13674	2744	12610	66	141	1445	417	1368	1163	9	107	2	0	0	35	0	0	0	0	33781	33210	
2046	14358	2881	13241	69	148	1517	438	1436	1221	10	112	3	0	0	37	0	0	0	0	35470	34871	
2047	15076	3025	13903	72	155	1593	460	1508	1282	10	118	3	0	0	38	0	0	0	0	37244	36614	
2048	15829	3177	14598	76	163	1673	483	1584	1346	11	124	3	0	0	40	0	0	0	0	39106	38445	
2049	16621	3336	15328	80	171	1756	507	1663	1414	11	130	3	0	0	42	0	0	0	0	41061	40367	

Survey Point II – SDM Complex

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2016	1544	146	1665	35	33	98	42	138	50	2	15	7	0	0	0	0	0	0	0	3775	3303	2 Lane
2017	1621	153	1748	37	34	103	44	145	52	2	16	8	0	0	0	0	0	0	0	3963	3468	
2018	1702	161	1835	39	36	108	46	153	55	2	16	8	0	0	0	0	0	0	0	4161	3642	
2019	1787	169	1927	41	38	113	49	160	58	2	17	8	0	0	0	0	0	0	0	4370	3824	
2020	1876	177	2024	43	40	119	51	168	60	2	18	9	0	0	0	0	0	0	0	4588	4015	
2021	1970	186	2125	45	42	125	54	177	63	2	19	9	0	0	0	0	0	0	0	4817	4216	
2022	2069	196	2231	47	44	131	56	186	67	2	20	10	0	0	0	0	0	0	0	5058	4426	
2023	2172	205	2342	50	46	138	59	195	70	2	21	10	0	0	0	0	0	0	0	5311	4648	
2024	2281	216	2460	52	49	145	62	205	73	2	22	11	0	0	0	0	0	0	0	5577	4880	
2025	2395	226	2583	55	51	152	65	215	77	3	23	11	0	0	0	0	0	0	0	5856	5124	
2026	2514	238	2712	57	53	160	69	226	81	3	24	12	0	0	0	0	0	0	0	6148	5380	
2027	2640	250	2847	60	56	168	72	237	85	3	25	13	0	0	0	0	0	0	0	6456	5649	
2028	2772	262	2990	63	59	176	76	249	89	3	27	13	0	0	0	0	0	0	0	6779	5932	
2029	2911	275	3139	67	62	185	79	261	94	3	28	14	0	0	0	0	0	0	0	7118	6228	
2030	3056	289	3296	70	65	194	83	274	98	3	29	15	0	0	0	0	0	0	0	7473	6540	
2031	3209	304	3461	73	68	204	87	288	103	3	31	15	0	0	0	0	0	0	0	7847	6867	
2032	3370	319	3634	77	72	214	92	302	109	4	32	16	0	0	0	0	0	0	0	8239	7210	
2033	3538	335	3816	81	75	225	96	317	114	4	34	17	0	0	0	0	0	0	0	8651	7570	
2034	3715	351	4006	85	79	236	101	333	120	4	36	18	0	0	0	0	0	0	0	9084	7949	
2035	3901	369	4207	89	83	248	106	350	126	4	37	19	0	0	0	0	0	0	0	9538	8346	

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2035	4096	387	4417	94	87	260	112	367	132	4	39	19	0	0	0	0	0	0	0	10015	8764	
2037	4301	407	4638	98	91	273	117	386	139	5	41	20	0	0	0	0	0	0	0	10516	9202	
2038	4516	427	4870	103	96	287	123	405	145	5	43	21	0	0	0	0	0	0	0	11042	9662	
2039	4741	448	5113	108	101	301	129	425	153	5	45	23	0	0	0	0	0	0	0	11594	10145	
2040	4978	471	5369	114	106	316	136	447	160	5	48	24	0	0	0	0	0	0	0	12173	10652	
2041	5227	494	5637	119	111	332	142	469	168	6	50	25	0	0	0	0	0	0	0	12782	11185	
2042	5489	519	5919	125	117	348	150	492	177	6	53	26	0	0	0	0	0	0	0	13421	11744	
2043	5763	545	6215	132	123	366	157	517	186	6	55	27	0	0	0	0	0	0	0	14092	12331	
2044	6051	572	6526	138	129	384	165	543	195	7	58	29	0	0	0	0	0	0	0	14797	12948	4 Lane
2045	6354	601	6852	145	135	403	173	570	205	7	61	30	0	0	0	0	0	0	0	15537	13595	
2046	6672	631	7195	152	142	423	182	598	215	7	64	32	0	0	0	0	0	0	0	16313	14275	
2047	7005	663	7555	160	149	445	191	628	226	8	67	33	0	0	0	0	0	0	0	17129	14989	
2048	7355	696	7933	168	156	467	200	660	237	8	71	35	0	0	0	0	0	0	0	17986	15738	
2049	7723	730	8329	176	164	490	210	693	249	8	74	37	0	0	0	0	0	0	0	18885	16525	

Survey Point III – Majehrna Road

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2016	806	28	992	3	18	54	30	66	70	4	31	0	0	0	0	0	0	0	0	2103	1973	
2017	847	30	1042	3	19	57	31	70	73	4	32	0	0	0	0	0	0	0	0	2208	2072	
2018	889	31	1094	3	20	60	33	73	77	4	34	0	0	0	0	0	0	0	0	2318	2175	
2019	933	33	1149	3	21	63	34	77	81	4	36	0	0	0	0	0	0	0	0	2434	2284	
2020	980	34	1206	3	22	66	36	81	85	4	37	0	0	0	0	0	0	0	0	2556	2398	
2021	1029	36	1267	3	23	69	38	85	89	5	39	0	0	0	0	0	0	0	0	2684	2518	
2022	1081	38	1330	4	25	72	40	89	94	5	41	0	0	0	0	0	0	0	0	2818	2644	
2023	1135	40	1396	4	26	76	42	93	98	5	43	0	0	0	0	0	0	0	0	2959	2776	
2024	1191	42	1466	4	27	80	44	98	103	5	46	0	0	0	0	0	0	0	0	3107	2915	
2025	1251	44	1540	4	28	84	46	103	108	6	48	1	0	0	0	0	0	0	0	3262	3061	2 Lane
2026	1313	46	1617	4	30	88	48	108	114	6	50	1	0	0	0	0	0	0	0	3425	3214	
2027	1379	48	1697	5	31	92	51	113	120	6	53	1	0	0	0	0	0	0	0	3596	3375	
2028	1448	51	1782	5	33	97	53	119	126	7	55	1	0	0	0	0	0	0	0	3776	3543	
2029	1521	53	1871	5	35	102	56	125	132	7	58	1	0	0	0	0	0	0	0	3965	3720	
2030	1597	56	1965	5	36	107	59	131	138	7	61	1	0	0	0	0	0	0	0	4163	3907	
2031	1676	59	2063	6	38	112	62	138	145	8	64	1	0	0	0	0	0	0	0	4371	4102	
2032	1760	61	2166	6	40	118	65	145	153	8	67	1	0	0	0	0	0	0	0	4590	4307	
2033	1848	65	2275	6	42	124	68	152	160	8	71	1	0	0	0	0	0	0	0	4819	4522	
2034	1941	68	2388	6	44	130	71	159	168	9	74	1	0	0	0	0	0	0	0	5060	4748	

