

DRAFT MASTER PLAN OF LOHAGHAT PLANNING AREA,



DRAFT MASTER PLAN REPORT



For

Town & Country Planning Department

Dehradun, Uttarakhand



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SUMMARY

Nestled on the banks of the Lohawati River, amid dense forests and verdant mountains, Lohaghat presents itself as a picturesque town. It is a part of Lohaghat tehsil and Lohaghat development block of Champawat district in the Indian state of Uttarakhand. The town is located at a distance of 13 kilometres from the district headquarters at Champawat and 31 kilometres from Pancheshwar at the Indo-Nepal Border. It is situated in the Kumaon Division at 29.42°N 80.10°E at an average elevation of 1,754 metres above the mean sea level. The administrative boundary of the municipal town covers about 0.71 square kilometres, and the Lohaghat planning area covers 10.92 square kilometres, with a total population of 15,685.

The Lohaghat Planning Area at present lacks rail and air connectivity but benefits from good road connectivity; the existing NH9 is well-suited to connecting to major towns such as Champawat in the south at 12 km and Pithoragarh in the north at 60km. As per the 2023 survey, the urban built form in the Lohaghat town area is highly dense, with a gross density of 111 Persons per hectare, whereas the villages have low-density development. The town generally has a predominantly mixed-use character, with 55 per cent of households having household-based industries. Commercial development is found on all the major roads, such as NH9, Meena Bazar Road, and Lohaghat Devidhura Almora Road.

In the town of Lohaghat, most of the workforce is employed in the tertiary sector. In contrast, the local workforce from villages has shifted from agriculture to the tertiary or primary sectors. Approximately 83% of households in the planning area are in Economically Weaker Sections (EWS) and Low-Income Groups (LIG), and there is a need to uplift the economy to improve livelihoods through economic proposals and projects.

Existing infrastructure is inadequate, with deficiencies in current water supply and demand, sanitation, higher-level education facilities, health facilities, fire safety and distributive facilities, recreational areas, and parking. Road encroachments and poor pedestrian facilities further complicate these issues. Lohaghat, situated in seismic zone IV, faces frequent minor earthquakes and monsoon-induced landslides on NH 9. As of 2023, past landslides are near the planning area, thereby disrupting daily life.

The master plan envisions developing Champawat and Lohaghat as twin cities to promote sustainable tourism and economic growth while preserving ecological and cultural balance. By 2041, the population is projected to reach 45,475. The plan outlines a strategy for medium-density development, incorporating a mix of plotted and small-scale group housing. Key infrastructure improvements in transportation include the construction of a national highway (NH) bypass, the upgradation of a few major existing roads, such as the Lohaghat-Devidhura-Almora Road, and the proposed new road connections, along with tailored enhancements to the existing infrastructure, optimised for both topographical efficiency and equitable access. The plan emphasises sustainable tourism growth, supported by detailed carrying capacity assessments of top tourist destinations such as Koli Dhek and Mont Abbott, and by the establishment of a curated tourist circuit to improve access to key attractions.

Water management is a crucial component, with a robust strategy that includes delineated drainage zones, the conservation of water bodies, and the implementation of 12-meter buffer zones along all streams. Additionally, the plan incorporates wastewater recycling to reduce

environmental impact. As an environmentally sensitive area, green spaces and natural areas will be safeguarded, with a commitment to preserving regions with slopes greater than 30 degrees and existing forested areas from any development.

Overall, this comprehensive framework seeks to foster a structured, sustainable growth model that balances economic development, environmental protection, and enhanced quality of life for residents, while also promoting tourism as a driver of economic resilience and opportunity.

CHAPTER 1: INTRODUCTION

1.1 Introduction

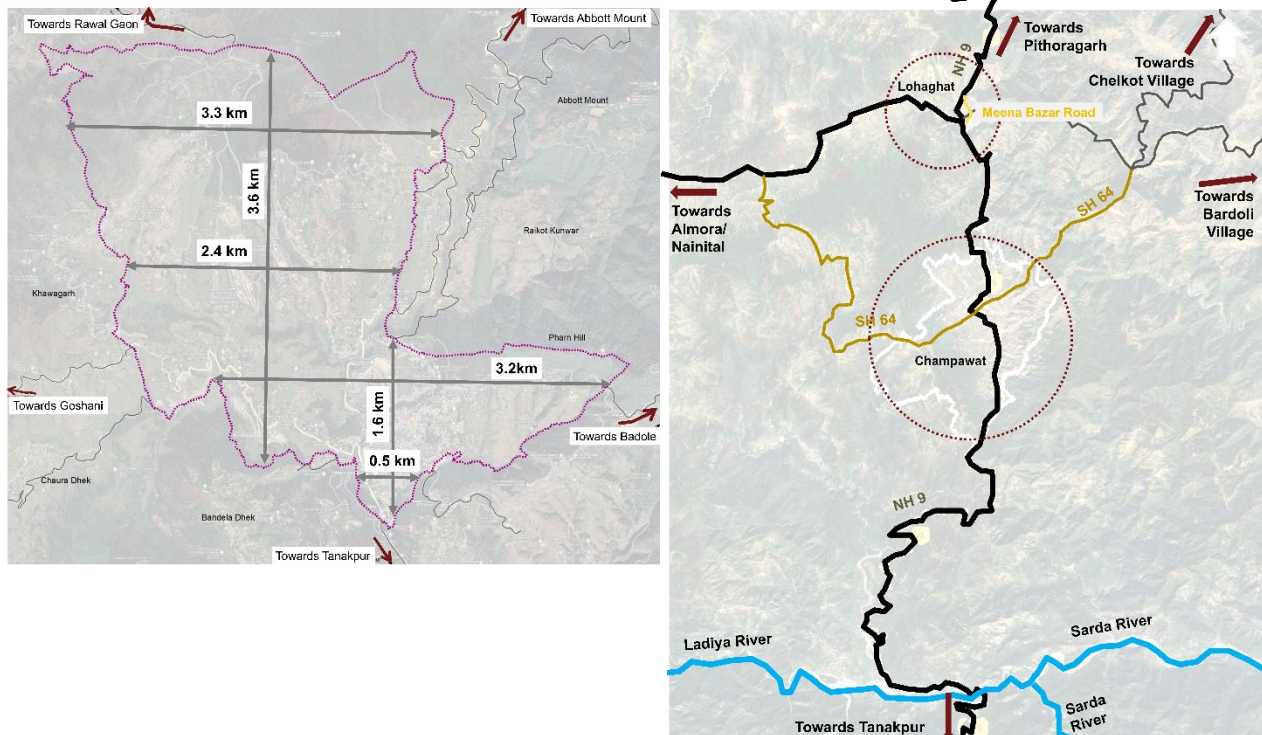
A Master Plan is a vehicle for urban settlement planning, which seeks to promote orderly and sustainable development. Over the last few decades, Lohaghat town has seen gradual changes in its population, rising from 3,891 in 1991 to 7,926 in the 2011 census, with an estimated population as of 2023. Infrastructure demand has increased due to growth, environmental pressures, and a very high existing density of 110 PPH, creating an urgent need to guide its sustainable, structured growth through a master plan.

To facilitate this a Bipartite Agreement (dated Wednesday, 14 December 2022) for (Lump Sum Type) consultancy services about Formulation of Two Separate GIS based Master Plan(s) for ULB Area(s) of Lohaghat and Champawat under DLDA Champawat in Uttarakhand was accepted and signed on behalf of First Party Town and Country Planning Department, Government of Uttarakhand and second party School of Planning and Architecture, New Delhi

The scope of the master plan at the time of the agreement covered an area of 303.4 Ha. The Lohaghat municipal area, as per the 2011 Census, covers 450 Ha (0.45 sq. km.) and has a population of 7,926. However, a field survey found that the actual municipal area is 71 Ha (0.71 sq. km.), within which the entire population resides. This results in a high gross density of 111 persons per hectare, significantly above the recommended range of 45-75 persons per hectare for small towns in hilly areas (URDPFI 2014). To ensure sustainable development, the planning area has been expanded to 1092.1 Ha (10.92 sq. km.), incorporating four surrounding villages, Kaligaon, Kolidhek, Patan Patni, and Pau, based on development trends, growth potential, and natural topography. This expansion aims to accommodate the existing and future population while ensuring a safe, livable environment with improved planning provisions. Further, the horizon year for the draft Master Plan will be 2041. The contents of the draft Master Plan document will be in accordance with the Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2015, the statutory provisions of the Uttarakhand Urban & Country Planning and Development Act, 1973, and other Relevant Acts and Legislation of the State of Uttarakhand.

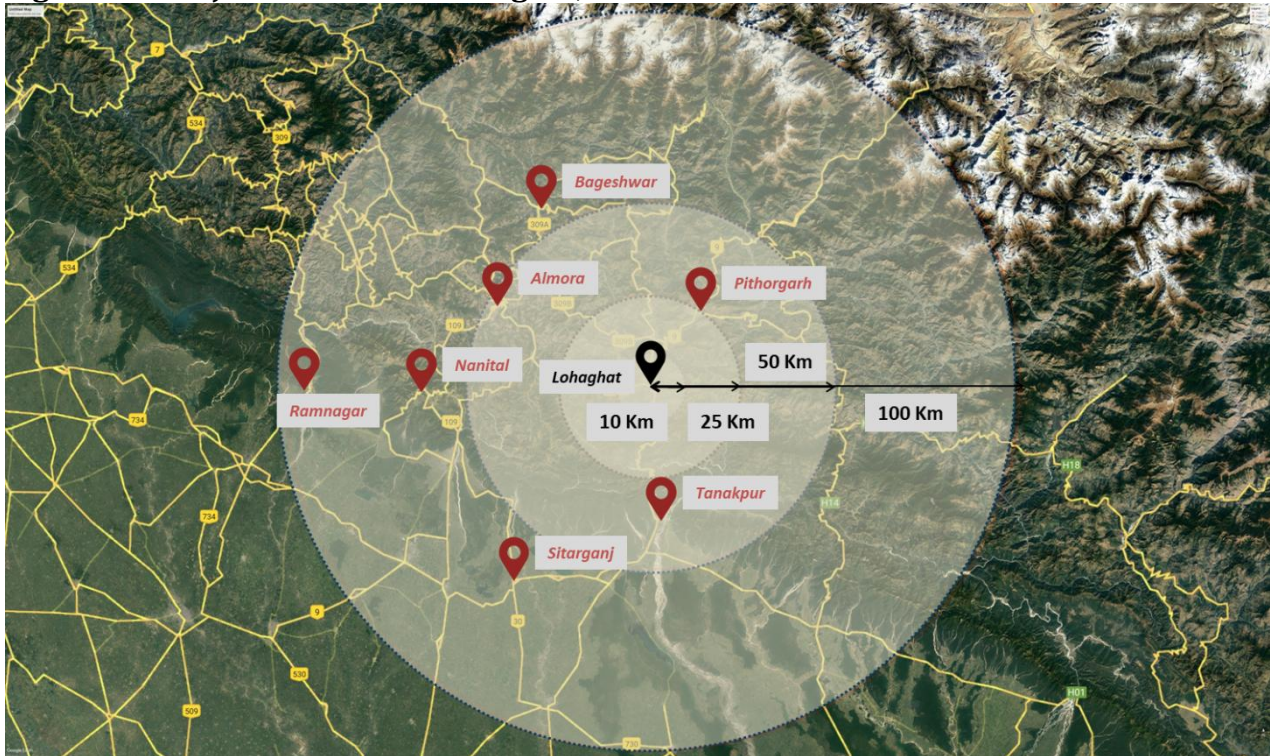
1.2 Planning Area Profile

The town of Lohaghat lies in the Champawat district of the North Indian state of Uttarakhand. It is bounded by Kaligaon in the east, Bangaon in the south, Khawagarh in the west, and Pau villages in the North. Champawat is one of the 13 districts of Uttarakhand, divided into five tehsils- Barakot, Champawat, Lohaghat, Shri Poornagiri, and Pati- and four development blocks: Champawat, Barakot, Pati, and Lohaghat. The planning area falls within the Lohaghat Development Block, encompassing the Lohaghat Municipal area and surrounding villages. The Lohaghat Planning Area comprises Lohaghat town and 4 contiguous villages located in the Lohaghat block. The total Lohaghat Planning Area is 10.92 square kilometres with a population of 15,685(**Figure 1.1**).

Figure 1.1: Lohaghat Planning Area, 2023.

Source: School of Planning and Architecture, New Delhi (2023)

The town is well connected with other parts of Uttarakhand with motorable roads. From Figure 1.2 It can be observed that within a 25km radius of the Lohaghat Planning Boundary, Champawat is the major town and the district headquarters. Pithoragarh, Tanakpur, and Almora are the nearest towns within a 50km radius and can be reached daily for intra-day travel for work and other activities. The town is located 13 kilometres south of the district headquarters in Champawat. Lohaghat is well connected by road and easily accessible from other cities in Uttarakhand via major roads, but the Lohaghat planning area lacks rail and air connectivity. The nearest railway station to Lohaghat is Tanakpur Railway Station, about 87 km to the south. Air connectivity to the town is limited, with the nearest airport, Pantnagar Airport, located about 181 km away. Another airport is Naini Saini Airport (63.6 km from Lohaghat), located in Pithoragarh, but flights are not very frequent.

Figure 1.2: Major Towns near Lohaghat, 2023

Source: School of Planning and Architecture, New Delhi, (2023), Google Earth

It is situated in the Kumaon Division at 29.42°N 80.10°E at an average elevation of 1,754 meters above the mean sea level. The Lohaghat planning area has a contour elevation range of 1025 m to 2115 m above mean sea level. Most of the Lohaghat Planning Area falls in the contour range of 1450 m – 1755 M. Lohaghat holds significant importance within the Champawat district of Uttarakhand, India. Moreover, Lohaghat is a sought-after tourist destination because of its natural beauty and could be a key factor in improving the economic conditions of the planning area. Lohaghat was originally known for ironwork and local trade, contributing to the region's economic well-being. The hydrogeology of Lohaghat is defined by its Gneisses aquifer type. The highly weathered gneissic rocks have low cohesion, making the area prone to landslides and limiting its potential for water storage. Groundwater occurrence in the Lohaghat area is restricted to small, localised aquifers with limited potential.

The district is home to several important rivers, including the Ladhia, Sharda, Lohawati, Panaar, Jagbura, and Ramganga. Although the planning area does not have major rivers, a tributary of the Lohawati River flows near it. These rivers are essential for drinking water and irrigation. The climate of Lohaghat is temperate, with cool summers and cold winters. The region receives moderate to heavy rainfall during the monsoon season, which supports its lush greenery and forest cover, including the reserved forest in the Lohaghat range.

1.3 Regional Importance of the Town

Champawat district has significant potential to become a premier getaway destination for nature enthusiasts. Its scenic beauty, with the backdrop of the majestic Himalayas, makes it a hidden gem in the state of Uttarakhand. While popular tourist destinations like Shimla and Manali have reached saturation points due to overcrowding, the towns of Champawat and Lohaghat remain relatively lesser known, offering a unique opportunity for growth. With proper development, it could easily rival these established destinations in terms of tourism

appeal. The town is well-positioned as a potential retreat destination for people seeking tranquillity amidst nature. The town's proximity to major urban centres, approximately 7-8 hours from Delhi, Bareilly, and Nepal, makes it an attractive weekend destination for both domestic and international tourists. However, to fully realise its tourism potential, Lohaghat needs significant infrastructure improvements, particularly in public transportation, connectivity, and accommodation. The lack of proper intertown transport (IPT) and direct connectivity to major cities hampers the town's ability to attract large numbers of tourists. With the ongoing development of transport infrastructure, including improved roadways, railways, and accommodation options, Lohaghat can meet growing tourist demand. It also serves as a crucial stopover for travellers heading to higher Himalayan regions, further emphasising the need for enhanced infrastructure.

Alongside tourism, Lohaghat has the potential to witness growth in industries such as food processing, iron-based products, and handicrafts. The town's abundant natural resources, medicinal plants, and agricultural products serve as raw materials for these emerging industries, boosting local employment and livelihoods. Micro, small, and medium-scale industries are expected to thrive, providing diverse employment opportunities. Moreover, the increasing connectivity with Tanakpur and Nepal will open new avenues for trade and commerce, further enhancing the town's economic prospects. The town's proximity to neighbouring countries and regions positions it as a key player in cross-border trade, potentially boosting its role in the regional economy. Lohaghat's strategic location, with the Haldwani-Champawat-Tanakpur highway and the Tanakpur Railway Station, places it at a key junction for connectivity within Uttarakhand and to neighbouring regions. These transportation corridors are essential for facilitating the movement of people and goods, thereby supporting both tourism and commerce. Future infrastructure upgrades, such as the construction of the Lohaghat bypass, proposed new road connections, road widening, and the expansion of public transportation through cable car and shuttle services, will improve the town's ability to manage traffic and increase its capacity as a transit hub. The planned improvements will not only enhance the flow of tourists. Still, they will also provide better access to the surrounding areas and neighbouring regions, reinforcing Champawat's position as a central transit point for both people and goods. With these upgrades, the town will become an increasingly vital connector between Uttarakhand, nearby cities, and Nepal, ensuring smoother transportation and bolstering its economic integration with broader regional networks.

1.4 Methodology for the Development of Master Plan, 2041

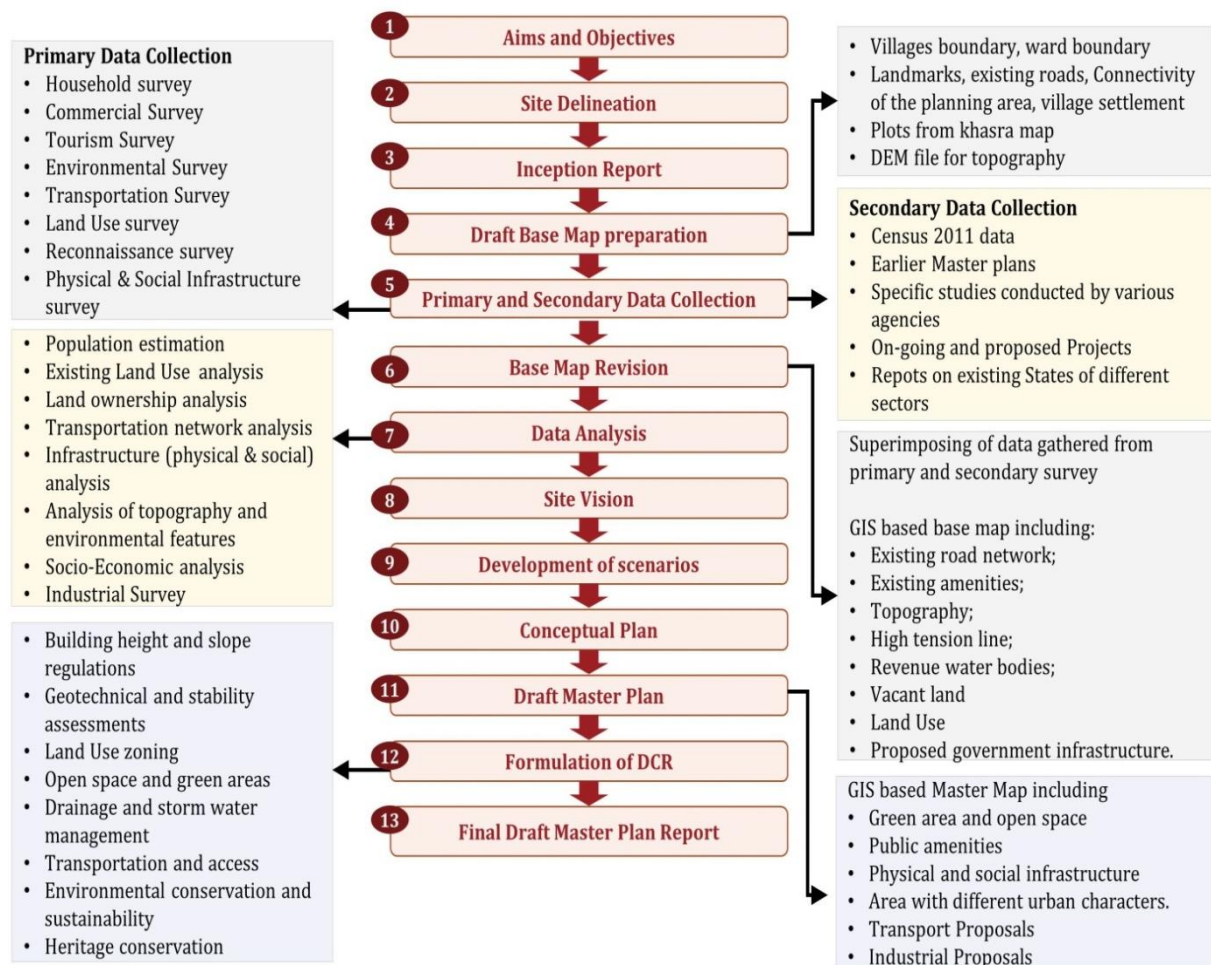
The Vision 2041 for Lohaghat is based on extensive stakeholder consultations (**Figure 1.6**), a reconnaissance survey, site visits, and interactions with residents conducted during the preparation of the Master Plan. An inclusive and collaborative approach was taken, adhering to the democratic process and statutory requirements. Initially, a comprehensive delineation of the planning area was conducted by rasterising the khasra map of the 0.71 sq. km. municipal area, thereby defining a planning boundary. The planning boundary was further revised to 10.92 sq. km. A base map for this area was then prepared to guide field visits, and a 10-day field survey, conducted starting on June 7, 2023, collected primary and secondary data to provide an in-depth understanding of the area's characteristics and needs. Following field

surveys, the base and land-use maps were updated and refined, with all buildings and roads digitised and coded by land-use type at a 1:1000 scale for accuracy.

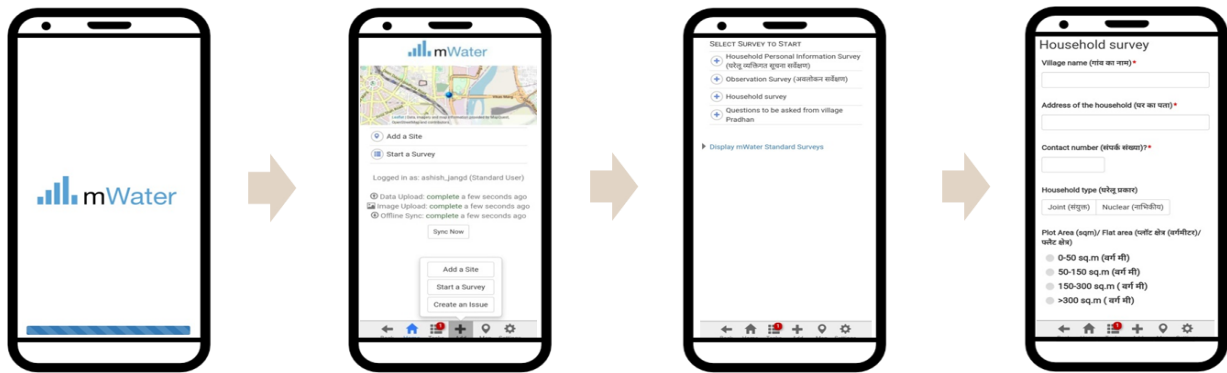
Surveys Conducted

Various surveys were undertaken, including land use, household, commercial, tourist, and traffic and transportation surveys. Ground-truthing for land use involved a pre-digitised base map at a 500 m by 500 m grid. The household survey sampled 10% of total households, resulting in a survey of 185 households, complemented by 30 commercial and 35 tourist surveys (**Figure 1.5**). The surveys were conducted using the "MWATER" mobile app for streamlined data collection (**Figure 1.4**).

Figure 1.3: Methodology for the Preparation of the Master Plan of Lohaghat, 2041



Source: School of Planning and Architecture, New Delhi (2023).

Figure 1.4: Water application used for survey, 2023

Source: School of Planning and Architecture, New Delhi (2023).

Figure 1.5: Primary Survey by School of Planning and Architecture, New Delhi Team, 2023

Source: School of Planning and Architecture, New Delhi (2023).

For the traffic and transportation analysis, road inventory, speed-delay surveys, traffic volume counts, origin-destination studies, and parking assessments were performed. Road inventory and speed-delay surveys were carried out on arterial and sub-arterial roads between 9:00 am and 11:00 am. At the same time, traffic volume counts and origin-destination surveys were conducted on selected cordons, both outer and inner, between 10:00 am and 5:30 pm.

Figure 1.6: Stakeholder meeting by the School of Planning and Architecture, New Delhi Team, 2023

Source: School of Planning and Architecture, New Delhi (2023).

Stakeholder meetings were also essential to the process, including a significant consultation with the District Magistrate, who agreed to the proposal to include 4 additional villages in the Lohaghat planning area to support a more comprehensive and sustainable development approach. Subsequently, the planning boundary was expanded. The final analysis of each sector was performed to align with the existing issues and emerging development

opportunities, setting a vision for the planning area that addresses current needs while anticipating future growth. This analysis and vision are detailed in the subsequent report on analysis and vision development.

Based on the analysis and upcoming projects, proposals are formulated to address immediate needs and support sustainable growth. Key proposals include adjustments for optimised land use, infrastructure upgrades to support anticipated population growth, improved connectivity and a preference for pedestrians, enhancements to social amenities, promotion of the tourism sector, and preservation measures for cultural and natural resources. These proposals aim to enhance the quality of life for current residents while establishing a foundation for managed, resilient growth through 2041.

1.5 Analysis

The master plan encompasses various layers, which together will define the most suitable land use. The analysis of different layers, including demography, economy, housing, tourism, social infrastructure, physical infrastructure, transportation, environment, and land use, was conducted. Below are the key inferences from all the sectors.

- **Population:** There is an increase in population number for the total Lohaghat Planning area from 7,832 to 15,685 over the three decades (1991 – 2011), but the growth rate has decreased. Multiple factors, as discussed in the demography chapter for estimating the population, such as declining growth, population inducement due to the proposed infrastructure, floating population as per the tourist survey, and the detailed project report on solid waste management, have been considered. Based on this, the estimated population for the Lohaghat Planning Area in 2041 is 45,475.
- **Economy:** The primary survey conducted in 2023 reveals that 83.33% of the population belongs to the Economically Weaker Section (EWS) and Low-Income Group (LIG), facing significant economic challenges. The absence of industries restricts job opportunities and economic growth. Apart from this, the true potential for tourist destinations has not been achieved. Small-scale, informal businesses such as tailoring, retail shops and food processing operate outside formal regulatory frameworks.
- **Housing:** A deficit of 438 dwelling units (DU) as per Census 2011 data, highlighting a significant housing gap. Unplanned housing growth has led to very high-density development in Lohaghat town, with 111 persons per hectare (PPH), necessitating de-cluttering and better urban planning to improve living conditions. To address these issues, targeted urban planning interventions are needed, focusing on planned housing development, density management, and addressing the housing shortage.
- **Tourism:** The primary survey conducted in 2023 shows that despite high carrying capacities of local destinations, footfall remains low, indicating underutilization of tourism assets. 67% of tourists stay for less than one day, primarily due to a shortage of high-quality accommodation options, which limits longer visits and overall tourist satisfaction. Difficulty accessing key attractions such as Vanasur Ka Kila due to poor transportation infrastructure. The absence of essential facilities, such as an information centre, hampers the visitor experience and reduces the destination's appeal. To unlock Lohaghat tourism potential, targeted interventions are needed,

including improved infrastructure, better accommodation options, and enhanced connectivity to key tourist sites.

- **Transportation:** During the survey, it was observed that Access is limited by kachha (unpaved) roads and narrow roads in village areas. The level of service is fair, ranging from A to C grades, and is likely to degrade to D and E levels with projected population growth. Also, there is a notable absence of Intermediate Public Transport (IPT) and Public Transport (PT) services. Approximately 25% of trips are outer-outer commutes, with people travelling from Tanakpur, Champawat, to Pithoragarh. Additionally, 38% of trips are outer-inner, with significant movement along Meena Bazar Road, driven by local economic activities like the Khadi market. The towns lack pedestrian-friendly infrastructure. These findings highlight the need for improved road infrastructure, public transport services, and planning for future growth to accommodate increasing traffic and commuter needs.
- **Physical Infrastructure:** There is a 1.35 MLD (Million Litres per Day) deficit between the current water supply and demand, indicating a significant gap in water provision for the current population. Open dumping on streets remains a major issue, contributing to environmental degradation and public health concerns. These issues highlight the urgent need for improved water supply infrastructure and a formal waste management system to meet the town's growing demands.
- **Social Infrastructure:** There is a gap in social infrastructure facilities, with an insufficiency of 1 Art College and 1 university. Apart from the distributive facilities, the fire and disaster management centre and recreational facilities also need to be addressed in the 2041 master plan.
- **Environment:** There is unregulated construction in low-lying areas, which increases the risk of flooding, environmental degradation, and damage to infrastructure during heavy rains. Waste Dumping into Streams: Waste is being dumped into streams, leading to water pollution, biodiversity loss, and serious public health risks. All shortcomings and issues need to be addressed through proposals and projects that align with the vision and objectives of the master plan 2041.

1.6 Vision and Objectives of the Master Plan, 2041

The Vision 2041 for Lohaghat has been structured into 4 core goals to address issues identified through the existing situation analysis, stakeholder aspirations, and anticipated future challenges. The section presents the structured goals and their linkage to the United Nations Sustainable Development Goals (**Table 1.1**). These are as follows:

Goal A. Developing Champawat and Lohaghat as Twin Cities in Uttarakhand: Champawat and Lohaghat, with their unique charm and cultural heritage, can be strategically developed as twin cities to foster economic growth, tourism, cultural exchange, and an improved quality of life.

Goal B. Proposing Lohaghat as a Model of Sustainable Development in Uttarakhand: Lohaghat can be envisioned as an exemplary model of sustainable development by focusing on key aspects such as ecological conservation, promoting eco-friendly practices, responsible waste management, and integrating green spaces into the cityscape.

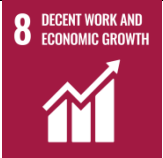
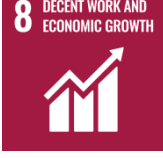
Goal C. Proposing Economic Buoyancy in Lohaghat:

Lohaghat, nestled in the picturesque state of Uttarakhand, holds immense potential for economic growth. To ensure sustained development and prosperity, a strategic approach is needed that focuses on adding value to natural resources, improving connectivity, and promoting cottage industries.

Goal D. Maintaining Ecological and Cultural Balance in Lohaghat: A Holistic Approach:

Lohaghat, with its rich ecological and cultural heritage, can thrive sustainably through a balanced approach that incorporates green building practices, rainwater harvesting, and afforestation programs. This holistic strategy aims to preserve the delicate ecological balance while safeguarding the region's cultural identity.

Table 1.1: Alignment of Vision 2041 Goals for Champawat with the UN SDGs

S. No.	Master Plan Vision Goals	Sub-heads	Links with UN SDGs		
			Direct Link		Indirect Link
1.	Goal A. Developing Champawat and Lohaghat as Twin Cities in Uttarakhand	- To Boost Human Resources - To Encourage Tourism - To Improve Way of Living	 		 
2.	Goal B. Proposing Champawat as a Model of Sustainable Development in Uttarakhand	- Ecological Conservation and Conscious Urban Planning - Promoting Eco-Friendly Practices - Responsible Waste Management - Integrating Green Spaces into Cityscape	 	 	  
3.	Goal C. Proposing Economic Buoyancy in Champawat	- Value Addition of Available Natural Resources - Develop MICE Venues with Better Connectivity - Promote Cottage Industries	 		 

S. No.	Master Plan Vision Goals	Sub-heads	Links with UN SDGs	
			Direct Link	Indirect Link
4.	Goal D. Maintaining Ecological and Cultural Balance in Champawat: A Holistic Approach	1. Green Building Practices 2. Rainwater Harvesting 3. Afforestation Programs 4. Maintaining Cultural Balance	 	 

Source: UN SDGs and School of Planning and Architecture, New Delhi, 2023.

1.7 Proposed Projects in Alignment with the Vision, 2041

The state government has proposed multiple projects to improve the people's well-being and uplift the area. The projects are mainly focused on the tourism sector, Infrastructure, Agriculture, health, and education, which have been shown in Annexure B, C, D, E and F. A few of the Tourism priority projects have been shown in **(Table 1.2)**.

Table 1.2: Tourism Priority Projects in Lohaghat

Category	Development	Key Projects	Timeline	Department	Status
Hospitality	Brownfield	Redevelop Lohaghat KMVN - Premium segment - 20 keys	Short Term (2 years)	UTDB	Proposed
Hospitality	Greenfield	Develop premium Astro glamping near Koli Dhek Lake (Swadesh Darshan) – 15 Keys	Short Term (2 years)	UTDB	DPR at Mot
Product	Greenfield	Develop a horror tourism trail at Abbott Mount and Redevelop Abbott Mount Church.	Short Term (2 years)	UTDB	Proposed
Product	Greenfield	Develop sunrise and sunset decks & trails in Lohaghat & Mayavati	Short Term (2 years)	UTDB	Proposed
Hospitality	Greenfield	Develop luxury AYUSH/Wellness retreat near Koli Dhek Lake - 10 Keys	Short Term (2 years)	UTDB	Tender Documents Underway
Hospitality	Brownfield	Redevelop Abbott Mount KMVN - Luxury Segment - 30 keys	Mid Term (4 years)	UTDB	Tender Documents Underway
Product	Brownfield	Redevelop Banasur Fort - Digital art installation and open-air museum installations	Mid Term (4 years)	UTDB	G.O. Pending

Source: District Administration, Champawat (2024)

1.8 Development Concept

The Master Plan emphasises sustainable urban expansion, improved connectivity, economic diversification, and environmental conservation while ensuring the town retains its natural charm and heritage.

A key highlight of the plan is the development of a ropeway system connecting the Lohaghat and Champawat Planning Areas, facilitating seamless connectivity between the twin towns. This eco-friendly transport solution will not only reduce travel time and vehicular congestion but also enhance the region's tourism appeal. Complementing this initiative, the town's road network will be widened and upgraded to improve vehicular flow, ensure safer transit, and accommodate future growth.

To foster economic self-sufficiency, the master plan designates commercial zones strategically within the planning area to support retail, formal vending zones, tourism-driven businesses, and mixed-use development. Additionally, a well-planned industrial area will be developed, focusing on agro-processing, textiles, and a green energy park, all of which will contribute to regional economic growth while adhering to sustainable industrial practices. Non-polluting industries will be encouraged to ensure minimal environmental impact while providing employment opportunities.

Environmental sustainability remains a core principle, with an emphasis on expanding forest cover within the planning area. This initiative will enhance air quality, mitigate soil erosion, and promote biodiversity conservation. Alongside this, dedicated recreational and ecological spaces will be developed, including a Botanical Garden and a Zoo, fostering eco-tourism while providing recreational amenities for residents and visitors alike.

1.9 Conclusion

The **Master Plan 2041** envisions Lohaghat as a model hill town that harmonises growth with sustainability. By integrating modern infrastructure, promoting eco-friendly economic activities, and preserving its rich natural and cultural heritage, Lohaghat is set to become a vibrant, resilient, and future-ready urban centre, offering its residents an enhanced quality of life and tourists an enriched experience.

CHAPTER 2: DEMOGRAPHY

2.1 Introduction

The demographic study includes characteristics of the population, including population size, structure, distribution, and dynamics. It also involves analysing various factors such as age, gender, ethnicity, income, education, and migration patterns within a population. In preparing a master plan for any urban area, demography plays a crucial role in understanding the characteristics of the population that will reside there.

The Lohaghat planning area is situated in the Champawat District, comprising Lohaghat Nagar Panchayat and 4 villages: Kaligaon, Kolidhek, Patan Patani, and Pau. The planning area covers 10.92 sq. km. The total population of the planning area, as per the 2011 census, is 15,685, with 3,732 households. This chapter presents the demographic profile of the Lohaghat planning area, detailing population, population growth rate, population density, literacy rate, sex ratio, and other demographic indicators.

2.2 Existing Demographic Profile

This section provides a comprehensive analysis of demographic trends in the Lohaghat planning area, including population growth, household size, population density patterns, and socio-economic indicators. It examines the historic and projected population trends (1981–2023) to understand urban expansion and its implications on infrastructure, housing, and public services. Additionally, a comparative analysis of population growth in other towns of Uttarakhand is presented to contextualise Lohaghat's development trajectory. The section also delves into ward-wise population density, sex ratio, and literacy rates, offering insights into spatial distribution and socio-economic characteristics that will inform strategic planning interventions for sustainable urban development.

2.2.1 Population and Household Size, 2011 – 2023

Champawat district covers an area of 1,765.78 sq. km. and has a population of 2,59,648. Within this, the Lohaghat planning area comprises only 0.61 per cent of the Champawat district area. The Lohaghat planning area comprises Lohaghat town and 4 villages, and its basic statistics are shown in **Table 2.1**.

Household Size

The average household size in the Lohaghat Planning Area is 4.2. In Lohaghat Nagar Palika, 26.5% of households have 4 members, while 19.5% have 5 members. In the villages, most households consist of 4, 5, or 6–8 members. The primary survey indicates that the household size has remained unchanged from 2011 to 2023. As of 2023, the average household size remains 4.2.

Table 2.1: Population, Area, Household size of Lohaghat Planning Area, 2011

Area in sq. kms.	Population, 2011	Estimated Population, 2023	Households , 2011	Household Size, 2011	Household Size, 2023 (As per Primary Survey)
10.92	15,685	19,979	3,732	4.2	4.2

Source: Census of India (2011) and School of Planning and Architecture, New Delhi (2023).

2.2.2 Population Growth and Gross Density Pattern, 1991 - 2011

The population data for Lohaghat and its surrounding areas (1981-2011) highlight significant growth trends and emerging urban challenges. The total population of Lohaghat has increased from 4,950 in 1981 to 15,685 in 2011, reflecting steady growth. However, the growth rate has been declining across all areas, suggesting a slowdown in population expansion despite the overall increase. Household sizes remain relatively consistent, with some variation, and the overall population density is rising sharply, particularly in Lohaghat Nagar Panchayat, which saw density increase to 111.63 persons per hectare by 2011. Other areas, such as Kaligaon, Koli Dhek, Patan Patni, and Pau, also show increasing density, indicating growing pressure on infrastructure and housing. The slower growth rate, combined with higher densities, indicates a transition towards urban consolidation. Thus, urban development must focus on sustainable infrastructure, efficient land use, and adequate housing to manage population growth and avoid overcrowding in key areas.

Table 2.2: Population, Gross Density and Growth Rate Pattern in Lohaghat Planning Area, 1981-2011

	1981	1991	2001	2011	Remark
Lohaghat Nagar Panchayat					
Population	2,530	3,891	5,829	7,926	
Growth rate		53.8%	49.8%	36.0%	An increase in population number but a decrease in growth rate.
Household Size				4.29	
Density	35.63	54.80	82.10	111.63	Increasing
Kaligaon					
Population	466	693	1,165	1,307	
Growth rate		48.7%	68.1%	12.2%	An increase in population number but a decrease in growth rate.
Household Size				4.29	
Density	4.20	6.24	10.50	11.77	Increasing
Koli Dhek Village					
Population	487	790	1,007	1,240	
Growth rate		62.2%	27.5%	23.1%	An increase in population number but a decrease in growth rate.
Household Size				4.90	
Density	2.58	4.18	5.33	6.56	Increasing
Patan Patni Village					
Population	930	1,816	3,025	3,639	
Growth rate		95.3%	66.6%	20.3%	An increase in population number but a decrease in growth rate.
Household Size				4.32	
Density	2.82	5.50	9.17	11.03	Increasing
Pau Village					
Population	537	642	1,247	1,573	
Density	1.50	1.79	3.47	4.38	Increasing
Growth rate		19.6%	94.2%	26.1%	An increase in population number but a decrease in growth rate.
Household Size				3.24	
Density	2.82	5.50	9.17	11.03	Increasing
Total Population	4,950	7,832	12,273	15,685	

Source: School of Planning and Architecture, New Delhi (2023).