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2035	2038	71	2508	7	46	137	75	167	177	9	78	1	0	0	0	0	0	0	0	5313	4986	
2035	2140	75	2633	7	49	143	79	176	186	10	82	1	0	0	0	0	0	0	0	5579	5235	
2037	2247	78	2765	7	51	151	82	185	195	10	86	1	0	0	0	0	0	0	0	5858	5497	
2038	2359	82	2903	8	54	158	87	194	205	11	90	1	0	0	0	0	0	0	0	6151	5772	
2039	2477	87	3048	8	56	166	91	204	215	11	95	1	0	0	0	0	0	0	0	6458	6060	
2040	2601	91	3201	9	59	174	95	214	226	12	99	1	0	0	0	0	0	0	0	6781	6363	
2041	2731	95	3361	9	62	183	100	224	237	12	104	1	0	0	0	0	0	0	0	7120	6681	
2042	2867	100	3529	9	65	192	105	236	249	13	110	1	0	0	0	0	0	0	0	7476	7016	
2043	3011	105	3705	10	68	202	111	247	261	14	115	1	0	0	0	0	0	0	0	7850	7366	
2044	3161	110	3890	10	72	212	116	260	274	14	121	1	0	0	0	0	0	0	0	8243	7735	
2045	3319	116	4085	11	75	223	122	273	288	15	127	1	0	0	0	0	0	0	0	8655	8121	2 Lane
2046	3485	122	4289	12	79	234	128	286	302	16	133	1	0	0	0	0	0	0	0	9087	8527	
2047	3659	128	4504	12	83	245	134	301	317	17	140	2	0	0	0	0	0	0	0	9542	8954	
2048	3842	134	4729	13	87	258	141	316	333	17	147	2	0	0	0	0	0	0	0	10019	9401	
2049	4034	141	4965	13	92	271	148	332	350	18	154	2	0	0	0	0	0	0	0	10520	9872	

Survey Point IV – Mandi Road

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2016	1823	499	2002	6	120	227	53	234	222	6	39	2	0	0	1	0	0	0	0	5235	5330	
2017	1914	524	2103	6	126	239	56	246	233	7	41	2	0	0	1	0	0	0	0	5497	5597	
2018	2009	550	2208	7	133	251	59	258	244	7	43	2	0	0	1	0	0	0	0	5771	5877	
2019	2110	578	2318	7	139	263	62	271	256	7	45	3	0	0	1	0	0	0	0	6060	6171	
2020	2215	607	2434	7	146	276	65	284	269	8	47	3	0	0	1	0	0	0	0	6363	6479	
2021	2326	637	2556	8	154	290	68	299	283	8	49	3	0	0	1	0	0	0	0	6681	6803	
2022	2442	669	2683	8	161	305	72	314	297	8	52	3	0	0	1	0	0	0	0	7015	7143	2 Lane
2023	2565	702	2818	8	170	320	75	329	312	9	55	3	0	0	1	0	0	0	0	7366	7500	
2024	2693	738	2959	9	178	336	79	346	327	9	57	3	0	0	1	0	0	0	0	7734	7875	
2025	2827	774	3106	9	187	353	83	363	344	10	60	3	0	0	1	0	0	0	0	8121	8269	
2026	2969	813	3262	10	196	370	87	381	361	10	63	4	0	0	1	0	0	0	0	8527	8683	
2027	3117	854	3425	10	206	389	91	400	379	11	66	4	0	0	1	0	0	0	0	8953	9117	
2028	3273	897	3596	11	216	408	96	420	398	11	70	4	0	0	1	0	0	0	0	9401	9573	
2029	3437	941	3776	11	227	429	101	441	418	12	73	4	0	0	1	0	0	0	0	9871	10051	
2030	3609	988	3965	12	239	450	106	463	439	12	77	4	0	0	1	0	0	0	0	10365	10554	
2031	3789	1038	4163	12	250	473	111	486	461	13	81	5	0	0	1	0	0	0	0	10883	11082	
2032	3978	1090	4371	13	263	496	117	511	484	14	85	5	0	0	1	0	0	0	0	11427	11636	
2033	4177	1144	4590	14	276	521	123	536	508	14	89	5	0	0	2	0	0	0	0	11998	12217	
2034	4386	1201	4819	14	290	547	129	563	533	15	93	5	0	0	2	0	0	0	0	12598	12828	