2.2.3 Comparative Analysis of Population in Towns of Uttarakhand

The population growth data in **Table 2.3** reveals that Chamba and Mahua Dabra Haripura show more modest, steady growth (13-20%), suggesting stable development, possibly linked to local economic activities like agriculture or tourism. In contrast, Didihat exhibits strong growth of 36%, similar to Lohaghat at 50% and 36% over the decades, indicating emerging regional hubs with potential infrastructure or economic development driving population increases.

Table 2.3: Population Growth Rate in Different Towns of Uttarakhand, 1991 - 2011

S. No.	Towns	1,991	2,001	2,011
1	Chamba	5,824	6,580 (13%)	7,771 (18%)
2	Mahua Dabra Haripura	5,367	6,103 (13%)	7,326 (20%)
3	Didihat	3,514	4,806 (36%)	6,522 (35%)
4	Lohaghat	3,891	5,829 (50%)	7,926 (36%)

Source: Census of India (1991-2011).

2.2.4 Ward-Wise Population Density in Lohaghat Planning Area, 2011

The Lohaghat municipal area is divided into seven wards, each exhibiting distinct demographic and spatial characteristics. Among them, Sarki Tola (Ward 1) records the highest population, with 1,856 residents, whereas Risheshwar (Ward 4) has the lowest, with 568 residents (See **Table 2.4**).

In terms of land area, Thara Dunga (Ward 5) is the largest, covering 15.17 hectares, while Risheshwar (Ward 4) remains the smallest, spanning only 6.60 hectares. However, when analysing population density, a contrasting trend emerges: Meena Bazar (Ward 6) is the most densely populated, with 203.91 persons per hectare, whereas Thara Dunga (Ward 5) is the least densely populated, at 77.11 persons per hectare.

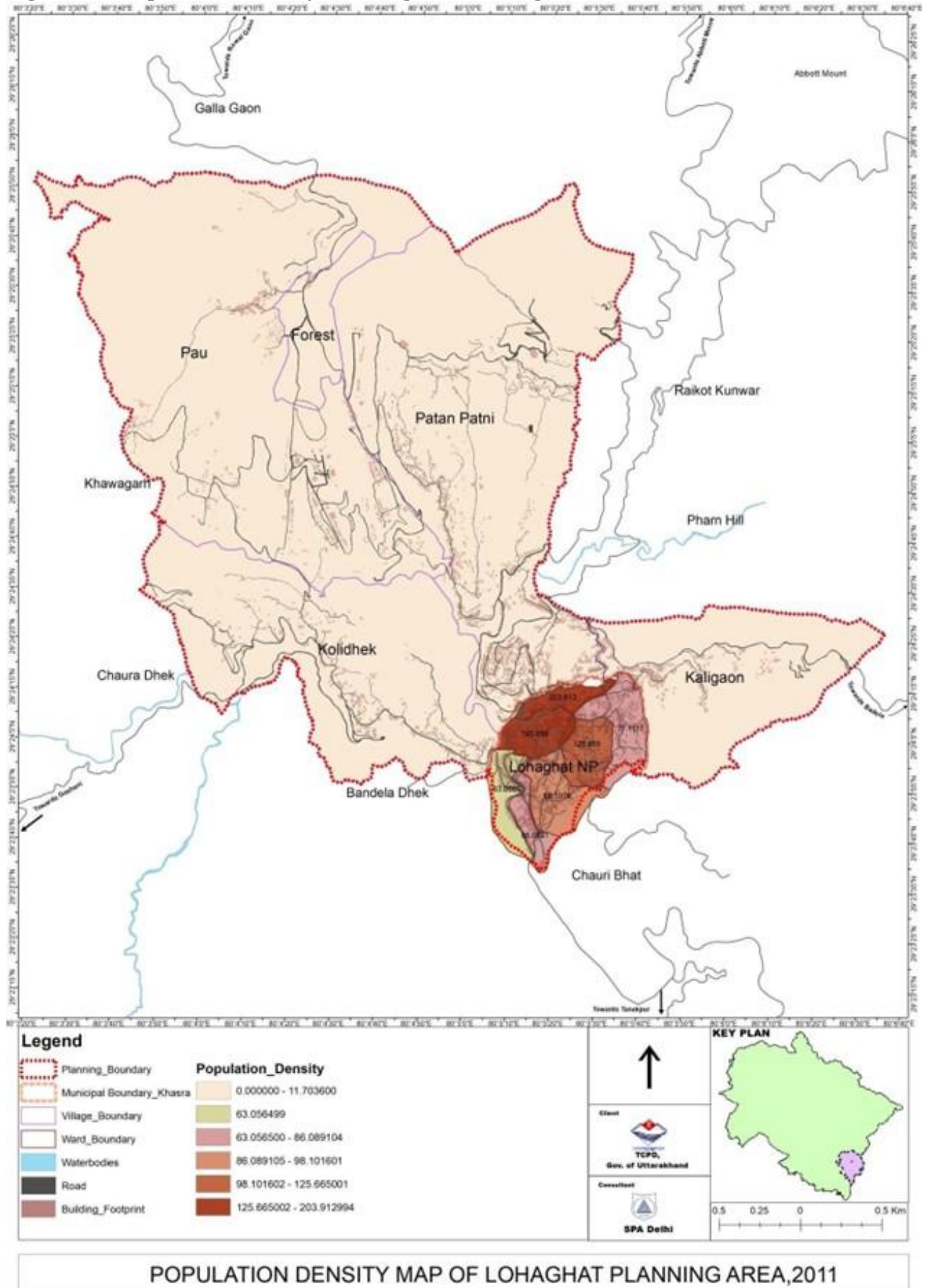
These variations in population distribution, land area, and density patterns highlight the spatial dynamics of urban growth in Lohaghat, emphasising the need for strategic land use planning and infrastructure development to ensure balanced urban expansion and resource allocation.

Table 2.4: Ward-Wise Population Density in Municipal Area, 2011

Ward No.	Wards Name	Population	Area (ha)	Density (in pph)
1	Sarki Tola	1856	9.58	193.67
2	Bajranbali	1411	14.38	98.10
3	Lohawati	694	11.01	63.06
4	Risheshwar	568	6.60	86.09
5	Thara Dunga	1170	15.17	77.11
6	Meena Bazar	1357	6.65	203.91
7	Kachhari	1357	10.80	125.66

Source: School of Planning and Architecture, New Delhi (2023).

Figure 2.1 shows that the Lohaghat villages have a lower population density than the municipal area wards. The density observed in Pau village is 4 pph, followed by Kolidhek with 6 pph; Patan Patni and Kaligaon have 11 pph. The low density in villages may be attributed to low population in village areas.

Figure 2.1: Population Density in Lohaghat Planning Area, 2011

Source: School of Planning and Architecture, New Delhi (2024).

2.2.5 Sex Ratio, 2011

As per the 2011 Census, the total population of the Lohaghat planning area was 15,685, comprising 8,170 males and 7,515 females, resulting in a gender distribution of 52.09% males and 47.91% females. A comparative analysis of sex ratio data across Uttarakhand, Champawat district, and Lohaghat reveals a notable trend. In 2011, the sex ratio in Lohaghat was 955 females per 1,000 males, lower than the district average (980) and the state average (963).

This sex ratio suggests the influence of socio-economic factors, including migration trends, employment opportunities, and access to essential services, which may have contributed to a higher male population. While the overall sex ratio in India has shown signs of improvement, Lohaghat has also experienced a marginal increase between 2011 and 2023. However, the persistent gender disparity underscores the need for targeted policy interventions, particularly in healthcare, education, and economic empowerment programs for women, to foster a more balanced demographic structure and inclusive urban development.

Table 2.5: Sex Ratio, 2011

Description	Uttarakhand	Champawat District	Lohaghat Planning Area, 2011	Lohaghat Planning Area, 2023 (Primary Survey, 2023)
Sex Ratio	963	980	955	960

Source: School of Planning and Architecture, New Delhi (2024).

2.2.6 Literacy Rate, 2011

The overall literacy rate in the Lohaghat Planning Area is 88.54%, significantly higher than both the district average (82.65%) and the state average (78.8%). Despite this relatively high literacy level, findings from stakeholder consultations and field surveys indicate a growing demand for higher education facilities. Officials emphasised the need for dedicated land allocations in the Master Plan to accommodate professional colleges and specialised institutions, thereby enhancing access to advanced education and skill development opportunities.

Table 2.6: Literacy Rate, 2011

Description	Uttarakhand	Champawat District	Lohaghat Planning Area, 2011
Literacy Rate	78.8%	82.6%	88.5%

Source: School of Planning and Architecture, New Delhi (2024).

2.3 Population Projection

Population projection methods are techniques used to estimate future population size based on historical data and assumptions about future demographic trends. For the population projection of Lohaghat, several methods have been adopted, which are discussed below.

Arithmetic/Linear Projection: This method assumes a constant incremental growth rate over time. It projects the future population by adding a fixed number of people to the current population in each time period. This method is relatively simple but may not capture more complex population dynamics.

Geometric/Exponential Projection: This method assumes a constant percentage growth rate over time. It projects the future population by multiplying the current population by a

growth factor in each time period. This method is based on the assumption of compounding growth and is useful for studying population trends over long periods.

Incremental Method: The incremental method of population projection is a straightforward approach that estimates future population size by calculating the difference between the projected population for a given year and the base-year population. This method assumes a constant growth rate, or an increment in population size, from one period to the next.

Table 2.7 represents the population projection for the Lohaghat planning area through 2041, with 2023 as the current year. The table includes population figures for specific years, along with the corresponding arithmetic, geometric, incremental, and average growth rates. The arithmetic growth rate represents the constant increment in population from one year to the next. In this method, the projected population for the Lohaghat planning area in the year 2041 is 26,420. This projection is based on constant arithmetic growth of 358 persons per year. The geometric projection method reveals a population projection of 58,641 for the Lohaghat planning area in 2041. This projection is based on a compounded growth rate of 4.76 per cent. The geometric projection method accounts for the accelerating growth trend in the population. It indicates a higher growth rate compared to the arithmetic projection, underscoring the compounding effect of population growth. The incremental projection method estimates a population of 43,914 for the Lohaghat planning area in 2041. This projection is based on a constant incremental growth rate. The incremental projection method assumes a consistent increase in population from one period to another. It suggests a moderate growth rate relative to the geometric projection, yet still indicates considerable population expansion by 2041.

The population growth trend in Lohaghat has historically followed the arithmetic growth model, indicative of its small-town characteristics and steady expansion. However, with the implementation of the new proposals outlined in this master plan, the growth rate is expected to accelerate. Since geometric growth projections are typically applied to new towns anticipating rapid expansion, and incremental increase methods are used for medium-sized towns with fluctuating growth patterns, neither method alone is fully applicable to Lohaghat. Given that Lohaghat is a small town, a composite approach averaging all three methods has been adopted to ensure a balanced and realistic population projection. The average of the three projection methods above yields a design population of 42,992 by the year 2041. Currently, higher population density is observed in the municipal area, while future growth is expected to be concentrated in the surrounding villages. The master plan's proposed developments, including enhanced employment opportunities, economic expansion, and improvements in essential services such as healthcare, education, and transportation, are likely to attract migrants from nearby rural areas.

Table 2.7: Lohaghat Planning Area Existing Population and Projection, 2041

Scenario	Year	Arithmetic Population	Geometric Population	Incremental Population	Average Population
Existing	1981	4,950	4,950	4,950	4,950
	1991	7,832	7,832	7,832	7,832
	2001	12,273	12,273	12,273	12,273
	2011	15,685	15,685	15,685	15,685
Estimated	2021	19,263	23,147	19,528	20,646
	2023	19,979	25,402	21,967	22,449
	2031	22,842	36,843	31,721	30,469
	2041	26,420	58,641	43,914	42,992

Source: Evaluated based on the Census of India (1981, 1991, 2001, 2011).

Moreover, the Champawat district has tourist places that attract a large floating population from nearby districts. Thus, to calculate the floating population, primary and secondary studies are conducted.

As per the Draft DPR Solid Waste Management – Nagar Palika Parishad, Lohaghat, 2022, the floating population is 750 to 2,500, mainly comprising tourists and service sector workers. The tourism sector sees higher numbers on weekends, whereas people in the service sector travel for work on weekdays. The floating population in Lohaghat from 2011 to 2041, as per the above-mentioned document, is shown below. **Table 2.8.**

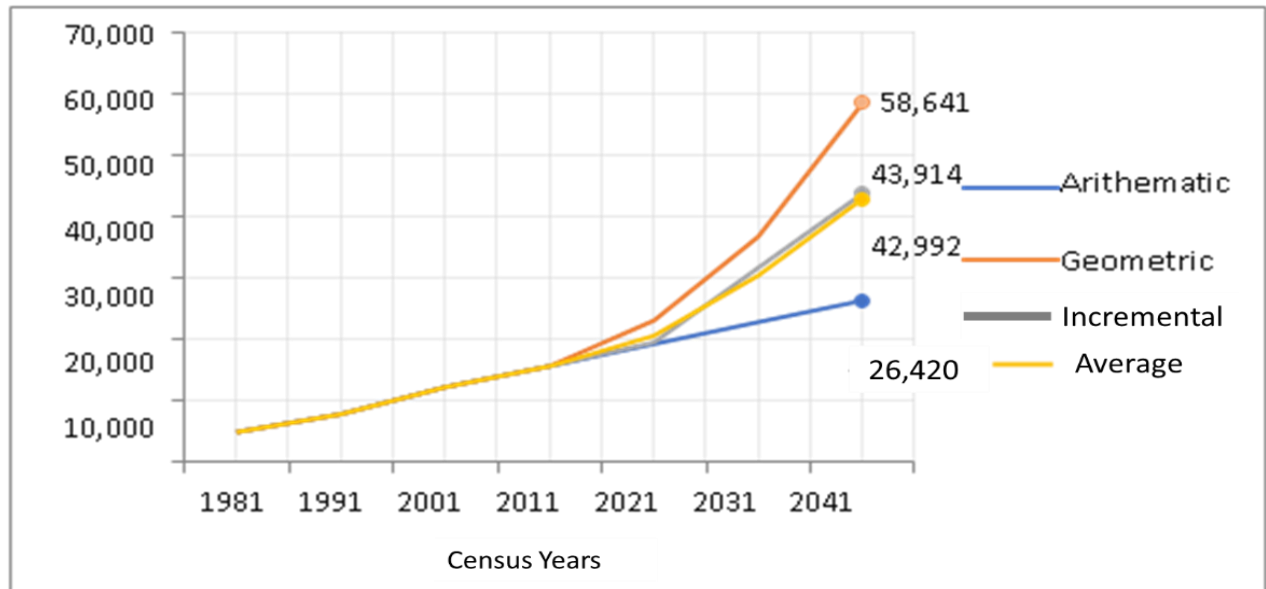
Floating Population through Survey: The tourist survey, conducted in 2023, included assessments of tourist destinations and interviews with hotel and homestay owners, among others. The survey findings highlighted that during the peak season, which lasts approximately 3 months, the tourist population is 800-1000 people. In contrast, during the non-peak season, which generally lasts 8 to 9 months, footfall ranges from 200 to 300. The total population is thus calculated by incorporating the floating population, as shown in **Table 2.8.**

Table 2.8: Floating Population in Lohaghat Planning Area, 2041

	Years	Population	Floating Population	Design Population
Existing	2011	15,685		15,685
Arithmetic Projection	2021	20,646	1,160	21,806
	2023	22,429	1,251	23,680
	2031	30,469	1,697	32,166
	2041	42,992	2,483	45,475

Source: Draft DPR Solid Waste Management – Nagar Palika Parishad, Lohaghat (2022).

It is observed that the total population is 23,680, comprising an average population of 22,429 and a floating population of 1,251. By 2041, the total population is expected to be 45,475, including a floating population.

Figure 2.2: Population Projection for Lohaghat Planning Area, 2041

Source: Evaluated based on the Census of India (1981, 1991, 2001, 2011).

Overall, the population projection for the Lohaghat planning area indicates continued growth, with higher growth rates expected in the coming years. This information is crucial for spatial planning, resource allocation, and infrastructure development to accommodate the growing population and ensure sustainable development in the region.

CHAPTER 3: ECONOMY, TRADE AND COMMERCE

3.1 Introduction

Economy, trade, and commerce are the lifeblood of any community, fuelling its growth and sustainability. They encompass the production, distribution, and consumption of goods and services, creating employment opportunities and generating wealth. In the master plan of a hill town like Lohaghat, these elements are crucial for several reasons. They stimulate economic development, attracting investment and fostering local entrepreneurship. Trade and commerce provide residents with access to necessary goods and resources while enabling the town to showcase its unique offerings, potentially attracting tourists and bolstering the community's overall prosperity.

3.2 Existing Worker Profile

3.2.1 Workers Participation Rate, 2011-2023

While the overall Work Participation Rate (WPR) for Uttarakhand has increased from 38.3% to 50.9%, the WPR for Champawat District has declined from 36% to 34%. In contrast, Lohaghat has witnessed a marginal increase in WPR from 29.3% in 2011 to 32% in 2023 (Table 3.1). This upward trend suggests a modest improvement in labour force engagement, potentially driven by local economic shifts or emerging employment opportunities. However, the WPR in Lohaghat remains significantly lower than both the state and district averages, highlighting persistent challenges in workforce inclusion. These challenges may stem from limited job opportunities, an underdeveloped economic base, or structural constraints within the local labour market.

Table 3.1: Workforce Participation Rate, 2011 -2023

Description	Uttarakhand, 2011	Uttarakhand, 2021	Champawat District,2011	Champawat District,2021	Lohaghat Planning Area, 2011	Lohaghat Planning Area, 2023 (Primary Survey)
WPR	38.3%	50.9%	36%	34%	29.3%	32%

Source: Census of India, 2011 and Primary Survey done by School of Planning and Architecture, New Delhi, 2023.

3.2.2 Sectoral Distribution, 2011-2023

A secondary analysis of Census 2011 data reveals that 70.5% of the main workers in the Lohaghat Planning Area are engaged in the tertiary sector. This trend was further corroborated by findings from the primary survey conducted in 2023.

Nestled in the scenic Kumaon region of Uttarakhand, Lohaghat is a town rich in cultural heritage and natural beauty. It is known for its iron utensil industry and agricultural produce, particularly the kafal fruit in summer and malta fruit in winter, both of which have the potential to contribute significantly to the local economy. Additionally, its strategic location near the Nepal border presents opportunities for cross-border trade, enhancing its economic relevance.

Lohaghat's serene landscapes and historical sites make it a promising destination for tourism, with potential growth in the hospitality and service sectors. The town's master plan is expected to focus on leveraging these strengths by promoting sustainable eco-tourism, strengthening trade networks, and fostering economic diversification to ensure long-term prosperity for its residents.

"Workforce participation rate = Total working population/total population"

Table 3.2: Comparative Analysis of Workforce Participation Rate in cities of similar character, 2011

Cities	Area (sq. km)	Workforce Participation Rate
Nainital City	11.73	32.35 %
Dehradun City	71.62	33.93 %
Lohaghat Planning Area	10.92	29.35 %

Source: Census 2011

Table 3.3 Comparison of Population Growth

	1981	1991	2001	2011	2021	2023	2031	2041
Nainital	24,835	29,837	38,630	41,377				
Lohaghat	4,950	7,832	12,273	15,685	20,646	22,449	30,469	42,992

Source: Census 2011 and School of Planning and Architecture, New Delhi (2023)

According to Census 2011 data, workforce participation rates at various administrative levels are as follows: India (39.80%), Uttarakhand (38.39%), Champawat district (36%), and the Lohaghat Planning Area (29.35%). A comparative analysis has also been conducted with cities such as Nainital (32.35%) and Dehradun (33.93%), which share similar environmental conditions and a strong dependence on the tourism sector (see **Table 3.2**).

Given that tourism development is a gradual process, an assumption has been made based on Nainital's similarities to Lohaghat in terms of size, projected population (estimated to reach approximately 42,992 by 2041), and economic characteristics (see **Table 3.3**). Therefore, considering the induced growth resulting from the master plan proposals, a workforce participation rate of 40% has been projected for future workforce estimations (see **Table 3.4**).

Table 3.4: Workforce Estimation in Lohaghat Planning Area, 2041

Population	42,992
Workforce participation rate	40%
Workforce Estimation	17,196

Source: Census 2011 and School of Planning and Architecture, New Delhi (2023)

Table 3.5: Sector-wise workforce participation, 2041

S.No.	Sector	Lohaghat Planning Area		Percentage (average)	Estimation Workforce Participation
		Percentage (Census 2011)	Percentage (primary survey)		
1	Primary Sector	24	20	22	3,783
2	Secondary Sector	6	10	8	1,375
3	Tertiary Sector	70	70	70	12,037
Total		100	100	100	17,196

Source: Census 2011 and Primary Survey, School of Planning and Architecture, New Delhi (2023)

3.3 Proposed Economic Activity

3.3.1 Primary Sector (Cultivators, Agricultural Labourers)

According to an analysis of primary and secondary data, about 20-24 per cent of the overall population in the villages of the Lohaghat planning area engages in the primary sector, particularly agriculture. However, there's a noticeable shift towards the secondary or tertiary sectors for livelihoods. This shift is gradually sidelining agriculture from local life, and the increasing tourism might further accelerate this trend away from farming. To address this issue, the proposal aims to encourage continued public involvement in agriculture.

One strategy involves integrating agricultural experiences into the area's tourism offerings. This includes agri-tourism initiatives in which visitors participate in farming activities, learn local agricultural practices, and support the local economy by buying directly from farmers. Additionally, proposals for herbal and aroma parks aim to promote medicinal tourism. To encourage farmer participation, government incentives will be provided to develop facilities that support individual nature walks for tourists.

Promotional campaigns highlighting the unique blend of agricultural experiences and tourism attractions can draw visitors seeking authentic experiences, aiding economic sustainability for residents.

Developing guided tours that enable tourists to participate in farming activities, such as planting and harvesting, will offer deeper insights into local agricultural practices while creating new income streams for farmers. Encouraging farmers to offer accommodations and proposing rural homestay clusters further promotes eco-tourism.

Culinary Tours and Festivals: Lohaghat boasts abundant agricultural produce, including Kafal, Malta, Timil, Bheemal tree products, and dairy products. To showcase these, culinary events or food festivals will highlight local dishes, cooking techniques, and traditional recipes, attracting enthusiasts and travellers eager to experience the region's unique cuisine.

Market and Souvenir Promotion: Establishing farmers' markets or stalls at tourist spots to sell fresh produce and locally made souvenirs supports the local economy and offers tourists authentic products.

Marketing Campaigns: Launching targeted marketing campaigns through social media, websites, and travel publications to showcase the town's agriculture-tourism blend and scenic beauty.

Establishing cold storage, procurement, and collection centres for perishable goods, as well as local markets for marketing and distribution, is also proposed.

Thus, as per the primary and secondary data, the workforce in the primary sector is estimated to be 22 per cent of the total workforce proposed in the planning area (see **Table 3.5**).

The other proposed projects under Champawat Dairy Acceleration Mission and proposed projects for kiwi, cinnamon, silk and tea by different agencies have been shown in **Annexure C** and **Annexure D**. A few of the key projects related to the primary sector have been shown below in **Table 3.6** and **Table 3.7**

Table 3.6: Proposed Projects in the Primary Sector in Champawat District

Brief Description	Department
Set up a model orchard of 2 acres for Kiwi:	Horticulture
Develop Cinnamon nurseries in a 20-ha area to propagate and supply 25 lakh+ quality planting materials till 2030	CAP
Policy for Lilium bulb propagation by private players:	Horticulture
• Polyhouse (1 ha)	
• Cold storage (5,000 MT)	
Policy to promote the set-up of Cinnamon plantations in 1,500 Ha in Champawat, Lohaghat and Pati blocks	CAP
Policy to increase Lilium area under cultivation from 1 ha to 20 ha at 80% subsidies on set-up (planting material, etc.)	Horticulture
Establish Ropeways for first-mile transportation in hilly regions for Kiwi and Lilium.	
Set up primary processing centres, including a solar dryer and a grinder for Cinnamon.	CAP
Organise annual festivals and create product-linked tourism for Kiwi and Lilium.	Horticulture
Set up 1 Kiwi processing centre for jam, juice and dry slice preparation (1,000 MT/season)	

Source: District Administration, Champawat (2024)

Table 3.7: Proposed Project Related to Primary Sector Under Champawat Dairy Acceleration Mission

Consideration Project	Brief Description
Champawat Pashu Ashray Vikas Yojana	2,000 small shelters through 50% govt. subsidy in Lohaghat and Champawat
Mini Collection Centres with Chillers	200 mini collection centres through 50% govt. subsidy equipped with 500 LPD bulk milk chillers and electronic milk adulteration testing equipment in Lohaghat, Champawat, Tanakpur and Pati
Artificial Insemination Centres	10 artificial insemination centres to be developed in Lohaghat and Pati
Gau Swasthya Sanrakshan Abhiyan	8 specialised dairy health centres providing 1 annual check-up (BCS, vaccinations, AI dates), lab tested reports

Source: District Administration, Champawat (2024)

3.3.2 Secondary Sector (Household Workers)

Presently, 10 per cent of the workforce operates in the secondary sector, predominantly comprising household workers who craft Pirul handicrafts and iron utensils. The government has initiated an Iron Utensils & Agricultural Equipment Growth Centre in Lohaghat as part of the National Rural Livelihood Mission. It aims to support Self-Help Groups in sustaining handicraft utensil production.

However, the obstacle lies in the diminishing use of traditional iron utensils due to the introduction of steel and non-stick cookware. Simultaneously, there's been a rise in public awareness of the need to utilise traditional utensils.

To promote the sustainability of traditional utensils and handicrafts for the year 2041 in light of changing consumer preferences, here are some strategies:

- **Innovation and Adaptation:** Invest in research and development to innovate traditional utensils. Create designs that merge tradition with modern functionality, enhancing their appeal to contemporary consumers while retaining their cultural essence.

- **Educational Campaigns:** Launch extensive educational campaigns highlighting the unique benefits of traditional utensils. Emphasise their health advantages, eco-friendliness, and cultural significance through multimedia platforms, workshops, and collaborations with health and culinary experts.
- **Partnerships and Collaborations:** Collaborate with chefs, influencers, and lifestyle experts to endorse and incorporate traditional utensils into modern cooking shows, culinary events, and social media content. Highlight their usability and uniqueness in different cuisines.
- **Product Diversity and Customisation:** Offer a diverse range of traditional utensils catering to various cooking styles and preferences. Consider customisation options to attract niche markets and individuals seeking personalised kitchenware.
- **Sustainability and Eco-Friendly Practices:** Leverage the eco-friendly nature of traditional utensils. Emphasise their sustainable production processes, using this aspect as a selling point to appeal to environmentally conscious consumers.
- **Market Positioning and Branding:** Focus on storytelling and branding strategies that convey the heritage, craftsmanship, and cultural significance of traditional utensils. Position them as premium, artisanal products with a unique narrative.
- **Distribution Channels and Accessibility:** Expand distribution channels both offline and online. Collaborate with retailers, e-commerce platforms, and speciality stores to ensure easy accessibility for consumers worldwide.
- **Cultural Experiences and Tourism Integration:** Incorporate traditional utensils into local tourism experiences. Offer workshops, demonstrations, or tours where tourists can witness the making of these utensils, connecting them to the local culture.
- **Continuous Adaptation to Market Trends:** Stay attuned to market trends and consumer preferences. Continuously adapt designs, marketing strategies, and product offerings to meet evolving demands while maintaining the essence of tradition.
- **Policy Advocacy and Support:** Advocate for policies that support and protect traditional craftsmanship. Work with government bodies to secure recognition, protection, and promotion of traditional utensils as part of cultural heritage.

By implementing these strategies and continually evolving with the market, traditional utensils can carve a significant space in the kitchenware industry over the next two decades, bridging tradition with contemporary lifestyles.

Based on primary and secondary data, the secondary sector workforce is estimated at 10 per cent of the total workforce in the proposed planning area.

3.3.3 Tertiary Sector (Others)

With 70% workforce participation in the tertiary sector as per primary survey data, this figure is projected for estimating workforce participation in the year 2041 (see **Table 3.5**). A significant increase in employment rates, in line with our vision, can be achieved by boosting the tourism sector in the Lohaghat planning area. This can be accomplished through the following avenues:

- **Direct Employment:** Jobs are expected to increase in hospitality (hotels, resorts, and restaurants), tour guiding, transportation services, and attractions that are directly linked to tourism.
- **Indirect Employment:** With the increase in the tourism sector, there would be growth in demand for goods and services, such as food suppliers, artisans selling local crafts, transportation services, and construction for infrastructure development.
- **Entrepreneurship Opportunities:** Locals shall be encouraged to start small businesses like homestays, local tours, handicraft production, or food stalls catering to tourists.
- **Infrastructure Development:** There are also possibilities of employment generation during the construction phase of infrastructure development, including roads, hotels, tourist facilities, and recreational areas.
- **Cultural Preservation and Promotion:** Jobs are expected to be created in areas related to preserving cultural heritage, offering traditional experiences, and showcasing local arts, crafts, and performances.
- **Seasonal Employment Opportunities:** The government shall promote seasonal tourism events or festivals that can create temporary employment spikes during peak tourism periods.
- **Training and Skill Development:** Support programs and incubation centres shall be established to foster entrepreneurship and small business development, encouraging innovation and job creation.

3.4 Industry

3.4.1 Industries in the Lohaghat Planning Area, 2023

As of 2023, the primary survey reveals that there are no functional industries in the Lohaghat planning area. There is a small-scale, household-based industry that primarily produces iron-based products.

3.4.2 Proposed Industries in the Lohaghat Planning Area, 2041

The master plan for Lohaghat, 2041, presents a forward-looking strategy for sustainable urban development, with a key focus on fostering non-polluting industries within a designated industrial zone spanning 16.28 hectares (**Table 3.9**). This strategic allocation underscores a commitment to harmonising economic growth with environmental sustainability.

The proposed industrial development prioritises eco-friendly sectors, including renewable energy parks, agro-based industries, handloom enterprises, and technology-driven businesses. The industrial land allocation is carefully distributed across Kolidhek, Pau, and Patan Patni villages, ensuring a well-integrated “live, work, and play” environment within the planning area.

Additionally, the employment and commercial needs of Kaligaon and the municipal area will be met through a combination of existing and proposed commercial zones, strategically located in proximity to support local employment opportunities and urban growth (see **Figure 3.1**).

3.5 Commercial Area

The commercial area in the Lohaghat planning area is majorly along National Highway 9, MeenaBazar and Lohaghat-Devidhura-Almora Road. The commercial character along these roads is mostly mixed-use, with commercial spaces on the ground floor and residential on upper floors. Since there is no designated area for commercial development and to prevent random development of commercial areas, an area of 7.39 hectares is proposed for commercial development, apart from the existing commercial area. As the planning area grows, there will be some demand for retail or commercial uses, driven by tourism and other proposals. The total commercial area provided in the master plan 2041 is 8.68 hectares. Alongside commercial retail, there is scope for wholesale development, given the potential for industrial and other large-scale facilities. Therefore, an area of 1.02 hectares has been earmarked for commercial wholesale near industrial land use in Patan Patni village. (See Table 3.8).

Table 3.8: Existing and Proposed Commercial area in Lohaghat Planning area for the year 2041

Existing and GAP Analysis							Projection			
S. No.	Infrastructure	URDPFI 2014 (Population served per unit)	Requirement as per URDPFI, 2014(for 2023 population)	Number of Distributive Services existing as of the 2023 Survey	Number of Distributive Services Required for the population (2023)	Remark Gap	Requirement as per URDPFI,2014 (for 2041 population)	Number of Distributive Services required for projected population, considering the gap and adequacy (2023)	Area Requirement in sq.m. as per URDPFI 2014	Area required in hectares
1	Local Convenience Shopping	10,000	2.0	2	0.0	Insufficient	4	2	5,000	1.15
2	Milk Booth	10,000	2.0	1	-1.0		4	3	400	0.13
3	Banquet Hall	10,000	2.0	0	-2.0		4	4	1,000	0.43
4	InformalBazaar	15,000	1.3	0	-1.3		3	3	1,500	0.43
5	Community Welfare Centre	16,000	1.2	0	-1.2		3	3	1,500	0.40
Total										2.54

Source: URDPFI, 2014 and Primary Survey by School of Planning and Architecture, New Delhi (2023)

Table 3.9: Existing and Proposed Industrial, Commercial and Mixed-Use Areas in Lohaghat, 2041

S. No.	Description	Area (ha)	Percentage of Developed Area
1	Commercial	1.29	0.24%
2	Proposed Commercial	7.39	1.42%
3	Proposed Commercial wholesale	1.02	0.19%
4	Industrial	0.12	0.02%
5	Proposed Industry	16.28	3%
6	Mixed	11.1	2.02%
	Total	37.2	6.89%

Source: School of Planning and Architecture, New Delhi (2025)

3.6 Vending Zone

Vending zones play a crucial role in urban planning by organising street vending activities, ensuring economic opportunities for vendors while maintaining urban order and accessibility. Two designated vending zones are proposed within the recreational area of the planning region, one near Krishi Vigyan Kendra and the other near Kendriya Vidyalaya.

CHAPTER 4: HOUSING AND HABITAT

4.1 Introduction

This chapter discusses the proposal in terms of residential land use based on the existing situation assessment. The housing situation has been analysed with respect to existing housing conditions, the number of houses, shortages, overcrowding and congestion, economic status, availability of facilities, and various policies to address gaps and requirements. To address the housing shortage, various housing proposals are being made.

4.2 Existing Housing Scenario

Census 2011 data show a housing shortage of 437 in Lohaghat that needs to be addressed in the master plan. Approximately 2% of households live in semi-permanent, temporary, and serviceable houses, which need to be addressed in the housing needs. The housing needs for 2023 have been discussed in detail in the section 4.4.4.

4.2.1 Housing Condition, 2011 – 2023

Both census and primary survey data show that more than 97% of houses are in good, livable condition.

4.2.2 Housing Typology, 2023

The predominant housing typology in Lohaghat consists of row houses, with 52% of plots ranging between 100 and 250 sq. m., while 23% are smaller than 100 sq. m. Most of these row houses feature 1 to 3 dwelling rooms.

4.2.3 Housing Ownership, 2011 – 2023

According to the 2011 Census, 73.9% of houses in Lohaghat are owner-occupied, while 23.8% are rented. A similar trend was observed in the survey conducted by the School of Planning and Architecture, New Delhi, in 2023, which indicated that 75% of houses are owned, with rental accommodations comprising only a small fraction of the overall housing stock.

4.3 Potential for Rental Accommodation, 2023

Over the past decade, urbanisation has increased noticeably, leading to congestion in the municipal area, which now has a gross density of 111.63 persons per hectare. A primary survey revealed that 13.8% of the population consists of migrants who have moved to the area in search of better education and employment opportunities.

Considering this, along with the proposed enhancement of the tourism sector and the region's growing economic vibrancy, there is significant potential to create rental accommodations to support growth in the Lohaghat Planning Area. As more visitors are drawn to the area's natural beauty and cultural heritage, and as the presence of public-sector institutions increases, the demand for diverse housing options is expected to rise.

Strategic planning can leverage this opportunity by identifying key locations for rental housing near major attractions such as Koli Dhek, the institutional hub in Pau Village, and areas near hospitals and government offices. Ensuring accessibility and appeal in these

locations will make rental properties viable for both short-term tourists and long-term residents, including seasonal workers and institutional staff.

By incorporating sustainable building practices and modern amenities, the rental market can be developed to support urban expansion while maintaining environmental and social sustainability. Additionally, government policies such as the Affordable Rental Housing Complexes (ARHC) Scheme, 2020, aim to provide rental housing for urban migrants and low-income populations, further supporting this initiative.

4.4 Housing Need for Lohaghat, 2041

In 2011, the population was recorded at 15,685, with 3,735 households. Looking ahead to 2023, the projected population is set to increase linearly to 22,429, resulting in 5,340 households. Considering the difference between projected households in 2023 and the households in 2011, an additional 1,606 households are estimated to be required. The housing shortage that existed in 2011 amounted to 437 dwelling units. Combining this shortage with the projected additional households in 2023, the total need for dwelling units reaches 1,794. In the same year, the estimated present population was 22,429. A notable population surge is anticipated by 2041, reaching 42,992, an increase of 20,563 individuals. Considering an average household size of 4.2 individuals, the calculated number of DU's required to accommodate this increase in population is 1,507 DU'S for the year 2023, followed by 1,850 for the year 2030, 1515 DU's for the year 2035 and 2,104 for the year 2041. The projected housing need in 2023 is 1,794 DUs. The total number of houses sanctioned under PMAY till 2023 is 287. When taking into account the projected 2023 shortage, the calculated number of DUs needed in 2041, and the sanctioned PMAY houses, the total demand for dwelling units is projected to be 7,413. These statistics (**Table 4.1**) collectively underscore the pressing need for proactive urban planning, housing development, and policy implementation to adequately address the impending housing shortages and accommodate the projected population growth in Lohaghat.

Table 4.1: Housing Need for Lohaghat, 2041

S. No.	Description	2011	2023	2030	2035	2041
A	Population (Census 2011)	15,685	0	0	0	
B	No. of households (HH) (Census 2011)	3,735	0	0	0	
C	Estimated population		22,429	29,385	35,081	42,992
D	Estimated No. of households (HH)		5,340	6,996	8,353	10,236
E	Housing shortage as per 2011 Census (DUs) (obsolescence, houseless, congestion, dilapidated)	437.5				
F	Estimated Housing shortage based on Census (DUs) (obsolescence, houseless, congestion, dilapidated)		187.9	193.8	158.7	220.4
G	Increase in Population		6,744	6,956	5,696	7,911
H	Estimated Household Size (As per census 2011)	4.2	4.2	4.2	4.2	4.2
I	No. of DU's required (I = G/H) (DUs)	-	1,606	1,656	1,356	1,884
J	Housing Shortage (DUs)	437	1,794	1,850	1,515	2,104
K	PMAY sanctioned houses (2023) (DUs)		287			

L	Total number of DU's needed, 2041	437	1,507	1,850	1,515	2,104
M	Total number of DU's needed till 2041 (housing shortage in 2011+DUs needed in 2023+2030+2035+2031)	7,413				

Source: School of Planning and Architecture, New Delhi (2024).

The housing scenario in Lohaghat presents a multifaceted picture of challenges and shortcomings in shelter and accommodation.

4.5 Housing Proposal for Lohaghat 2041

As of 2023, the estimated residential population in the Lohaghat planning area is 22,429 across 1092 hectares. Based on the land suitability analysis, not all of the planning area's land area is suitable for future development, so the total developable land is extracted from the planning area. An area of 153 hectares has already been developed, while an additional 548 hectares are available for development. Presently, the gross density of the total municipal area stands at 110 persons per hectare (pph), whereas the gross density of the total Lohaghat planning area is 20.53 pph, and the developed density stands at 124 pph. As per the 2014 Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines for small towns in hilly areas, the recommended developed-area residential density shall fall between 45 and 75 pph. This indicates that the municipal area is significantly congested and requires decongestion. So, to decongest the municipal area and create a better livable space, areas beyond it are proposed for further development. **Table 4.2** shows the existing and proposed density for the Lohaghat planning area. The projected density is derived from case studies of similar towns and, as per the URDPFI guideline, 2041.