PCU	1.0	1.0	0.5	1.0	1.5	3.0	1.0	1.0	3.0	1.5	4.5	0.5	2.0	6.0	3.0	1.0	3.0	1.5	3.0
GR (%)	5																		

Year	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Toll exempted vehicle				Total Vehicles	Total PCU	Remarks
																Car/Jeep	Bus	LCV	Truck			
2035	4606	1262	5060	15	304	574	135	591	560	16	98	6	0	0	2	0	0	0	0	13228	13470	
2035	4836	1325	5313	16	320	603	142	621	588	17	103	6	0	0	2	0	0	0	0	13889	14143	
2037	5078	1391	5579	16	336	633	149	652	617	17	108	6	0	0	2	0	0	0	0	14584	14850	
2038	5331	1460	5858	17	352	665	156	684	648	18	113	7	0	0	2	0	0	0	0	15313	15593	
2039	5598	1533	6151	18	370	698	164	719	681	19	119	7	0	0	2	0	0	0	0	16079	16373	
2040	5878	1610	6458	19	389	733	172	755	715	20	125	7	0	0	2	0	0	0	0	16883	17191	4 Lane
2041	6172	1691	6781	20	408	770	181	792	750	21	131	8	0	0	2	0	0	0	0	17727	18051	
2042	6480	1775	7120	21	428	808	190	832	788	22	138	8	0	0	2	0	0	0	0	18613	18953	
2043	6804	1864	7476	22	450	849	200	874	827	23	145	8	0	0	2	0	0	0	0	19544	19901	
2044	7145	1957	7850	23	472	891	210	917	869	24	152	9	0	0	3	0	0	0	0	20521	20896	
2045	7502	2055	8242	24	496	936	220	963	912	26	159	9	0	0	3	0	0	0	0	21547	21941	
2046	7877	2158	8655	25	521	982	231	1011	958	27	167	10	0	0	3	0	0	0	0	22625	23038	
2047	8271	2266	9087	27	547	1031	243	1062	1005	28	176	10	0	0	3	0	0	0	0	23756	24190	
2048	8684	2379	9542	28	574	1083	255	1115	1056	30	185	11	0	0	3	0	0	0	0	24944	25399	
2049	9119	2498	10019	30	603	1137	268	1171	1109	31	194	11	0	0	3	0	0	0	0	26191	26669	

Average Daily Traffic - Classified Traffic Volume Count Survey

Survey Point I – Tashi Chowk

Average of Seven Days

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
8:00-9:00	128	35	120	9	9	17	5	11	11	-	1	-	-	-	-	317	28	345	-	345	347
9:00-10:00	268	41	243	1	5	37	12	36	31	0	2	-	-	-	2	594	84	678	-	678	704
10:00-11:00	313	62	290	1	1	41	11	34	19	-	2	-	-	-	0	707	67	774	-	774	759
11:00-12:00	312	62	282	1	1	20	12	27	25	0	3	-	-	-	1	678	68	746	-	746	707
12:00-1:00	293	79	296	2	1	27	10	25	32	-	4	-	-	-	1	698	72	770	-	770	755
1:00-2:00	271	89	246	0	3	37	7	58	32	-	2	-	-	-	-	646	99	745	-	745	768
2:00-3:00	316	70	292	-	4	37	17	24	27	-	2	-	-	-	1	719	71	790	-	790	783
3:00-4:00	319	51	262	1	6	34	9	32	24	0	3	-	-	-	1	673	70	742	-	742	743
4:00-5:00	293	46	276	1	1	31	8	23	19	1	2	-	-	-	0	648	53	700	-	700	671
5:00-6:00	347	69	333	1	1	30	4	26	26	-	4	1	-	-	1	782	61	843	1	843	804
6:00-7:00	272	37	248	-	2	24	4	20	22	0	1	-	-	-	1	584	48	631	-	631	605
7:00-8:00	190	26	174	-	1	17	2	14	15	0	0	-	-	-	0	409	33	442	-	442	424
8:00-9:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00-10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00-11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00-12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00-1:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00-2:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00-3:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00-4:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00-5:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00-6:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00-7:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
7:00-8:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	3322	667	3064	16	34	351	101	332	283	2	26	1	0	0	8	7454	753	8206	1	8207	8068

Daily Wise Both Direction

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	Standard Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
Date: 13/02/2016	2633	365	1720	9	33	287	93	272	260	1	11	2	0	0	0	5048	636	5682	2	5684	5971
Date:14/02/2016	3755	671	3561	9	26	336	92	296	271	3	32	0	0	0	8	8358	702	9060	0	9060	8637
Date:15/02/2016	3578	964	3909	30	44	431	119	430	316	3	35	0	0	0	17	8956	921	9877	0	9877	9597
ADT (Baijnath to Palampur)	**1358**	**266**	**1145**	**3**	**20**	**152**	**48**	**152**	**133**	**2**	**11**	**0**	**0**	**0**	**6**	**2946**	**352**	**3297**	**0**	**3297**	**3356**
ADT (Palampur to Baijnath)	**1964**	**401**	**1918**	**13**	**14**	**199**	**53**	**180**	**150**	**0**	**15**	**0**	**0**	**0**	**3**	**4509**	**401**	**4909**	**0**	**4909**	**4712**
ADT	**3322**	**667**	**3064**	**16**	**34**	**351**	**101**	**332**	**283**	**2**	**26**	**1**	**0**	**0**	**8**	**7454**	**753**	**8206**	**1**	**8207**	**8068**
AADT	**3322**	**667**	**3064**	**16**	**34**	**351**	**101**	**332**	**283**	**2**	**26**	**1**	**0**	**0**	**8**	**7454**	**753**	**8206**	**1**	**8207**	**8068**

Survey Point II – SDM Complex

Average of Seven Days

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
8:00-9:00	98	16	90	5	7	9	2	7	4	0	-	3	-	-	-	228	13	238	3	241	224
9:00-10:00	166	13	150	4	1	12	5	18	2	-	2	0	-	-	-	345	27	372	0	372	330
10:00-11:00	178	8	202	1	1	11	3	14	6	-	3	-	-	-	-	401	25	426	-	426	368
11:00-12:00	150	13	192	10	7	5	3	12	6	-	1	0	-	-	-	378	22	400	0	400	334
12:00-1:00	125	13	158	3	4	11	3	9	3	0	1	2	-	-	-	315	17	330	2	331	287
1:00-2:00	123	14	142	2	2	5	2	17	6	-	1	-	-	-	-	289	27	317	-	317	274
2:00-3:00	123	8	125	0	2	8	4	7	5	-	0	-	-	-	-	267	16	283	-	283	249
3:00-4:00	139	17	148	2	5	9	6	12	2	-	1	0	-	-	-	321	21	342	0	342	296
4:00-5:00	140	15	154	2	1	11	7	14	7	0	2	1	-	-	-	324	31	354	1	355	321
5:00-6:00	126	13	150	3	1	7	4	16	5	1	2	1	-	-	-	301	27	328	1	328	286
6:00-7:00	103	10	90	1	2	6	2	7	2	-	1	-	-	-	-	212	12	224	-	224	197
7:00-8:00	72	7	63	1	1	4	1	5	1	-	0	-	-	-	-	148	8	157	-	157	138
8:00-9:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00-10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00-11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00-12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00-1:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00-2:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00-3:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00-4:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00-5:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00-6:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00-7:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
7:00-8:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1544	146	1665	35	33	98	42	138	50	2	15	7	0	0	0	3528	247	3767	7	3775	3303