The required number of houses is 7,413 (**see Table 4.1**). It's noted that not all these houses need to be newly constructed on fresh plots. Those in dilapidated condition or with temporary structures will undergo redevelopment or upgrading on the same plots. According to 2011 data, there were 35 dilapidated and temporary houses.

As per the primary survey, the most common housing typology observed in Lohaghat is plotted housing. But only the plotted housing typology would result in environmental degradation and increase infrastructure costs, thus emphasising sustainable development. In hilly regions like Lohaghat, a well-balanced housing mix shall be prioritised, with eco-friendly design, disaster resilience, and accessibility, while providing diverse housing options. Several housing mix options tailored to hilly landscapes are presented below.

- a. **Terraced Housing:** Natural Slopes could be followed in constructing the homes in a terraced formation. This will minimise the land disruption and reduce landslides. This would preserve the views, promote airflow, and enhance drainage control through tiered landscaping.
- b. **Cluster Housing with courtyards:** A small group of units could be grouped around the shared open space. This shall encourage social interaction, provide a gathering space, and enhance natural lighting and ventilation.
- c. **Eco-cottages:** Eco-friendly cottages on plots built with locally sourced materials and incorporating green roofs or solar panels would blend into the natural landscape,

providing privacy as well as integrating an eco-tourism objective for individuals seeking a rustic experience.

- d. Low-rise apartments: Two to three-floor buildings on flat areas or stable slopes** can house more residents without extensive land use. This shall offer affordable, compact living options, reducing the overall built footprint.
- e. Row houses:** Row houses on gentle slopes, using shared walls, shall reduce construction impact and enhance thermal efficiency.
- f. Stilted Housing:** Houses on 20-to-30-degree slope shall be constructed on stilts to minimise the site grading, reduce erosion risk, improve airflow and preserve natural contour while providing scenic views.
- g. Mixed-use Housing:** Creating live-work units with commercial on the ground floor and residential area near the main road would encourage the local economy and reduce commuting.
- h. Homestay Housing:** Houses could be developed into homestay units where residents would be allowed to host tourists. This could be incentivised through a subsidy provided by the Uttarakhand state government under the Deen Dayal Upadhyaya Griha Awaas Homestay (amendment) Policy 2021.
- i. Community Housing Clusters:** Planned clusters of small units with shared amenities like water tanks, solar energy systems, and waste management would reduce the infrastructure cost and land impact. This would also support affordable housing in the area.

The plots can be carved out based on demand and salability. For low-income groups in the population, the minimum plot size should be at least 40 sq. m. However, the plot size may vary depending on housing needs and overall affordability. The proposed residential area to accommodate the projected population and overcome the current gap is shown in **Figure 4.1**. The housing areas are identified based on the growth pattern, the existing and proposed road network, topography, and the availability of basic amenities, etc.

Now the 7,413 remaining houses need to be newly constructed on new plots. As per the primary survey conducted in 2023, the most common housing typology observed in Lohaghat is plotted housing, with a very small segment of small-scale group housing up to G+4/G+5. 75% of the houses are less than 250 sq. m., and 25% are more than 250 sq. m. In a similar way, here also, a plotted and group housing typology is proposed. Based on the possible distribution of housing types, future demand for shelter will be dominated by small dwelling units. In view of the limited availability of land and the increased demand for housing, planned plotted residential development shall be undertaken. The existing and proposed residential area in the Lohaghat planning area for 2041 is shown in **Table 4.3**. To support residential development, other basic infrastructure needs to be provided as shown in **Table 4.4**.

Table 4.2: Existing and Proposed Density in PPH for Lohaghat Planning Area, 2041

Total Planning Area in Ha		1,092
Existing Developed Area in Ha (Except water bodies, SEZ, Forest)		179.4
Existing (Municipal Area)	Population 2011	7,926
	Gross Density (pph)	110

	Gross Density based on Developed Area (pph)	152
Existing (Planning Area)	Population 2023	22,429
	Gross Density (pph)	20.53
	Gross Density based on Developed Area (pph)	124
Proposed (Planning Area)	Projected Population 2041	42,992
	Gross Density based on developed area as per URDPFI Guidelines, 2014 (pph)	45-75
	Proposed Gross Density based on developed area (pph)	78

Source: School of Planning and Architecture, New Delhi (2024).

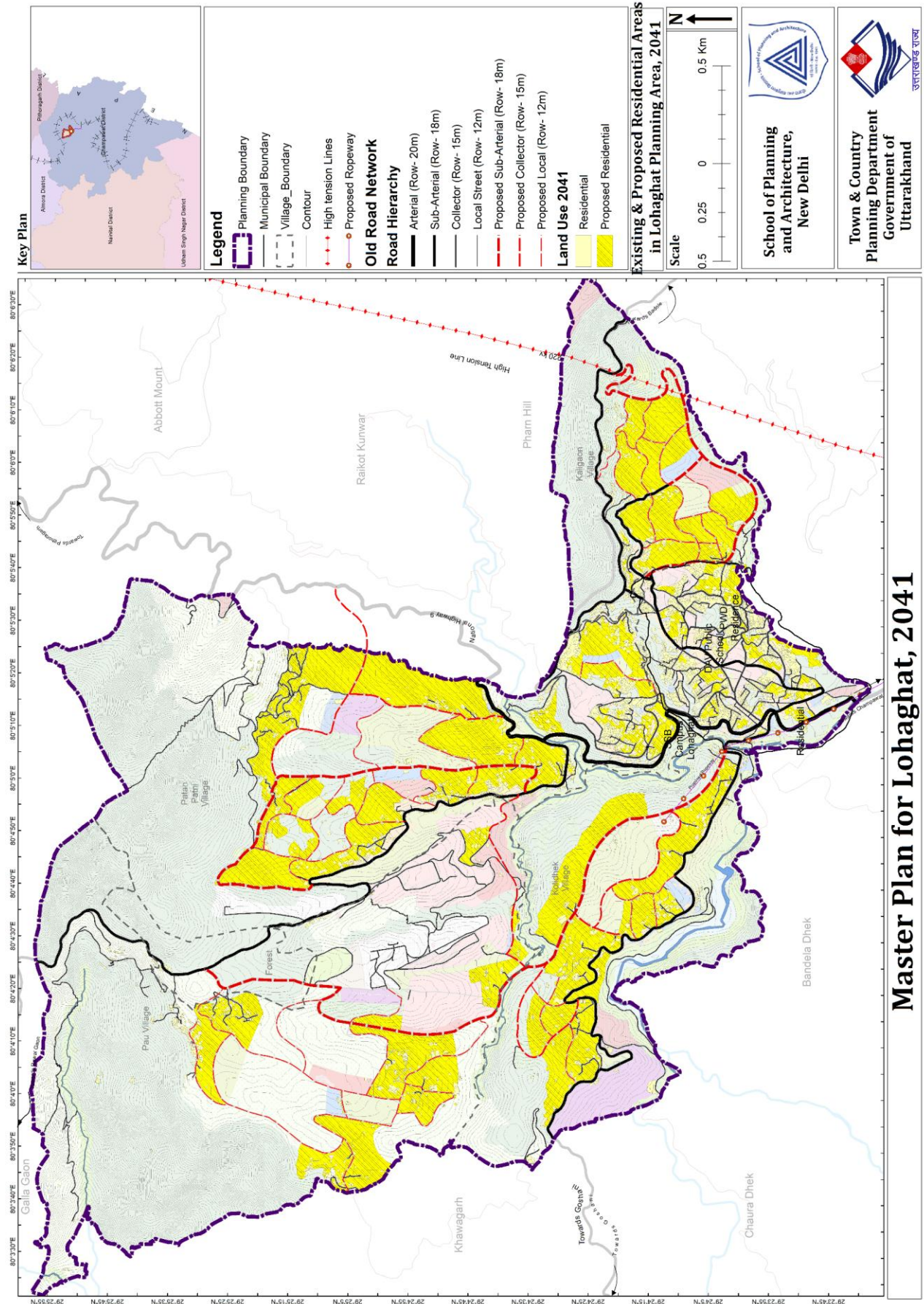
Note: since the municipal area is already dense, the proposed gross density is 78 pph.

Table 4.3: Residential Area in Lohaghat Planning Area, 2041

S. No.	Description	Area (Ha)	% of total developed Area
1	Existing Residential	43.62	7.93%
2	Proposed Residential	194.18	35.46%
Total		237.8	43.39%

Source: School of Planning and Architecture, New Delhi (2025).

Figure 4.1: Proposed Residential Areas in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2025).

Table 4.4: Hierarchy of Facilities Required as per URDPFI, 2014

S. No.	Infrastructure	URDPFI 2014 (Population served per unit)	Requirement as per URDPFI, 2014 (for 2023 population)	Requirement as per URDPFI, 2014 (for 2041 population)	To be Provided	
					LOP	Master Plan
Distributive Services	Local Convenience Shopping	10,000	2.0	4	✓	
	Milk Booth	10,000	2.0	4	✓	
	Banquet Hall	10,000	2.0	4	✓	
	Religious Buildings	10,000	2.0		✓	
	Cremation Grounds	10,000	2.0	4	✓	
	Informal Bazaar	15,000	1.3	3	✓	
	Community Welfare Centre	16,000	1.2	3	✓	
	Post Office	10,000	2.0	4	✓	
Recreational and Open Space	Housing Area Park	5,000	4.0	9	✓	
	Neighborhood Park	10,000	2.0	4		✓
Healthcare	Dispensary	2,500	8.0	17	✓	
	Family Welfare Centre	5,000	4.0	9	✓	
	Maternity Homes	15,000	1.3	3	✓	
	Nursing Home	15,000	1.3	3	✓	
	Health sub centre	3,000	6.7	14	✓	
	Primary Health Centre (25 to 50 beds)	20,000	1.0	2	✓	
Educational	Pre- Primary, Nursery school	2,500	8.0	17	✓	
	Primary School (I to V)	4,000	5.0	11	✓	
	Middle School (VI to VII)	15,000	1.3	3	✓	
	Secondary School (IX to X)				✓	
	Senior Secondary School (XI to XII)				✓	
	Arts/Science/Commerce College	30,000	0.7	1		
	Medical College	10,00,000	0.0	Not Required		✓
	Engineering College/ Professional college	30,000	0.7	1		✓
	Polytechnic	30,000	0.7	1		✓
	Management College	30,000	0.7	1		✓
	University College	50,000	0.4	1		✓

Source: School of Planning and Architecture, New Delhi (2023) and URDPFI (2014).

4.6 Housing Policies

4.6.1 Deen Dayal Uttarakhand Gramin Awas Yojana

The Deen Dayal Uttarakhand Gramin Awas Yojana (DDUGAY) is a housing scheme launched by the Uttarakhand government to provide affordable housing to the state's rural population. Implemented under the Pradhan Mantri Awas Yojana-Gramin (PMAY-G), this initiative aims to address the housing needs of the marginalised and economically weaker sections residing in rural areas of Uttarakhand. The key objectives of the DDUGAY include constructing pucca houses for those living in kutcha houses, providing financial assistance to eligible beneficiaries, ensuring the availability of basic amenities like water, sanitation, and electricity, and fostering inclusive development in rural regions. The Deen Dayal Uttarakhand Gramin

Awas Yojana is a significant step towards fulfilling the housing aspirations of Uttarakhand's rural populace, aiming to improve their quality of life, promote socio-economic development, and contribute to the overall growth of rural communities.

4.6.2 Pradhan Mantri Awas Yojna- Urban

The Pradhan Mantri Awas Yojana - Urban (PMAY-U) is a flagship housing scheme launched by the Government of India to provide affordable housing solutions to the urban population. Introduced in June 2015, PMAY-U aims to address the housing shortage in urban areas by facilitating the construction of houses for the economically weaker sections, low-income groups, and middle-income groups. The PMAY-U targets the urban poor, including economically weaker sections and low-income groups, by providing financial aid and incentives for the construction or enhancement of housing infrastructure. The scheme also emphasises the importance of eco-friendly and sustainable housing practices. PMAY-U has made significant strides in addressing the urban housing deficit and improving living conditions for millions in urban areas across India.

4.6.3 Uttarakhand Housing Policy (Amendment) Rules, 2022

The Uttarakhand Housing Policy outlines the state government's strategies, goals, and initiatives for housing development across urban and rural areas. Its primary objective is to ensure adequate and affordable housing for all residents, addressing the diverse housing needs of various income groups and demographics.

4.7 Land Administration and Land Market

4.7.1 Key Players

- i. **Uttarakhand Housing and Urban Development Authority (UHUDA):** The Uttarakhand Housing and Urban Development Authority (UHUDA) is a state-level agency in Uttarakhand, India, responsible for planning, development, and regulation of housing and urban infrastructure in the state. UHUDA is involved in implementing housing schemes to provide affordable, quality housing for the residents of Uttarakhand. These schemes often cater to various income groups and aim to address the population's housing needs.
- ii. **Uttarakhand Real Estate Regulatory Authority:** The Uttarakhand Real Estate Regulatory Authority (RERA) stands as a pivotal player in the real estate sector within the state of Uttarakhand, India. Established under the Real Estate (Regulation and Development) Act, 2016, RERA holds significant responsibilities in regulating and overseeing real estate transactions, projects, and agents. Its primary objectives are to promote transparency, accountability, and efficiency within the real estate industry. It acts as a bridge between developers and buyers, fostering an environment conducive to meeting housing needs while ensuring consumer protection and fair practices within the real estate landscape.
- iii. **Real Estate Developer(s):** Real estate developers play a critical role in shaping the built environment by conceptualizing, financing, constructing, and often managing properties. They are instrumental in bringing housing, commercial, industrial, or mixed-use projects to life. These developers vary widely in size, scope, and specialization, but they generally share key responsibilities and characteristics.

4.7.2 Land Development Models

- **Land Acquisition (Under LARR 2013):** The Land Acquisition, Rehabilitation, and Resettlement Act (LARR) of 2013 in India aimed to regulate the process of land acquisition for infrastructure, industrialization, and social development projects while ensuring fair compensation, rehabilitation, and resettlement for affected persons. This legislation sought to strike a balance between developmental needs and safeguarding the interests of landowners and affected families.
- **Optimum Utilization of Vacant Govt. land (OUVGL) Scheme:** The Optimum Utilization of Vacant Government Land (OUVGL) Scheme is an initiative in India aimed at maximizing the use of idle or vacant government-owned land parcels. The scheme focuses on identifying and repurposing these underutilized lands for various developmental, social, or commercial purposes to generate revenue, foster economic activities, and address societal needs. Through OUVGL, government bodies could assess and categorize vacant lands, determining their potential for different uses such as affordable housing, infrastructure projects, public amenities like parks or community centers, commercial ventures, or other public welfare initiatives. The goal is to leverage these resources effectively, ensuring that the land contributes positively to societal growth and development.

The policies will have an impact on the housing as through primary survey we have observed that 83% households are in EWS& LIG, and may require financial assistance which can be availed under the policies such as Deen Dayal Uttarakhand Gramin Awas Yojana and Pradhan Mantri Awas Yojana.

The vacant government land parcel can be used for building affordable small scale group housing to combat the issue of housing shortage.

CHAPTER 5: TOURISM AND HERITAGE

5.1 Introduction

Champawat District is a significant religious destination where the Chand rulers, who established Champawat as their capital, constructed numerous temples and religious structures that still stand today. This place holds historical and religious importance, attracting numerous travellers and pilgrims throughout the year. It offers a perfect blend of nature, religion, and history. Champawat District is adorned with natural scenic beauty, with approximately 65 percent of the district covered in rich flora, including Teak, Sagoon Jamun, Babul, and more. This diverse flora supports a wide variety of fauna, making it a captivating sight to behold. Lohaghat which is a part of Champawat district has its own significance in the district. The town tourism is supported by its natural scenic beauty. The town holds the potential for tourist development due to presence of famous tourist destination such as Koli Dhek Lake in the Lohaghat planning area, other famous destination near the planning area such as Vanasur ka kila, Abbott Mount and Mayawati Ashram.

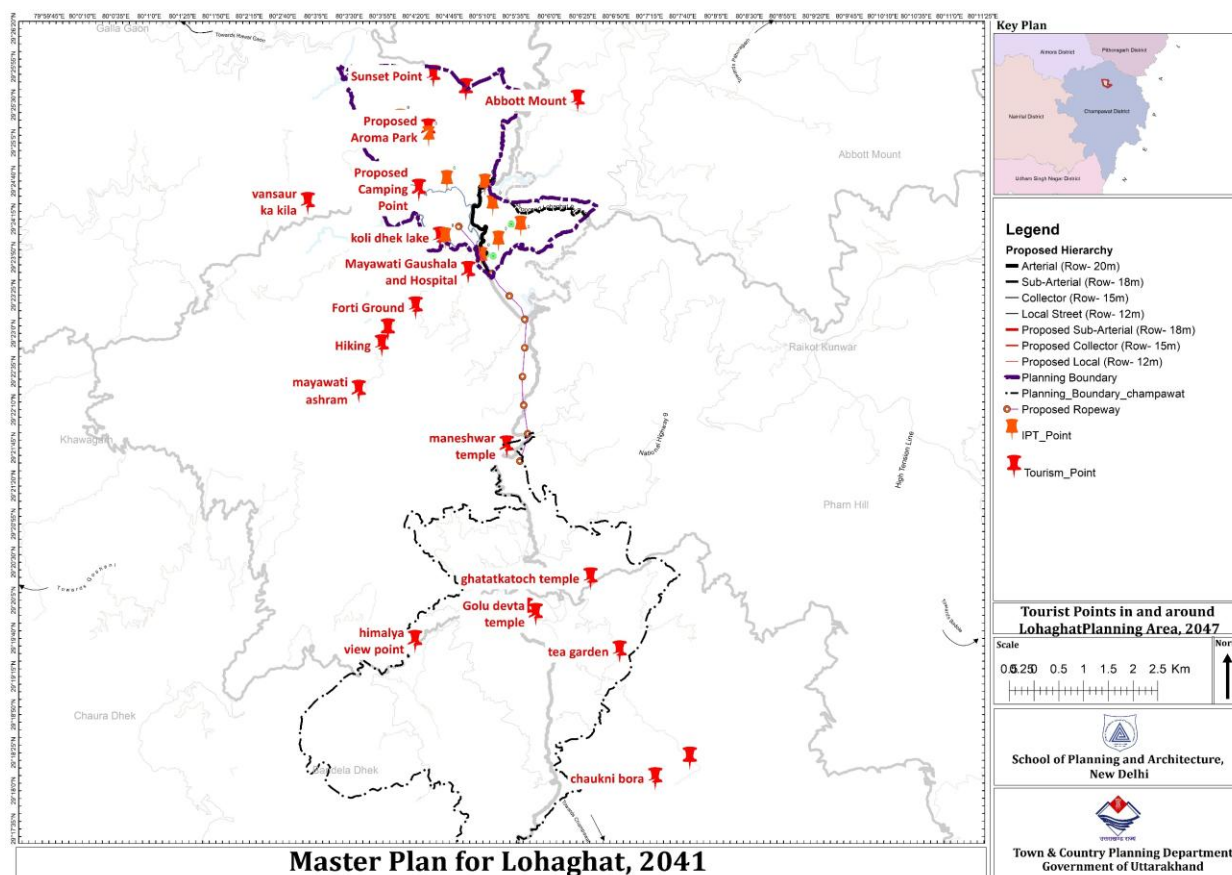
5.2 Existing Tourism Scenario

Through primary survey it was observed that 67% of the tourist do not stay in the Lohaghat and are daycations and the reason could be attributed to absence of good hotels and stays. Also, 71% of the tourist are below the age of 40 and majorly youngsters. There is need to create such activities in master plan through tourism proposal which will strengthen or even enhance the tourism for this particular segment.

The destinations can be connected through well-developed tourist circuits. The circuits would connect these top destinations with interventions in the form of urban design, character building, basic amenities etc.

As per URDPFI 2015, the planning strategy for tourism planning is to be broadly based on the understanding of nature in the form of mountain, streams: culture manifested in the art, architecture, temples and history in terms of tangible and intangible outputs in an earlier era of the city. Following this guideline, a detailed overview of the major tourist locations in Champawat (**See Figure 5.1**) at regional level is discussed in this chapter and analysed the potential for enhancing the tourism sector in Lohaghat Planning Area.