Daily Wise Both Direction

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
Date: 13/02/2016	1461	50	1361	40	16	98	44	148	58	4	19	14	0	0	0	3039	273	3298	14	3312	3012
Date:14/02/2016	1321	112	1672	39	31	89	43	144	39	1	9	6	0	0	0	3270	236	3499	6	3505	2970
Date:15/02/2016	1849	276	1961	27	52	107	40	123	52	0	17	2	0	0	0	4275	231	4504	2	4506	3927
ADT (Baijnath to Mahakal)	**792**	**75**	**825**	**19**	**19**	**48**	**23**	**68**	**25**	**1**	**7**	**5**	**0**	**0**	**0**	**1782**	**123**	**1900**	**5**	**1906**	**1669**
ADT (Mahakal to Baijnath)	**752**	**71**	**840**	**16**	**14**	**50**	**20**	**70**	**25**	**1**	**8**	**2**	**0**	**0**	**0**	**1746**	**123**	**1867**	**2**	**1869**	**1634**
ADT	**1544**	**146**	**1665**	**35**	**33**	**98**	**42**	**138**	**50**	**2**	**15**	**7**	**0**	**0**	**0**	**3528**	**247**	**3767**	**7**	**3775**	**3303**
AADT	**1544**	**146**	**1665**	**35**	**33**	**98**	**42**	**138**	**50**	**2**	**15**	**7**	**0**	**0**	**0**	**3528**	**247**	**3767**	**7**	**3775**	**3303**

Survey Point III – Majehrna Road

Average of Seven Days

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
8:00-9:00	40	3	63	-	3	2	2	3	4	-	2	-	-	-	-	111	11	122	-	122	113
9:00-10:00	63	2	111	1	1	5	1	10	7	1	4	0	-	-	-	183	24	206	0	207	190
10:00-11:00	95	1	107	0	0	6	4	7	7	1	4	-	-	-	-	209	23	232	-	232	221
11:00-12:00	96	4	104	1	2	7	6	6	5	-	2	-	-	-	-	213	19	232	-	232	212
12:00-1:00	84	4	98	1	0	4	3	6	5	-	3	-	-	-	-	190	17	208	-	208	186
1:00-2:00	74	2	89	-	-	5	2	5	7	0	4	-	-	-	-	171	18	189	-	189	183
2:00-3:00	70	3	62	-	3	3	3	5	6	-	3	-	-	-	-	141	17	159	-	159	159
3:00-4:00	67	3	77	0	3	5	1	6	5	1	2	-	-	-	-	155	15	170	-	170	160
4:00-5:00	71	1	81	-	5	3	3	6	7	0	2	-	-	-	-	162	18	180	-	180	167
5:00-6:00	59	2	88	-	1	5	2	5	9	-	3	-	-	-	-	155	19	174	-	174	171
6:00-7:00	51	2	66	-	-	5	1	5	5	-	1	-	-	-	-	124	11	136	-	136	125
7:00-8:00	36	1	46	-	-	4	1	3	3	-	0	-	-	-	-	87	8	95	-	95	87
8:00-9:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00-10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00-11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00-12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00-1:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00-2:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00-3:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00-4:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00-5:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00-6:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
6:00-7:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00-8:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**806**	**28**	**992**	**3**	**18**	**54**	**30**	**66**	**70**	**4**	**31**	**0**	**0**	**0**	**0**	**1902**	**200**	**2102**	**0**	**2103**	**1973**

Daily Wise Both Direction

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
Date: 13/02/2016	772	11	924	3	11	48	38	66	85	5	18	1	0	0	0	1770	212	1981	1	1982	1855
Date:14/02/2016	848	5	1123	3	8	57	34	40	60	2	41	0	0	0	0	2044	177	2221	0	2221	2043
Date:15/02/2016	799	69	930	2	36	57	17	93	66	4	33	0	0	0	0	1893	212	2105	0	2105	2021
ADT (Panchrukhi to Paprola)	**383**	**25**	**515**	**1**	**6**	**28**	**14**	**38**	**34**	**3**	**17**	**0**	**0**	**0**	**0**	**958**	**105**	**1062**	**0**	**1063**	**991**
ADT (Paprola to Panchrukhi)	**423**	**4**	**478**	**2**	**12**	**26**	**16**	**28**	**36**	**1**	**14**	**0**	**0**	**0**	**0**	**945**	**95**	**1040**	**0**	**1040**	**981**
ADT	**806**	**28**	**992**	**3**	**18**	**54**	**30**	**66**	**70**	**4**	**31**	**0**	**0**	**0**	**0**	**1902**	**200**	**2102**	**0**	**2103**	**1973**
AADT	**806**	**28**	**992**	**3**	**18**	**54**	**30**	**66**	**70**	**4**	**31**	**0**	**0**	**0**	**0**	**1902**	**200**	**2102**	**0**	**2103**	**1973**

Survey Point IV – Mandi Road

Average of Seven Days

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
8:00-9:00	115	36	145	-	19	26	3	13	20	1	7	-	-	-	-	340	44	384	-	384	438
9:00-10:00	167	40	204	-	7	19	5	23	23	1	5	-	-	-	-	437	56	494	-	494	495
10:00-11:00	173	41	190	2	7	21	7	26	19	-	3	0	-	-	-	433	54	487	0	488	484
11:00-12:00	170	55	169	-	17	18	6	20	16	1	1	-	-	-	-	429	44	473	-	473	469
12:00-1:00	148	58	176	-	9	17	3	18	22	-	4	-	-	-	-	408	48	456	-	456	466
1:00-2:00	148	49	183	-	8	19	4	24	21	1	3	0	-	-	0	407	53	460	0	460	466
2:00-3:00	156	37	173	0	11	22	4	23	16	-	2	0	-	-	0	401	45	446	0	446	450
3:00-4:00	148	44	182	-	15	22	7	20	23	-	2	0	-	-	-	411	52	462	0	463	478
4:00-5:00	170	39	164	1	14	20	5	18	22	2	5	0	-	-	-	407	51	458	0	458	485
5:00-6:00	184	43	195	2	7	24	3	22	17	0	2	-	-	-	-	455	45	500	-	500	495
6:00-7:00	144	34	131	0	4	12	4	16	14	0	2	0	-	-	-	325	36	360	0	361	356
7:00-8:00	101	24	91	0	3	9	3	11	10	0	1	0	-	-	-	228	25	252	0	252	249
8:00-9:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00-10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00-11:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00-12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00-1:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00-2:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00-3:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00-4:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00-5:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00-6:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00-7:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
7:00-8:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**1823**	**499**	**2002**	**6**	**120**	**227**	**53**	**234**	**222**	**6**	**39**	**2**	**0**	**0**	**1**	**4680**	**555**	**5233**	**2**	**5235**	**5330**

Daily Wise Both Direction

Time interval	Car/ Jeep/Van	Utility Vehicles	Two wheeler	3wh(pass)	Minibus	School Bus	3wh(Goods)	LCV	Trucks	Tractor	Tractor with Trailer	Cycle	Cycle Rickshaw	Animal cart	Others	Passenger Vehicles	Freight Vehicles	Total Fast Moving Vehicles	Total Slow Moving Vehicles	Total Vehicles	Total PCU
Date: 13/02/2016	1852	496	1717	1	110	219	67	279	233	8	37	0	0	0	0	4394	622	5017	0	5017	5248
Date:14/02/2016	1855	479	2265	4	154	221	43	195	226	5	41	3	0	0	2	4980	512	5489	3	5492	5480
Date:15/02/2016	1762	523	2025	13	98	243	51	229	206	6	38	4	0	0	0	4666	529	5192	4	5196	5263
ADT (Palampur to Mandi)	**912**	**239**	**962**	**3**	**70**	**113**	**27**	**109**	**104**	**3**	**18**	**1**	**0**	**0**	**1**	**2300**	**262**	**2561**	**1**	**2562**	**2615**
ADT (Mandi to Palampur)	**910**	**260**	**1040**	**3**	**50**	**115**	**26**	**125**	**118**	**3**	**20**	**1**	**0**	**0**	**0**	**2380**	**293**	**2672**	**1**	**2673**	**2715**
ADT	**1823**	**499**	**2002**	**6**	**120**	**227**	**53**	**234**	**222**	**6**	**39**	**2**	**0**	**0**	**1**	**4680**	**555**	**5233**	**2**	**5235**	**5330**
AADT	**1823**	**499**	**2002**	**6**	**120**	**227**	**53**	**234**	**222**	**6**	**39**	**2**	**0**	**0**	**1**	**4680**	**555**	**5233**	**2**	**5235**	**5330**

GOVERNMENT OF
HIMACHAL PRADESH

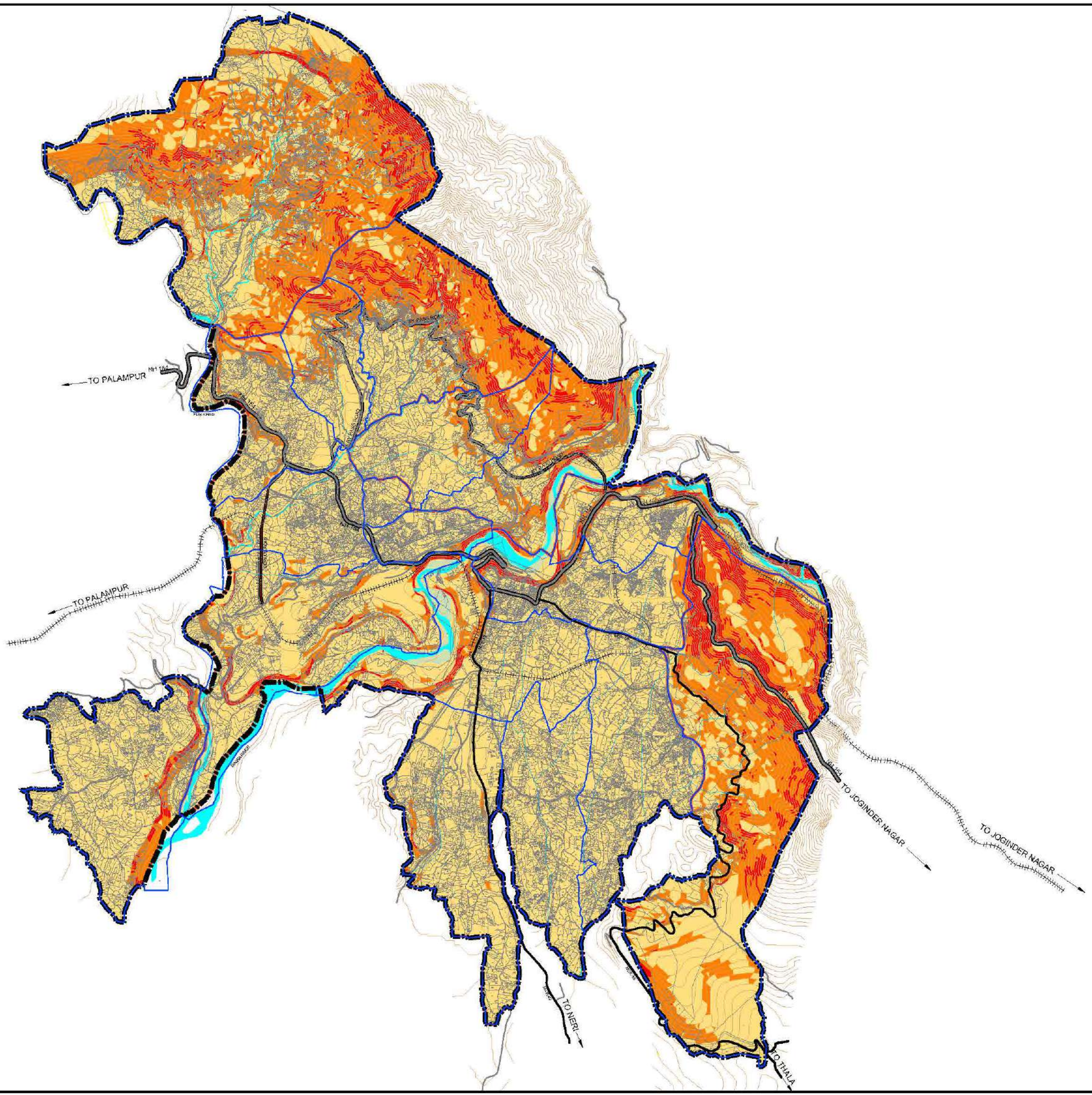
DEVELOPEMENT PLAN FOR VARIOUS PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH

BAIJNATH-PAPROLA PLANNING AREA
DEVELOPMENT PLAN - 2035

ANNEXURE - MAPS




Department of Town & Country Planning
Government of Himachal Pradesh



Notes

1. All dimensions are in meter unless otherwise specified.
2. All dimensions to be verified on site.

Legend

	PLANNING AREA BOUNDARY
	NAGAR PANCHAYAT BOUNDARY
	REVENUE MOHAL BOUNDARY
	NH
	MDR
	OTHER ROADS
	PROPOSED BY PASS ROAD
	PROPOSED SERVICE ROAD
	RAILWAY LINE
	RIVER / WATER BODIES
	NATURAL STREAM
	KHASRA
	CONTOUR

S. No.	Min. Slope	Max. Slope	Area (Hect)	Color
1	0.00%	26.80%	1243.57	
2	26.80%	57.70%	433.08	
3	>	57.70%	146.92	

Department of Town & Country Planning
Government of Himachal Pradesh

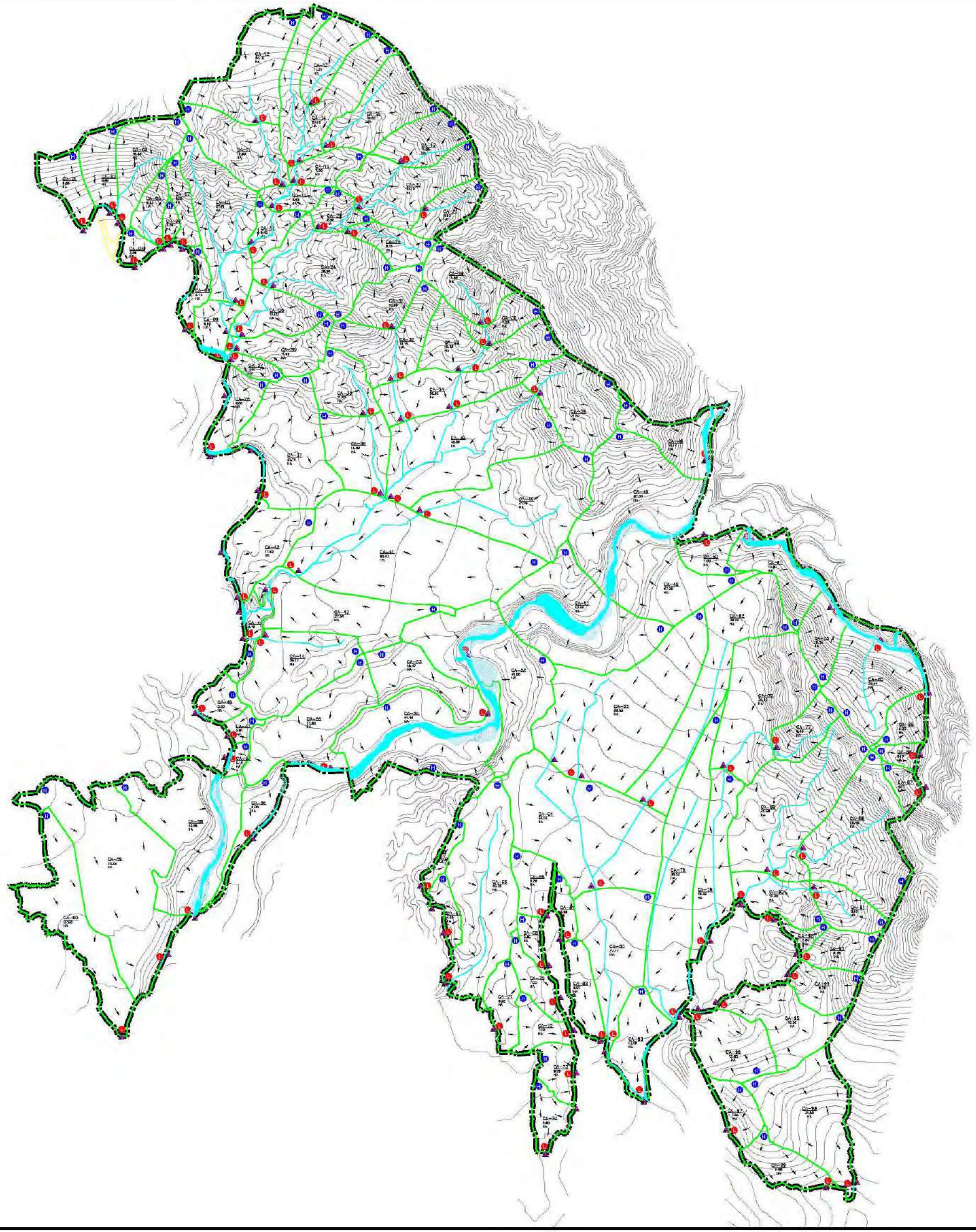
DEVELOPMENT PLAN FOR PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH (BAIJNATH PAPROLA)

SITE SLOPE MAP

0 200 500 1000m

N

ALL DIMENSIONS ARE IN METER
NEAR SITE



Notes

1. All dimensions are in meter unless otherwise specified.
2. All dimensions to be verified on site.

Legend

	PLANNING AREA BOUNDARY
	RIVER / WATER BODIES
	NATURAL STREAM
H	HIGH POINT
L	LOW POINT
	OUTFALL LOCATION
	FLOW DIRECTION
	CATCHMENTS BOUNDARY
	CONTOUR