Figure 5.1: Tourist Destinations at Regional Level in and Around Lohaghat Planning Area, 2023



Source: School of Planning and Architecture, New Delhi (2023).

5.3 Upcoming Projects/Developments

- Construction of the Champawat Bypass as a part of the Char Dham project in Uttarakhand.
- Chief Minister Pushkar Singh has declared the initiation of road construction in the secluded regions of Champawat.
- Planned Initiatives
 - Heliport in Mount Abbott
 - Redevelopment of Heritage Street around Baleshwar temple
 - Poornagiri temple-Devidhura temple-Golju Temple Corridor
 - Trek route in Spity waterfall
 - Restoration of Abbott Mount Church
 - Bird watching trail in Abbott Mount
 - Heritage street around Baleshwar temple
 - Adventure Park in Champawat
 - Market and community centre in Champawat
 - Civil heliport in Champawat

5.4 Proposed Tourist Circuit

A tourist circuit is like a treasure map guiding travellers through a series of connected destinations or attractions. It's a well-thought-out route designed to showcase diverse experiences, cultural richness, and scenic wonders within a specific region or theme. These circuits often link various places of interest, creating a seamless journey for tourists to explore and enjoy. Whether it's a historical trail, an adventure route through mountains, or a cultural expedition across cities, a tourist circuit aims to offer a comprehensive and immersive travel experience, enticing visitors with a captivating and cohesive journey through different stops and highlights. Furthermore, a well-established tourist circuits can be powerful drivers of economic development by generating income, creating jobs, improving infrastructure, and fostering cultural exchange while showcasing the unique offerings of a region to visitors.

The proposed tourist circuit around Lohaghat planning area includes five tourist areas, with total length of the tourist circuit is about 20 km. A traveller can witness the richness of the place and culture through the proposed expansion of Koli Dhek Lake, Vernacular based Homestay clusters, Herbal and Aroma Park, within the planning area and get experience of local culture and hand-on experience on herbs collection, / harvesting, processing etc. This circuit is also connected to its nearby famous tourist spots such as Abbot Mount, Mayawati Ashram and Vanasur ka Kila. Various activities related to hill station tourism are also proposed considering the natural landscapes of hills **(See Table 5.1)**.

The Lohaghat Tourism Circuit is set to be seamlessly linked with the Champawat Tourism Circuit through a proposed ropeway between Lohaghat and Champawat city **(See Figure 5.2)**. This initiative aims to enhance regional accessibility, improve travel efficiency, and unlock tourism potential by offering a scenic, eco-friendly, and time-saving transport alternative.

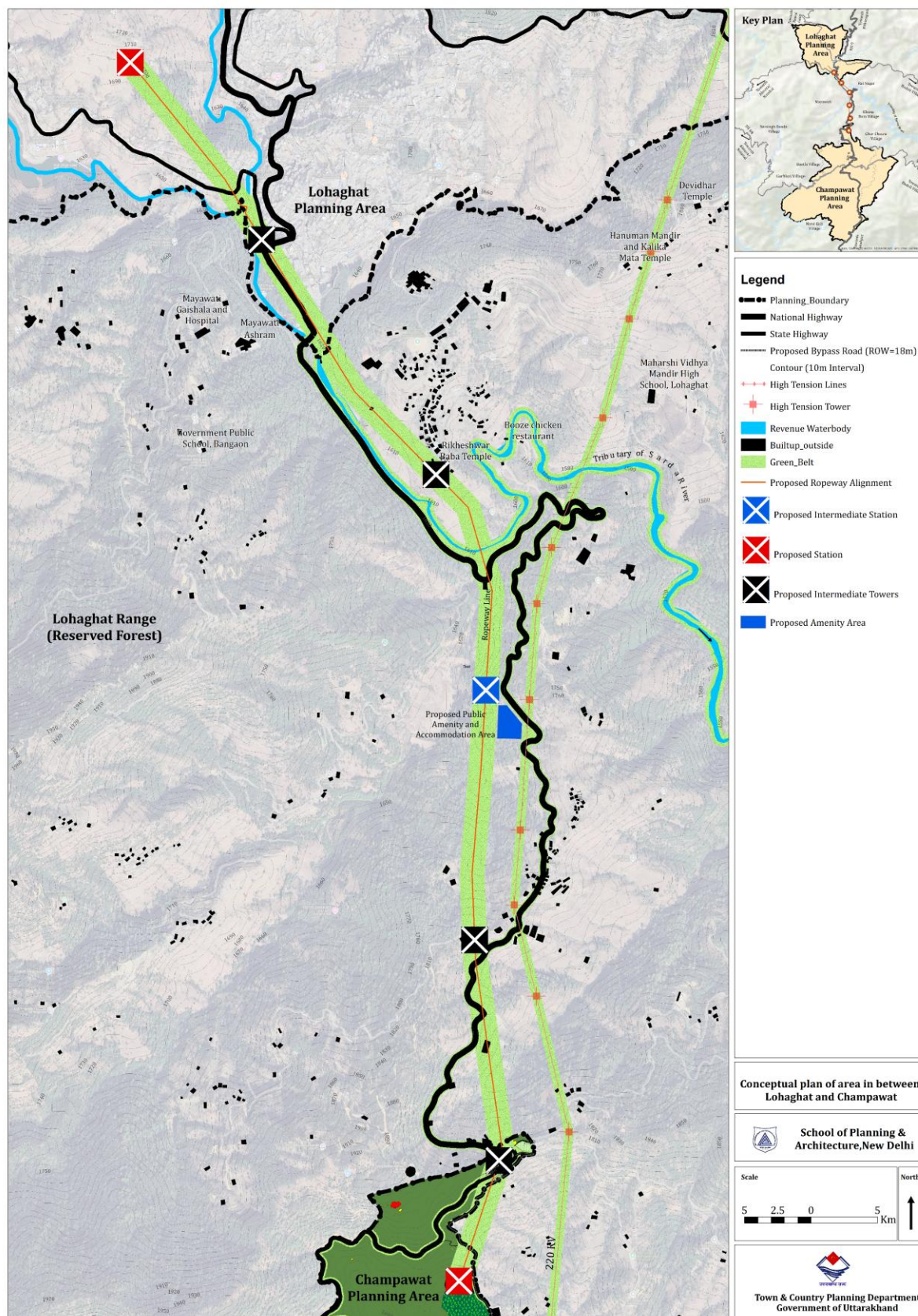
To support this infrastructure, strategically located intermediate spaces have been designated along the route. These spaces will feature public amenities, rest areas, and accommodation facilities, ensuring a comfortable experience for visitors. Additionally, the Lohaghat Reserved Forest, situated near the intermediate zone, holds significant ecotourism potential. With its rich biodiversity, pristine landscapes, and tranquil setting, it is well-suited for trekking, wildlife observation, and eco-stays. The integration of this natural asset into the broader tourism framework will not only enrich visitor experiences but also contribute to conservation efforts and the economic upliftment of local communities.

The Parvatmala National Ropeway Programme (PNRP), launched by the Government of India, offers a valuable opportunity to support the proposed Champawat–Kolidhek Lake ropeway under the Lohaghat Master Plan 2041. Designed to enhance connectivity between Champawat and Kolidhek Lake, a key ecotourism destination, this ropeway will significantly reduce travel time and alleviate road congestion. By integrating PNRP into

this project, the initiative can benefit from Viability Gap Funding (VGF) and foster public-private partnerships (PPP), ensuring efficient implementation while minimizing financial burdens on local authorities.

The proposed ropeway is expected to serve as a catalyst for tourism growth in Lohaghat and Champawat, increasing visitor footfall and benefiting local businesses, handicrafts, hospitality, and recreational activities. As an eco-friendly transport solution, it will contribute to environmental sustainability by reducing vehicular emissions, minimizing deforestation, and preserving the fragile hill ecosystem. Furthermore, it aligns with sustainable urban mobility goals, offering an energy-efficient and visually enriching travel experience.

From a strategic planning perspective, the ropeway will not only improve regional connectivity but also serve as a disaster-resilient transport mode. Given the prone nature of hilly areas to landslides and extreme weather conditions, this system will ensure uninterrupted movement, particularly benefiting emergency response and medical evacuations in remote locations.

Figure 5.2: Conceptual Plan of area in between Lohaghat and Champawat

Source: School of Planning and Architecture, New Delhi (2023).

By incorporating the Parvatmala National Ropeway Programme into this initiative, the Champawat-Koli Dhek Lake ropeway has the potential to emerge as a model for sustainable tourism and urban mobility. This project embodies a balanced approach to economic growth and environmental conservation, reinforcing the Lohaghat Master Plan 2041's long-term vision for a resilient, accessible, and sustainable tourism network.

Table 5.1: Proposed Tourist Circuits for Lohaghat, 2041

Tourist Circuit	
Circuit 1	Lohaghat Bus Stand/tourist information centre - Rural Homestay Cluster - Koli Dhek Lake – Herbal and Aroma Park – Abott Mount – Shopping Area – Rural Homestay Cluster/Lohaghat Bus Stand.
Circuit 2	Lohaghat Bus Stand – Banasaur Ka Kila – Shopping Area – Lohaghat Bus Stand
Circuit 3	Lohaghat Bus Stand – Advaita Ashram –Lohaghat Bus Stand.

Source: School of Planning and Architecture, New Delhi (2023).

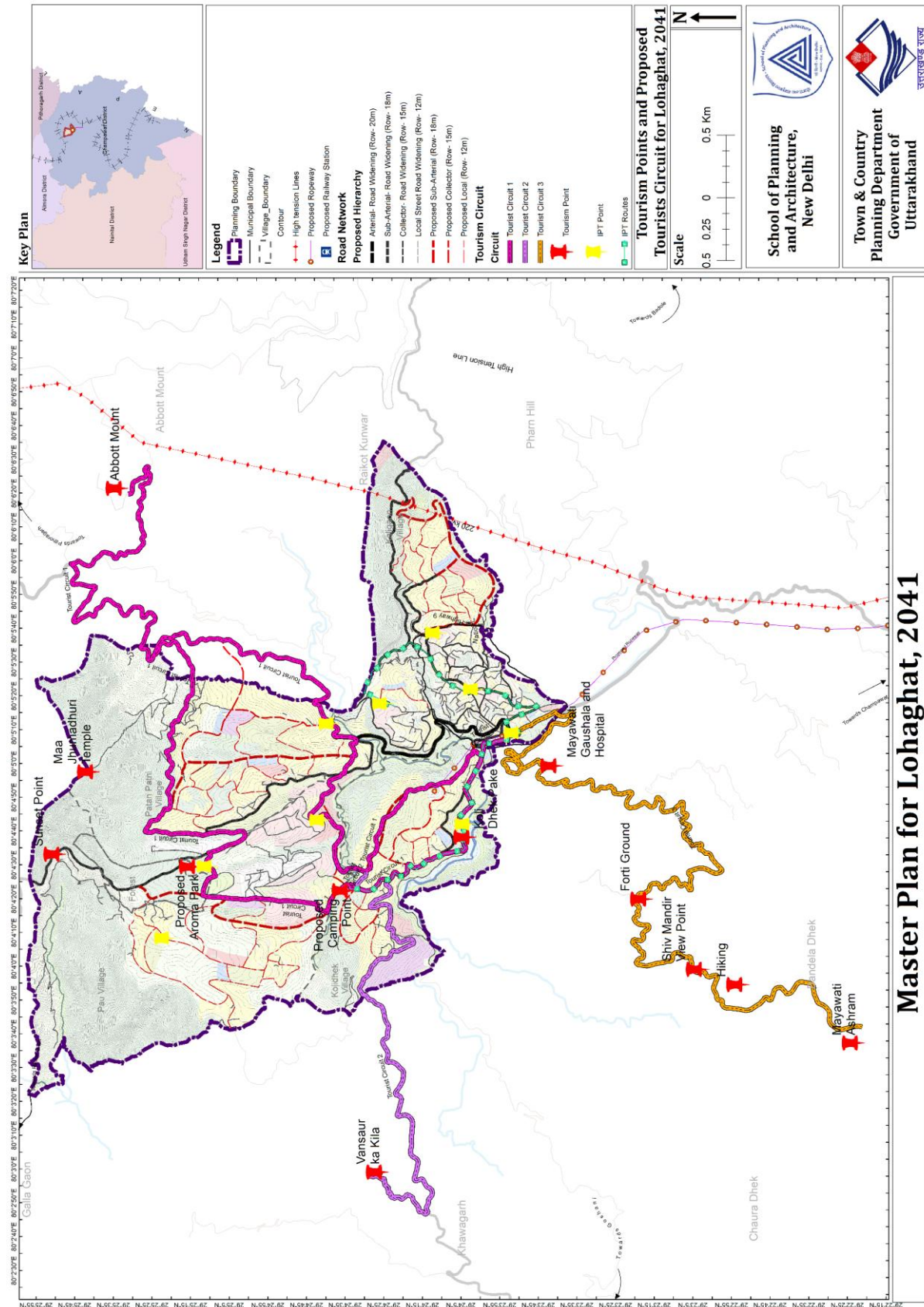
Table 5.2: Proposed Tourist Destination Proposals

S.No.	Tourist Points	Activities
1	Rural Homestay Cluster with tourism information center	Site Seeing, Experience local architecture and cultural hospitality (like home cooked local cuisine, traditional folk dance, and music)
2.	Shopping Area	Souvenir shopping, resting space, cafes and sit-outs, public amenities, tourist guide training center etc.
3.	Herbal and Aroma Park	Guided tour, plant walks, jadi buti collection/ harvesting and Processing, workshop and demonstration, meditation, adventure activities, etc.
4.	Redevelopment of Koli Dhek Lake	Public Space with activities like Boating, cycling, nature walk, Food court, etc.
5.	Redevelopment of Abbott Mount	Trail, Parking Space, Cycling Tracks, viewpoints etc.

Source: School of Planning and Architecture, New Delhi (2023).

The tourist circuits have been shown in **Figure 5.3**. Each tourist circuit would have its own character, providing tourist enriching views of the towns while moving forward from one destination to another. Out of the three circuits, the tourist circuit 1 have the highest length in Km followed by tourist circuit 3 and then tourist circuit2. The length of tourist circuit 1 is 19.86 Km whereas tourist circuit 2 stands at 7.27 Km and tourist circuit 3 have a total length of 8.76 Km.

Figure 5.3: Proposed Tourist Circuits in Lohaghat Planning and Surrounding Areas, 2041



Source: School of Planning and Architecture, New Delhi (2023).

5.5 Cultural Tourism

During the field visit and tourism survey conducted in June, 2023. It was observed that the 67% of the tourist stays for zero days where most of them listed the reason for that is missing good accommodation. Mount Abbott is listed as a good property by the visitors but also expensive. The existing hotels lacks in hygiene and the services. For achieving the vision, 2041 for the Lohaghat planning area, the importance of tourism sector is crucial. Hospitality being the part of tourism sectors needs a greater attention whereas on 2023, Lohaghat town lacks hotels and resort facilities. The few lodging facilities available on National Highway 9 do not comply with the standards in terms of facilities and cleanliness. Thus, the overall objective behind proposing a 'cultural tourism hub' is to develop more lodging and accommodation facilities to make the stay of the tourists comfortable. However, this will be provided in form of "rural homestay cluster" that will make visitors to explore and embrace the beauty, simplicity, and cultural richness found in these rural settings.

5.5.1 Rural Homestay Cluster

Due to the predominately rural nature of the area, rural homestay cluster is suggested nearby Koli Dhek Lake. These homestays will embrace traditional village life, architecture, and engaging activities for tourists. They'll showcase aspects of rural living, featuring traditional homes, local art, and experiences tied to animal husbandry. The proposed rural homestay cluster spans 5 hectares near Koli Dhek Lake, situated on a ridge surrounded by forestry, promising a stunning and immersive experience for visitors and also conducive in achieving the vision of sustainable tourism.

5.5.2 Tourist Information Centre

A Tourist Information Centre is proposed in the town near the proposed rural homestay cluster, as there is no tourist information centre located in the town. Visitors will be given information about the area's attractions, housing options, maps, tourist circuit transportation facilities, as well as fundamental civic amenities like public restrooms, drinking water, and trash cans and other travel-related services.

Additionally suggested is a tourism information app to enhance user experience. The app may also be used to search for transportation, find hotels nearby, local attractions and book tickets online, among other things.

5.6 Recreation Rooted in Natural Landscapes

Recreational tourism involves traveling with the intent of unwinding, delighting in, and engaging in leisure activities. The proposal for Kolidhek development and a nearby piazza aims to create spaces where tourists and locals can relax and enjoy themselves.

5.6.1 Transforming Kolidhek Lake into a Vibrant Tourist Destination

Kolidhek Lake, a major tourist attraction, has rapidly gained popularity as an ideal weekend getaway. A primary survey indicates that the site currently receives 150 to 200 tourists per day, while its carrying capacity is 3,778 visitors per day (See Table 5.3). This suggests ample room for growth, but the increasing tourist influx necessitates planned development to prevent environmental degradation.

Given its stunning natural backdrop, the lakefront has immense potential for tourism and recreation. The proposal includes widening the adjacent road to 18 meters and introducing a pedestrian walkway, enhancing accessibility and allowing residents to enjoy the serene ambiance. Along the Kolidhek Lake, a dedicated spiritual, yoga, and wellness retreat zone is proposed to promote holistic well-being, nature-based healing, and low-impact tourism. The master plan integrates tourism, commerce, and leisure activities, featuring lake-view resorts, a fun zone, and entertainment hubs to attract visitors. Commercial land use along the lakefront is designated to foster economic growth and support local businesses. A key feature is the Mall Road, designed as a pedestrian-friendly, vibrant shopping and leisure corridor.

A 50-meter-wide green belt around the lake will include pedestrian walkways to enhance tourism and walkability, with a focus on cycling and recreational activities. Additionally, approximately 1 hectare is allocated for further development, increasing the site's carrying capacity to 4,763 tourists per day. This area will incorporate essential tourist facilities, cafes, and picnic spots, ensuring a well-balanced and sustainable tourism experience (See Table 5.3).

Table 5.3: Existing and Proposed Carrying Capacity for Tourist Points

Destination	Type		Area	Standard Area Requirement for Activities	Average available time for activity	Average Visit Time	Rotation Coefficient (RC)	Limiting Factor 1 (Lf1)	Limiting Factor 2 (Lf2)	Basic carrying Capacity	Potential Carrying Capacity (PCC)/day	Real Carrying Capacity (RCC)/day	Real Carrying Capacity (RCC)/year	Bad Weather Days
			A	B	C	D	C/D	$100 - [(days / 365) \times 100] / 100$	$100 - [(hrs / 24) \times 100] / 100$	A/B	$BCC \times RC$	$PCC \times LF1 \times LF2$	$PCC \times LF1 \times LF2 \times 365$	
			Sq.m	Sq/m	Hrs	Hrs		Bad Weather days	Closing Time					
Koli Dhek Lake	Water Sports	Existing	38378	10	8	2.5	3.2	0.67	0.46	3837.8	12280	3778.22	1379049.47	12
		Proposed	48378	10	8	2.5	3.2	0.67	0.46	4838	15480.9	4763	1738382	0

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Source: School of Planning and Architecture, New Delhi (2023).

Figure 5.4: Concept for Development along Kolidhek Lake





Source: School of Planning and Architecture, New Delhi

5.6.2 Eco-Tourism

Eco-tourism involves responsible and sustainable travel practices focused on exploring natural environments while minimizing ecological impact and aiding local communities. Its goal is to promote conservation, educate visitors on environmental aspects, and enhance the welfare of residents. The town's abundant lush green surroundings suggest promising opportunities for engaging eco-tourism initiatives that remain untapped.

5.7 Shopping District

Amidst the verdant hills and captivating vistas of the town, proposal is given to create a vibrant 'Shopping District' that beckons tourists to explore and indulge in the essence of the local culture. This shopping area will showcase a delightful array of artisanal crafts, local specialties, and unique souvenirs, offering visitors an immersive experience in the town's rich landscape. By fostering this hub of cultural exchange, the aim is to not only enhance the tourism landscape but also provide economic opportunities for talented artisans and entrepreneurs.

Figure 5.5 Concept for Shopping District

Source: School of Planning and Architecture, New Delhi

5.8 Botanical Garden/ Herbal and Aroma Park

Picturing a special place in the hills of Lohaghat, a herbal and aroma park full of plants that can heal and smell amazing, is proposed to show off the wonderful plants here and let people enjoy their natural goodness. As per URDPFI,2041 norms in Hilly area every town shall have a botanical garden of area in between 10 hectares to 20 hectares, and on the other hand the Uttarakhand aroma park policy highlights the area required for this facility is 2-5 Hectare. Considering that we have proposed the herbal and aroma park of 5Ha in North which is a part of Tourist Circuit1 (**See Figure 5.3**).

Within this park, tourists can enjoy guided tours, delving into the harvesting and processing techniques of these herbs. Workshops could be available, demonstrating the preparation of herbal skincare, medicine making, and essential oil extraction.

Visitors can indulge in herbal tea tasting sessions, meditation, and relaxation, immersing themselves in the park's serene ambience. For those seeking adventure, the park may offer thrilling activities such as rock climbing, zip lining, and more, adding an extra dimension of excitement to the experience.

The other proposed projects under various schemes and different agencies have been shown in **Annexure B and Annexure C**.

Figure 5.6 Concept for Botanical Garden/Herbal and Aroma Park

Source: School of Planning and Architecture, New Delhi

CHAPTER 6: SOCIAL INFRASTRUCTURE

6.1 Introduction

Public and semi-public amenities contribute to the enhancement of the social fabric within a town. The zoning plan proposes the allocation of specific areas for significant institutional purposes as well as public and semi-public uses across various sections of the town. The comprehensive examination of the need for diverse public and semi-public facilities and the spatial requirements is rooted in the anticipated population growth. A designated land area totalling 59.3 hectare is suggested for the establishment of institutions and other public semi-public facilities.

6.2 Educational

There is a clear structural imbalance in the provision of school-level educational infrastructure within the Lohaghat Planning Area when assessed against URDPFI norms for both the existing (2023) and projected (2041) populations. The most critical gap is observed at the pre-primary/nursery and primary school levels, where there is a complete absence of pre-primary facilities and an inadequate number of primary schools despite a relatively low population threshold for these services. This indicates that early childhood education has been historically neglected in spatial planning, forcing dependence on informal or distant facilities and potentially affecting enrolment, retention, and learning outcomes at foundational stages. The projected requirement for 2041 significantly escalates this concern, with a cumulative need for 18 pre-primary and 11 primary schools, of which 26 and 7 facilities respectively are proposed, requiring substantial land allocation. This reflects both backlog compensation and future demographic pressure, underscoring the urgency of prioritising lower-order education facilities in neighbourhood-level planning.

In contrast, middle, secondary, and senior secondary schools appear broadly sufficient in numerical terms, suggesting that past planning efforts were more aligned with higher-order schooling needs or that such institutions serve wider catchments beyond the immediate planning area. However, this apparent adequacy should be interpreted cautiously, as quantitative sufficiency does not automatically imply spatial accessibility, quality, or resilience to future population redistribution envisaged under the Master Plan. The absence of additional land requirements for these categories in the 2041 horizon may risk future strain if settlement growth concentrates unevenly. Overall, the table implies a planning bias skewed towards upper levels of schooling, while neighbourhood-scale and child-centric infrastructure has lagged behind demographic realities. The designation of land for proposed facilities under the Land Use Plan (LOP) is therefore a corrective intervention, aiming to rebalance the education hierarchy in line with URDPFI principles of equitable access, walkability, and distributed social infrastructure, which is particularly critical in a hilly terrain like Lohaghat where physical accessibility strongly influences service utilisation

Table 6.1: School Level Education Facilities Existing and Required in Lohaghat Planning Area, 2041

S. No.	Category	URDPFI 2014 (Population served per unit)	Req. as per URDPFI, for 2023	Existing No. of Education Facility	No. of Education Facility req. for the pop [2023]	Remark	Req. as per URDPFI, for 2041	No. of Education Facilities required considering the gap & Adequacy	Area required in Ha	Provided in Master Plan
1	Pre-Primary Nursery School (I to V)	2500	9	0	9	Insufficient	18	18	4.5	LOP
2	Primary School (I to V)	4000	5	4	1	Insufficient	11	7	1.75	LOP
3	Middle School (VI to VII)	15000	2	3	0	Sufficient	3	0	0	—
4	Secondary School (IX to X)		2	0	2	Insufficient	3	3	1.2	LOP
5	Senior Secondary School (XI to XII)		2	5	0	Sufficient	3	0	0	—

Source: URDPFI (2014) and School of Planning and Architecture, New Delhi (2023)

Apart from the basic level education that needs to be provided to cater the present and projected population social infrastructure need, the lag in higher level education also needs to be filled up. UDPFI, 2014 states that in hilly town there shall be one college per 30,000 populations, one professional college per 30,000 populations, and one university per 50,000 populations. The estimated population of 2023 for Lohaghat Planning Area is 19,979 where no such facilities are required. At present, there are no engineering colleges, medical colleges, technical education institutes, Universities and Management colleges in the planning area. For higher technical education facilities, the nearest places are Haldwani or Pantnagar. The nearest medical college and management college is in Haldwani which is 169km from Lohaghat. The nearest engineering college is in Pantnagar which is 189 km from Lohaghat. Lohaghat has one Honors College and one Polytechnic college. As per census 2011 the population within the planning area is 15,685 and the estimated population for the year 2023 is 19,979, which falls under the neighbourhood-

level Planning Unit. Thus, the inadequacy of the infrastructure within the area has been checked based on the URDPFI guidelines, 2014.

The estimated population for 2041 is 42,992 which would create the demand for these facilities. For the development of education sector in the Lohaghat Planning area there will be a need to provide 1-2 college, professional college and university. The total area required for constructing 1 university would be approximately 1.4 -4.2 hectare. We have considered the area for 1 university and 1 professional college. There will be additional requirement 1 professional college which would require the area of 1.52 - 2.27 hectare considering the land required per professional college is 1-1.5 hectare. (Error! Reference source not found.).

The other proposed projects under various schemes and different agencies have been shown in **Annexure E**.

Table 6.2: Higher Level Education Facilities Existing and Required in Lohaghat Planning Area, 2041

Higher Education				Existing GAP Analysis				Projection			
S. No.	Category	URDPFI 2014 (Population served per unit)	Area Requirement (Ha)	Req. as per URDP FI, for 2023	Existing No. of Higher Education Facility	No. of Higher Education Facilities req. for the pop [2023]	Remark	Req. as per URDP FI, for 2041	No. of Higher Education Facilities req. considering gap & Adequacy 2041	Area required in Ha	Provided in Master Plan
1	Arts/Science/ Commerce College	30,000	2.0-3.0	0.88	1	0	Sufficient	1.38	1	3	LOP
			3	1				2			
2	Engineering College/ Professional college	30,000	1.0-1.5	0.88	2	1	Sufficient	1.38	0	0	LOP
			1.50	1				2			
3	University College	50,000	2.0-3.0	0.53	0	1	Insufficient	0.83	1	3	LOP
			3	1				1			

4	Industrial Training Center	NA	0.30-0.60	1.00	1	0	Sufficient	1.00	0	0	LOP
			3	1				1			

Source: URDPFI (2014) and School of Planning and Architecture, New Delhi (2023).

6.3 Healthcare Facilities

The analysis of healthcare facilities shows that the micro level medical facilities are insufficient in respect to the serving population for Lohaghat Planning Area. The area required for these small facilities is approximately 3-4 hectares. **Table 6.3** shows healthcare facilities existing and proposed area requirement. At the medium town level, the hospital facilities are not needed as per URDPFI guidelines, 2041. As on primary survey conducted in 2023, there is lag in number of beds needed for the estimated population of 2023. Also, there will be need to create approximately additional 60 beds capacity which can be fulfilled through health centres. The other proposed projects under various schemes and different agencies have been shown in **Annexure F**.

Table 6.3: Healthcare Facilities Existing, Required in Lohaghat Planning Area, 2041

Healthcare				Existing GAP Analysis				Projection			
S. No.	Category	URDPFI 2014 (Population served per unit)	Area Requirement (Ha)	Req. as per URDP FI, for 2023	Existing No. of Healthcare Facility	No. of Healthcare Facilities req. for the pop [2023]	Remark	Req. as per URDP FI, for 2041	No. of Healthcare Facilities req. considering gap &	Area required in Ha	Provided in Master Plan
1	Hospital	80,000	0.840	0.32	2	0	Sufficient	0.51	0	0	LOP
			2.100	8				8			
			2.10	1				1			
2	Dispensary	2,500	0.015	10.5	1	10	Insufficient	16.5	16	0.32	LOP
			0.020	11				9			
			0.02	11				17			
3	Health Sub Centre	3,000	0.025-	8.75	1	8	Insufficient	13.8	13	0.87	LOP
			0.067	1				2			
			0.067	9				14			
4	Family Welfare Centre	5,000	0.025-	5.25	1	5	Insufficient	8.29	8	0.4	LOP
			0.050	6				5			
			0.05	6				9			

5	Maternity Homes	15,000	0.025-0.050	1.75	1	1	Insufficient	2.765	2	0.1	LOP
			0.05	2				3			
6	Nursing Home	15,000	0.05-0.075	1.75	1	1	Insufficient	2.765	2	0.15	LOP
			0.075	2				3			
7	Primary Health Centre	20,000	0.105-0.210	1.313	1	1	Insufficient	2.074	2	0.42	LOP
			0.21	2				3			
8	Veterinary Centre	1,000	0.05-0.1	1	0	1	Insufficient	1	1	.10	LOP
			0.10	1				1			

Source: URDPFI (2014) and School of Planning and Architecture, New Delhi (2023)

6.4 Safety and Security

The table below shows the lag and projected requirement of safety services in Lohaghat Planning Area. It was observed during site visit conducted by School of Planning and Architecture, New Delhi in 2023, there are disaster management center and there is a requirement of 2 disaster management centers for 2041 population. Also, there is one police station and 2 more would be required for the estimated population of 2041. **Table 6.4** shows the gap and projected requirement of safety services in Lohaghat Planning Area.

Table 6.4: Existing and Proposed Safety and Security Facilities, 2041

Existing and GAP Analysis							Projection			
Sr.No.	Category	URDPFI 2014 (population served per unit)	Req. as per URDP FI, for 2023	Existing No. of Safety Facilities required	No. of Safety Facilities req. for the pop [2023]	Remark	Req. as per URDP FI, for 2041	No. of Safety and security Facilities req. considering gap & adequacy [2023]	Area required in Ha	Provided in Master Plan
1	Police Station	15,000	1.3	1	0.3	Insufficient	3	2	0.93	LOP
2	Police Chowki	5000	4.0	0	4.0	Insufficient	9	9	0.86	LOP
3	Fire Station	50000	0.4	0	1	Adequate	1	0	0	LOP
4	Disaster Management Centre	20000	1.0	0	1.0	Insufficient	2	2	2.15	LOP

Source: URDPFI (2014) and School of Planning and Architecture,, New Delhi (2023)

6.5 Distributive Facilities

The analysis shows that though there are no dedicated commercial complexes but stretches such as Meena Bazar Rd, National highway and Khadi market are having a good

share of footfall and fulfill commercial daily needs. There is one government banquet hall at present and creating an insufficiency of 1 banquet hall for the 2023. The area requirement of different types of distributive services for 2041 is shown in **Table 6.5**.

Table 6.5: Distributive Facilities Existing and Required in Lohaghat Planning Area, 2041

Sr.No.	Existing and GAP Analysis						Projection			Provided in Master Plan
	Infrastructure	URDPFI 2014 (population served per unit)	Req. as per URDPFI, for 2023	Existing No. of Distributive Services	No. of Distributive Services Req. for the pop [2023]	Remark	Req. as per URDPFI, for 2041	No. of Distributive Services req. considering	Area required in Ha	
1	Local Convenience Shopping	10,000	2.0	2	0.0	Insufficient	4	2	1.15	LOP
2	Milk Booth	10,000	2.0	1	1.0	Insufficient	4	3	0.13	LOP
3	Banquet Hall	10,000	2.0	1	1.0	Insufficient	4	3	0.35	LOP
5	Cremation Grounds	10,000	2.0	1	1.0	Insufficient	4	3	0.66	LOP
6	Informal Bazaar	15,000	1.3	0	1.3	Insufficient	3	3	0.43	LOP
7	Community Welfare Centre	16,000	1.2	0	1.2	Insufficient	3	3	0.40	LOP
8	Post Office	10,000	2.0	1	1.0	Insufficient	4	3	0.49	LOP

Source: URDPFI (2014) and School of Planning and Architecture, New Delhi (2023)

6.6 Recreational and Open Spaces

There are 6 parks in Lohaghat Planning Area as per survey conducted by School of Planning and Architecture, New Delhi 2023 which are sufficient for the estimated population. Additionally, 3 housing area park would be required for 2041 creating a demand of land allocation of 1.2-2.5 hectare for this facility. The area required for each park shall be 0.50-1 hectare. Apart from the housing area park, 4 neighbourhood level parks are required to cater the need of park and open spaces for the estimated population by 2041. The area required for Neighbourhood Park would be 5.15 - 8.5 hectare where area allocated for each park would be approximately 1.2 - 2 hectare (**Table 6.6**).

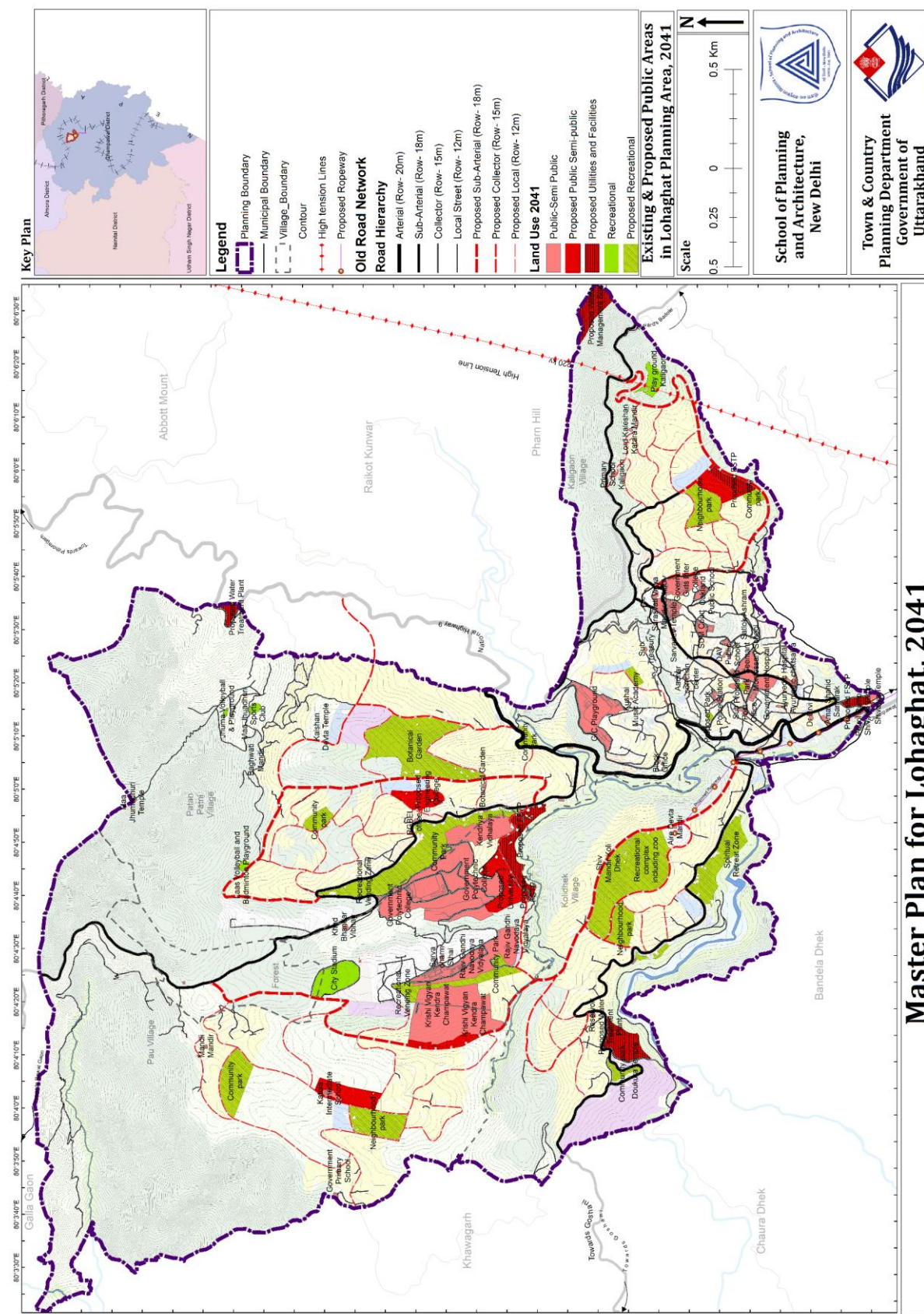
Table 6.6: Recreational Facilities in Lohaghat Planning Area,2041

Existing and GAP Analysis							Projection			
S.No.	Category	URDPFI2014 (population served per unit)	Req. as perURDPFI, for 2023	Existing No. of Open Space Facilities	No. of Open Spaces Facilities req.for thepop [2023]	Remark	Req. as per URDPFI, for 2041	No. of Open Spaces Facilities req. considering g gap & adequacy	Area required in Ha	Provided in MasterPlan
1	Housing Area Park	5000	4.0	2	2	Adequate	8.6	3	1.00	LOP
2	Neighborhood Park	10000	2.0	0	2.0	Insufficient	4	4	8.60	LOP

Source: URDPFI (2014) and School of Planning and Architecture, New Delhi (2023)

The education facilities make up 45-48 percent of Public – Semi Public land requirement for proposal, followed by safety and security with 18 – 19 percent and distributive a healthcare facility with 17 – 18 percent. Thus, creating a total land requirement of 21.3 Ha for the proposals and the same has been provided considering the spatial location of the proposed public and semi-public infrastructure as shown in **Figure 6.1**. The location of these facilities is decided considering various factors like existing location of the schools, distance between existing and proposed school, existing and proposed residential dominant neighborhood and connectivity etc.

Source: School of Planning and Architecture, New Delhi (2023)



CHAPTER 7: PHYSICAL INFRASTRUCTURE

7.1 Introduction

Infrastructure facilities refer to the basic physical and organizational structures and facilities needed for the operation of a society. Infrastructure in urban area can be analysed into two important segments like physical infrastructure and social infrastructure. The focus of this chapter lies on the proposal of physical infrastructure based on existing situation analysis and projected demand. The Master Plan proposes embedded technologies, open data platforms, and infrastructure provision to improve services, reduce congestion and build sustainable futures to have safer and more resilient communities.

7.2 Existing Water Scenario

The per capita demand is determined by considering the total water demand which include domestic, commercial, industrial, institutional, fire, and other uses. According to the URDPFI standards, per capita demand is 135 litres per capita per day (LPCD). The total demand for water in Lohaghat Planning Area is 2.87 MLD (considering the projected population for 2023 for the Planning Area to be 21,230) at 135 LPCD.

7.2.1 Source of Water, 2011 – 2023

Census 2011 data and primary survey data shows that majority of the household have water supply from municipal or Nagar Palika in Lohaghat town where as villages rely on their private sources such as handpump or borewell. As per primary survey 2023, 55% through municipal water supply where as 21% have private source of water supply. The private source of water from ground through borewell would lead to degradation of ground water level and the proposals shall disincentives this practice.

7.2.2 Taste of Water and Duration of Water Supply, 2023

As per the survey, 76% of the respondents stated the taste of the drinking water is good. Households survey shows more than 50% of the households have water supply for 1 hour or less.

It was highlighted by the residents during the survey that the water demand is not met due to non-availability of the water and the same has been pointed by Jal Sasthan, Lohaghat. There is lag between current demand and supply and needs to be addressed in master plan.

7.2.3 Condition of Surface Water, 2023

As listed By Jal Sasthan Lohaghat, the surface water from river tributaries is very small in quantity. There are 4 tributaries which are present near to Lohaghat named as follow: Forti with a discharge rate of 10LPM, Balai with a discharge rate of 15LPM, Rikeshwar with a discharge rate of 30LPM and Banswad with almost dry situation. The Lohawati River which is one of the main sources of water has a discharge rate of 200 LPM. Lohawati

River originates near the majestic Vanasur Ka Kila, situated 7 km from Lohaghat and 20 km from district Champawat of Kumaun division of Uttarakhand.

Lohaghat town and the surrounding villages rely on both surface and ground water. According to Ground Water Year Book, Uttarakhand (2020-2021), ground water is available at a depth of 29.28 meters below ground level in the planning area. Gadheras (small river tributaries) are still used as the prime source of water in Lohaghat Planning Area. Also, officials from Jalsasthan mentioned that as on 2022-23 ground water level is 60m bgl. For sustainable ground water development, withdrawal of ground water shall be dis-incentivized. As listed by the households during field survey conducted in June 2023, there is very low surface water availability.

The planning area is serviced by Urban Drinking Water Scheme managed by Uttarakhand Jal Sansthan. Water is drawn from tube-wells located at 4 locations. The existing storage capacity is 0.72 MLD (**Table 7.1**).

Table 7.1: Existing Water Supply

Development Block	Name of the Scheme	Source	Type of Source	Population Served	Current Demand (MLD) @135LPCD	Current Supply in MLD	Lag in Supply in MLD	Existing Storage Capacity in KL
1 Lohaghat	Lohaghat Nagar Palika	1. Banswad 2. Forti 3. Balai 4. Lohawati 5. Rikeshwar Mandir	Pond/ River, Mini tubewell	13,328	2.07	0.72	1.35	4 NO. 720 KL

Source: Jal Sasthan, Lohaghat (2023).

7.3 Proposal for Water

7.3.1 Principles of Water Management

Master Plan for the Lohaghat Planning Area 2041 has adopted a holistic approach to watermanagement, which has three parts:

- Capture rain
- Collect and treat used water and
- Recycle water

Economic development within the watershed must take place in harmony with the physical environment.

7.3.2 Water Demand

As per CPHEEO, 135 Liters per capita per Day (LPCD) of water should be supplied in urban areas. Water demand for the Lohaghat Planning Area is estimated at 5.8 MLD by 2041 for a total population of 42,992. As per Operation and Maintenance Manual for Rural Water Supplies 2013, unaccounted for water (UFW) for the water supply at hilly region is in the range of 35-50 percent. Hence consideration is 35 percent which includes transmission loss, theft, and leakages. The losses will amount for 2.03 MLD. As per CPHEEO 1999, fire demand is calculated to be 0.020 MLD. The actual water demand is calculated to be 7.7 MLD.

An efficient water supply system for transmission from water tanks to individual households is proposed. The laying of the water supply network shall be executed as per phasing. These are water intake, water treatment plants, clear water reservoirs, distribution centres and distribution network.

7.3.3 Water Treatment Plants

Water quality requirements of various types of users will be different due to difference in their nature of activities. Type of water treatment process to be adopted will depend on the raw water quality. Water received from the Koli Dhek Lake and its branches shall be tested to determine the quality and treatment methods.

As on 26/07/2024, the construction division, Uttarakhand Peyjal Nigam, Champawat, Uttarakhand is conducting surveys to find a location for new Infiltration well setup with an approximate capacity of 6 MLD. The approximate location of infiltration well is near GP Talli beta and the main source would be Saryu River. Location of Infiltration well will alter the piping system within the Lohaghat Planning Area. A water supply network, connecting existing and proposed overhead tanks have been prepared for the reference (**Figure 7.1**). The construction of new Infiltration well and Water Supply Network will adhere to the Manual on Water Supply and Treatment – 1999 and Manual on Operation and maintenance of Water Supply System – 2005 prepared by Central Public Health & Environmental Engineering Organisation (CPHEEO). The water quality standards must be as per the standards set on the above-mentioned manuals.

The setup of Infiltration well is a long-term process, hence it is proposed that the existing water supply network must be continued by the existing governing body till Uttarakhand Peyjal Nigam execute the new Infiltration well and Water Supply Network as best of their capacity following the Water Supply Network will adhere to the Manual on Water Supply and Treatment – 1999 and Manual on Operation and maintenance of Water Supply System – 2005 prepared by Central Public Health & Environmental Engineering Organisation (CPHEEO).

After treatment, the water will be pumped to storage reservoirs. The water quality standards will strictly adhere to the URDPFI, 2015 guidelines.

7.3.4 Over Head Tanks (OHTs)

Apart from the four existing Over Head Tanks, three water tanks are proposed in south based on the catchment analysis having a total capacity of 6.15 MLD and two overhead tanks having a total capacity of 3 MLD have been proposed in north, based on the contour and natural topography as shown in **Figure 7.1**. However, these storage units must strictly comply with CPHEEO 1999 guidelines. Location of OHT have been decided to be placed by contour analysis and population density, particularly the residential zones.

Table 7.2 Proposed Over Head Tanks

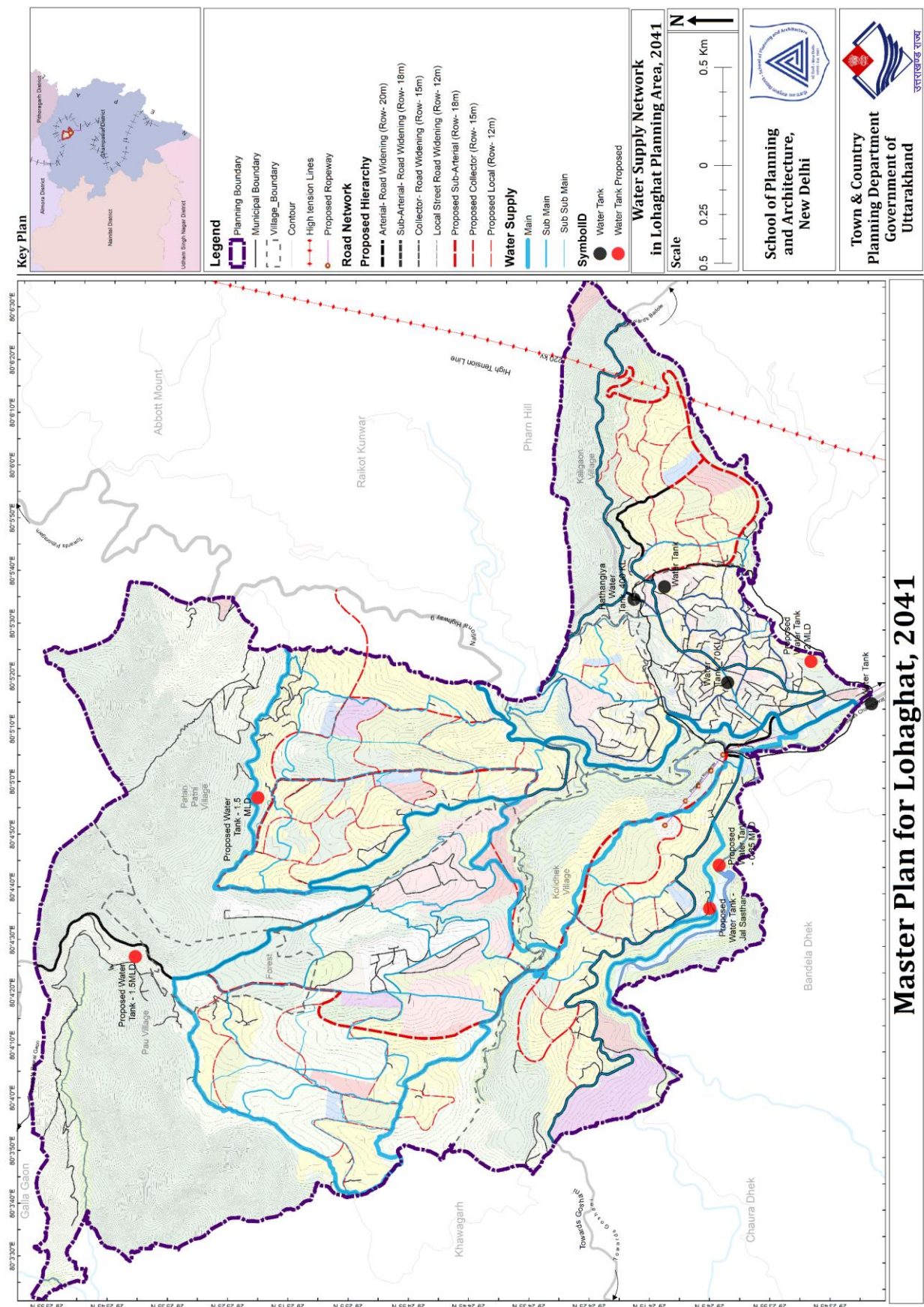
Location	Capacity	Name
Patan Patni	1.5 MLD	Proposed Water Tank - 1.5 MLD
Pau	1.5 MLD	Proposed Water Tank - 1.5 MLD
Koli Dhek Lake	3.25 MLD	Proposed Water Tank - 3.25 MLD Jal Sasthan
Koli Dhek Dam	0.85 MLD	Proposed Water Tank - 0.85 MLD
Degree College	2 MLD	Proposed Water Tank -2 MLD

Source: School of Planning and Architecture, New Delhi (2023), Jal Sasthan, Lohaghat

7.3.5 Water Distribution Network

The water pipeline network will be installed throughout the proposed planning area, encompassing the entire town. It will be equipped with pressure valves and check valves in accordance with the engineering standards specified by the CPHEEO 1999 guidelines. Emphasis will be placed on minimizing transmission losses, leakages, and theft. Every household in the planning area will have a proper metering setup. The network will be developed, operated, and maintained by the Jal Nigam of Lohaghat. New proposed water distribution line will be installed along the proposed arterial and sub-arterial roads.

Figure 7.1: Proposed Water Infrastructure in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2023), Jal Sasthan, Lohaghat

7.3.6 Storm Water Drainage Zones

As per URDPFI 2015, during rainfall a substantial volume of storm water often fails to permeate the ground surface, instead becoming surplus overland flow or immediate surface runoff. Several factors influence the volume and temporal changes in this runoff, including the land's geological characteristics, topography, geographical features, rainfall intensity and distribution patterns, and land use type. Calculating the runoff that reaches storm sewers depends on factors such as precipitation intensity and duration, characteristics of the contributing area, and the time it takes for the flow to reach the sewer system. According to meteorological data provided by Indian Meteorological Department, highest rainfall recorded for Champawat district is 606 mm which was recorded on August 2018, which is 19.55 mm or 0.75 inches per day.

According to the CPHEEO's 2019 Manual on Storm Water Drainage Systems, the rational method is used to calculate peak stormwater discharge. This calculation involves a formula that multiplies the coefficient of runoff (C) by ten, along with the catchment area and rainfall intensity. The guidelines specify an average C value of 0.45 for open spaces and 0.75 for built-up or constructed areas. According to the same guidelines, design velocities in gravity storm conduits for hilly regions should range from 0.6 meters per second to 6 meters per second. Therefore, engineering designs must adhere to the parameters discussed within these guidelines.

During primary survey 2023, only 13% of the household have connection to drainage which are in Lohaghat Nagar Palika area whereas there are no drainage lines in village areas. The storm water is getting mixed with grey water and needs to be improvised. Most of the drains which are present are open type and require intervention.

Drainage zones have been marked based on the catchment area and stream order. The Lohaghat planning area is divided into 2 zones which are shown in **Figure 7.2**. The drainage network shall be made in such a way that it directs the water to catchment areas and from there on the stored water can be treated and used later.

7.3.7 Water Shed Management

The Lohaghat Planning Area covers a total drainage area of 10.92 sq. km, divided into two key zones as shown in **Table 7.3**.

Table 7.3: Drainage Zones in Lohaghat Planning Area, 2041

Zone I	Area: 9.2 sq km This is the larger of the two drainage zones, making up the majority of the planning area. Its size suggests a significant water catchment potential. The implementation of four check dams in this zone is proposed to
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	regulate water flow, prevent soil erosion, and improve water retention for agriculture and groundwater recharge.
Zone II	Area: 1.70 sq km Although smaller in size, this zone contributes to the overall drainage system of Lohaghat. The construction of one check dams is recommended here to manage runoff and prevent flash flooding during heavy rains.

Source: School of Planning and Architecture, New Delhi (2023)

The check dams will help in achieving the sustainable water shed management by achieving the following objectives:

Flood control: By slowing down water flow, the check dams will help mitigate the risk of flooding in the lower areas.

Soil conservation: The dams will reduce erosion, thus protecting agricultural lands and natural vegetation.

Water conservation: By holding back water, the check dams will allow for increased groundwater recharge and provide water for irrigation.

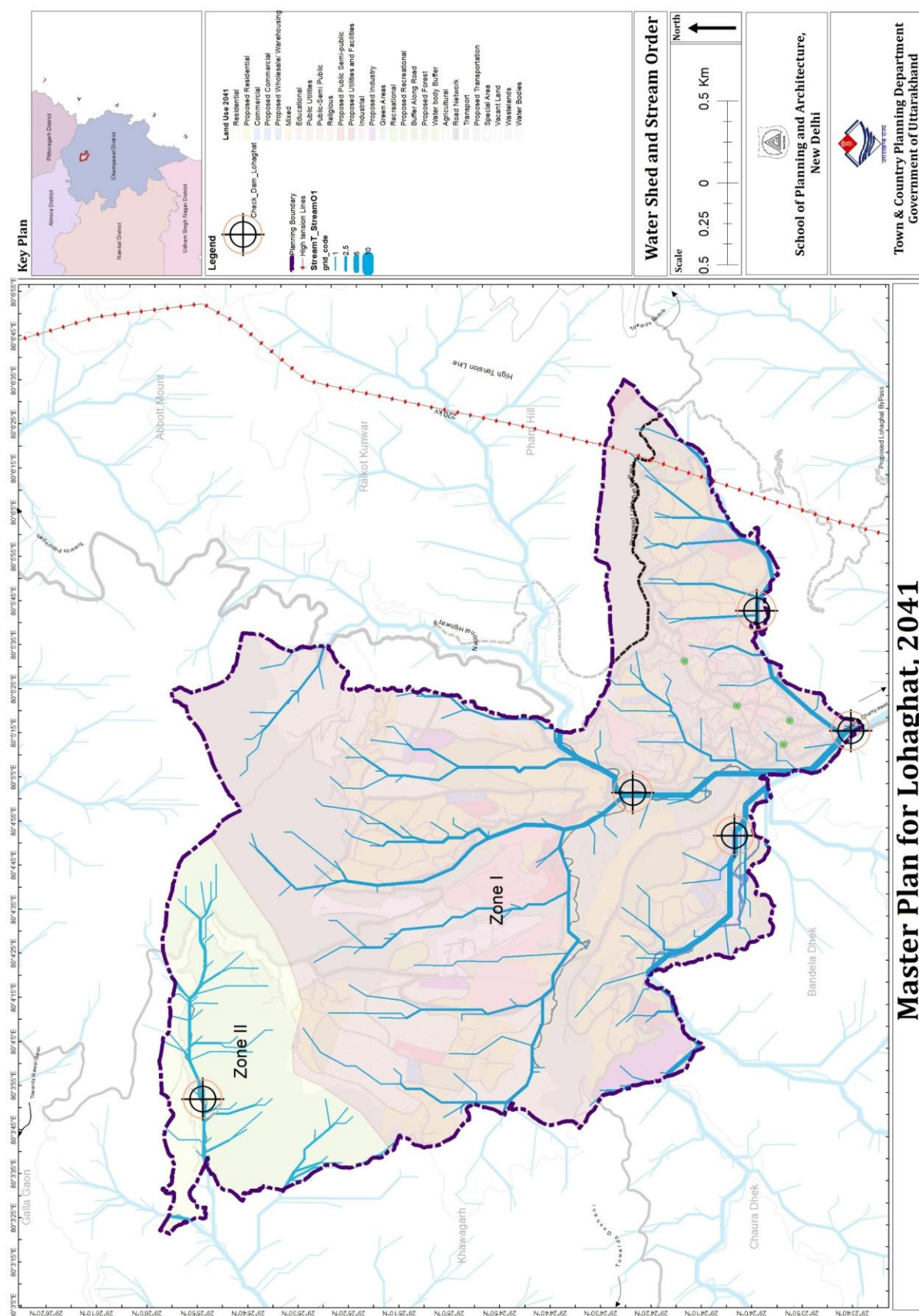
Sustainable development: The strategic placement of these dams aligns with long-term environmental and agricultural planning, ensuring water availability for the local community.

Other watershed management strategies that that would help in recharging ground water by slowing the flow of fast-moving water, promoting natural filtration and infiltration are mentioned below.

- i. Soil and Water Conservation
 - a. **Contour Bunding and Terracing:** Develop contour bunds and terraces to reduce runoff and enhance water infiltration on agricultural lands. Trenching is where slopes are converted into stepped levels, reducing the speed of surface runoff and increasing the time for water to seep into the ground.
 - b. **Gully Plugging:** Stabilize gullies using vegetative measures, gabions, or small check dams.
 - c. **Mulching:** Encourage mulching techniques to retain soil moisture and prevent erosion.
- ii. Rainwater Harvesting
 - a. **Rooftop Harvesting Systems:** Mandate rooftop rainwater harvesting in all public and private buildings.
 - b. **Check Dams:** Construct small check dams across streams to capture rainwater and increase groundwater recharge.

- c. **Percolation Tanks:** Develop community-based percolation tanks in strategic locations.
- iii. Afforestation and Vegetative Cover
 - a. **Plantation Drives:** Initiate large-scale afforestation projects with native species in degraded areas, green belts and no development areas.
 - b. **Riparian Buffer Zones:** Establish vegetative buffers along streams and rivers to prevent erosion.
- iv. Groundwater Recharge
 - a. **Recharge Wells:** Install recharge wells in key areas to replenish aquifers.
 - b. **Subsurface Dams:** Build subsurface dams to retain water in underground layers for sustainable use.
 - c. **Infiltration Trenches:** Encourage infiltration trenches along roads and urban areas to enhance groundwater recharge.
- v. Community Participation and Capacity Building
 - a. **Watershed Committees:** Form community-based committees to oversee the implementation and maintenance of watershed projects.
 - b. **Awareness Campaigns:** Conduct awareness programs on water conservation, soil health, and disaster preparedness.
 - c. **Training Programs:** Provide skill development training for farmers and local workers on sustainable practices.

Figure 7.2: Proposed Water Shed Management in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2023)

7.3.8 Agencies responsible for provision of water supply

- A. **Uttarakhand Jal Nigam (UJN)** is responsible for planning, survey, design, and execution of rural and urban schemes, multi village rural water supply and sewage schemes, including undertaking major repairs and augmentation of existing schemes. Infrastructure construction is usually done by contractors or companies hired by UJN, and UJN also monitors the construction company.
- B. **Uttarakhand Jal Sansthan (UJS)** is responsible for operating, and maintaining WSS schemes in the state, including repair and augmentation of old or existing schemes, mainly repair and rejuvenation of all schemes. Ensuring water supply during emergencies and water scarcities and for social and religious congregations is also the responsibility of UJS.
- C. **Irrigation department** looks into the provision of water from public tube wells (not used or partially used for irrigation) for drinking water schemes and manage the source. In areas with water scarcity, provide drinking water from existing irrigation bore wells; occasionally (in some regions) create water supply infrastructure (bore wells and overhead tanks [OHTs]) linked to existing irrigation wells and handing it over to the UJS for