Department of Town & Country Planning
Government of Himachal Pradesh

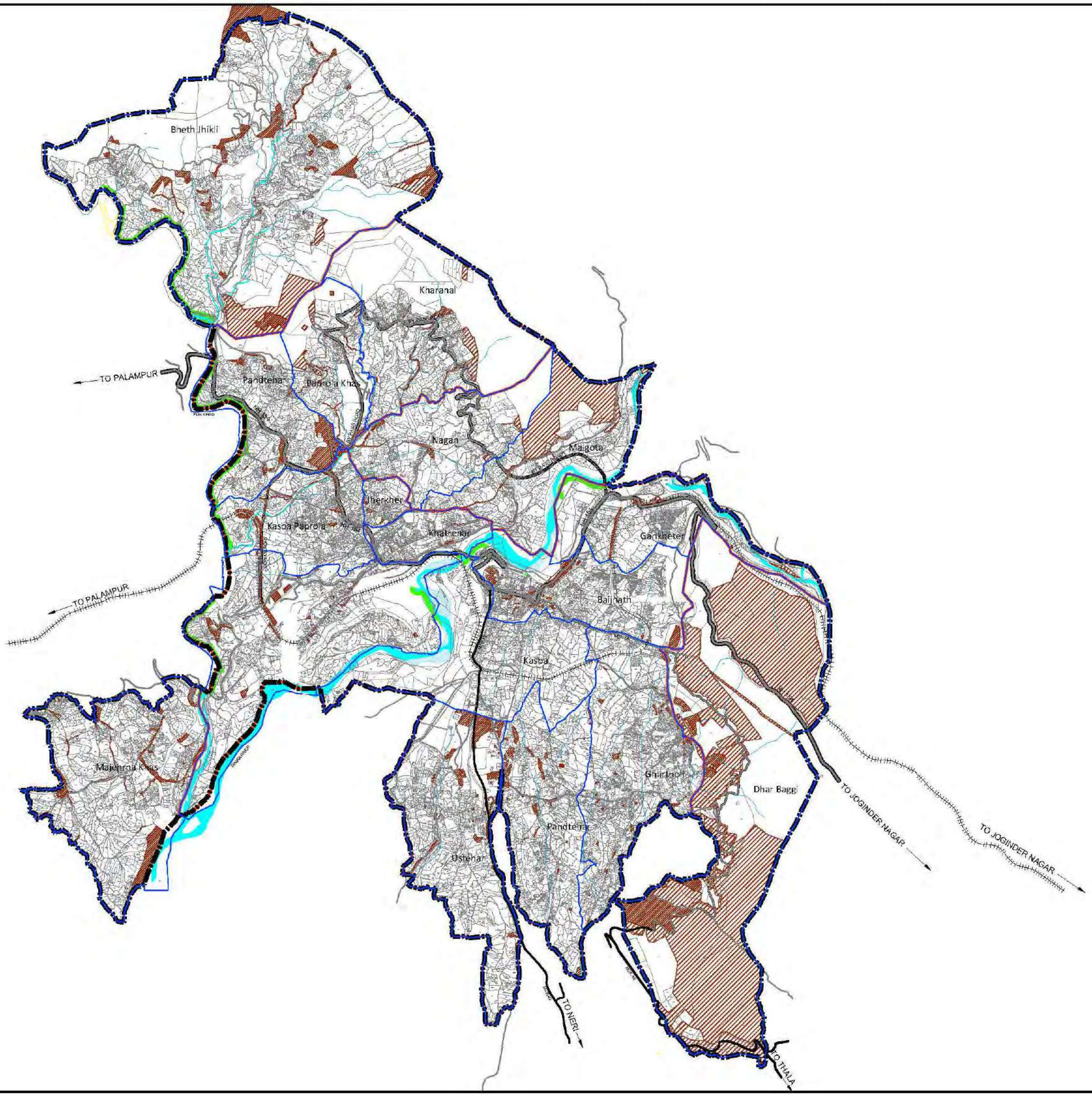
DEVELOPMENT PLAN FOR PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH (BAIJNATH PAPROLA)

DRAINAGE & CATCHMENT

0 200 500 1000m N

ALL DIMENSIONS ARE IN METER

Signature



Notes

1. All dimensions are in meter unless otherwise specified.
2. All dimensions to be verified on site.

Legend

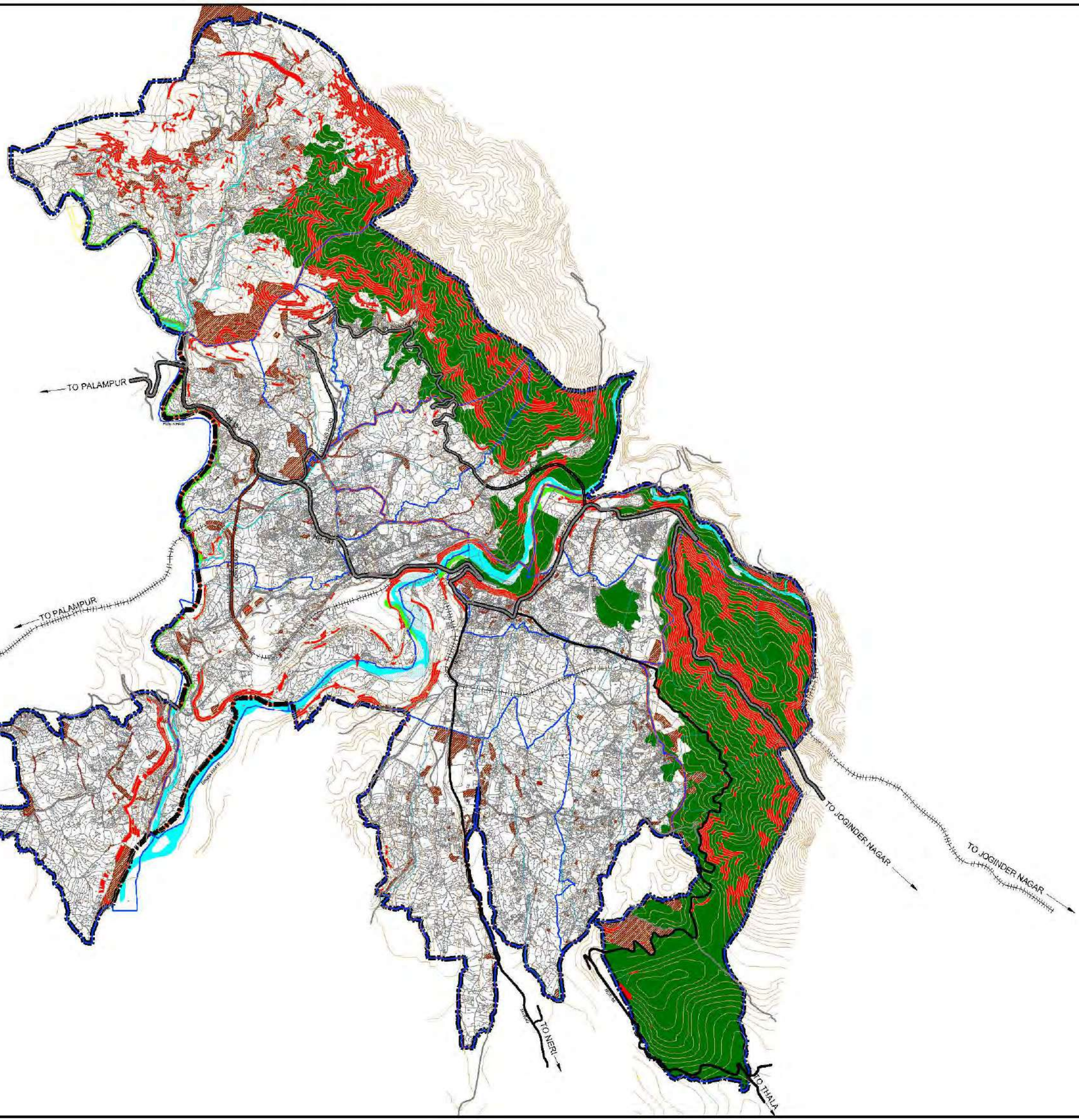
	PLANNING AREA BOUNDARY
	NAGAR PANCHAYAT BOUNDARY
	REVENUE MOHAL BOUNDARY
	NH
	MDR
	OTHER ROADS
	PROPOSED BY PASS ROAD
	PROPOSED SERVICE ROAD
	RAILWAY LINE
	RIVER / WATER BODIES
	NATURAL STREAM
	GOVERNMENT LAND
	RIVER BUFFER
434	KHASRA

Department of Town & Country Planning
Government of Himachal Pradesh

DEVELOPMENT PLAN FOR PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH (BAIJNATH PAPROLA)

GOVERNMENT LAND PARCEL

Scale: 1:25000
0 200 500 1000m
N
ALL DIMENSIONS ARE IN METER
SIGNATURE



Notes

1. All dimensions are in meter unless otherwise specified.
2. All dimensions to be verified on site.

Legend

	PLANNING AREA BOUNDARY
	NAGAR PANCHAYAT BOUNDARY
	REVENUE MOHAL BOUNDARY
	NH
	MDR
	OTHER ROADS
	PROPOSED BY PASS ROAD
	PROPOSED SERVICE ROAD
	RAILWAY LINE
	RIVER / WATER BODIES
	NATURAL STREAM
	STEEP SLOPE
	GOVERNMENT LAND
	PROTECTED FOREST
	RIVER BUFFER
KHASRA	KHASRA
	CONTOUR

Department of Town & Country Planning
Government of Himachal Pradesh

DEVELOPMENT PLAN FOR PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH (BAIJNATH PAPROLA)

LAND SUITABILITY MAP

Scale: 1:25000
0 200 500 1000m
N
ALL DIMENSIONS ARE IN METER
Signature

Notes:

1. All Dimentions are in meter unless otherwise specified.
2. All Dimentions to be verified on site.

LEGEND

Administrative Boundaries

- Planning Boundary
- Nagar Panchayat Boundary
- Village Boundary

Infrastucture & Other Features

- NH
- MDR
- VR
- Khasra Boundary
- Contour
- Railway
- Bridge

Existing Land Use 2015

- R — Residential
- C-1 — Commercial

Public and Semi Public Use

- PS-1 — Govt./ Semi Govt. / Public Offices
- PS-2 — Educational and Institutional
- PS-3 — Medical and Health
- PS-4 — Heritage and Socio-Cultural
- PS-5 — Public Amenities/Utilities and Services

Recreational Use

- P-1 — Playgrounds/ Stadium/ Sports Complex
- P-2 — Parks & Gardens

Transportation

- T-1 — Railway Station
- T-2 — Bus, Depots, Terminal/Truck Terminals

- PA-1 — Agriculture
- PA-2 — Plantation
- E-2 — Forest
- E-1 — Waterbody
- Government Land

DEVELOPMENT PLAN

Department Of Town & Country Planning
Government of Himachal Pradesh

DEVELOPMENT PLAN FOR PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH (BAIJNATH PAPROLA PLANNING AREA)

Existing Landuse Map

Scale- 1:8000 (Sheet: A0)

N

0 100 200 400 600 800 Meters

Signature:

Notes:

1. All Dimentions are in meter unless otherwise specified.
2. All Dimentions to be verified on site.

LEGEND

Administrative Boundaries

- Planning Boundary
- Nagar Panchayat Boundary
- Village Boundary

Infrastucture & Other Features

- NH
- MDR
- VR
- Khasra Boundary
- Contour
- Railway
- Bridge

Proposed Land Use 2035

- R Residential
- C-1 Commercial

Mixed Use

- M-1 Residential And Commercial
- M-2 Residential And Household Industries

Public and Semi Public Use

- PS-1 Govt./ Semi Govt. / Public Offices
- PS-2 Educational and Institutional
- PS-3 Medical and Health
- PS-4 Heritage and Socio-Cultural
- PS-5 Public Amenities/Utilities and Services
- S Speciel Area

Recreational Use

- P-1 Playgrounds/ Stadium/ Sports Complex
- P-2 Parks & Gardens

Transportation

- T-1 Railway Station
- T-2 Bus Depot/Trcuk Terminal
- T-3 Parking

- PA-1 Agriculture
- PA-2 Plantation
- E-2 Forest
- E-3 Green Buffer/Belt
- E-1 Waterbody
- Government Land

DEVELOPMENT PLAN

Department Of Town & Country Planning
Government of Himachal Pradesh

DEVELOPMENT PLAN FOR PLANNING AND SPECIAL AREAS OF HIMACHAL PRADESH (BAIJNATH PAPROLA PLANNING AREA)

Proposed Landuse Map, 2036

Scale- 1:8000 (Sheet: A0)

0 100 200 400 600 800 Meters

N

Signature: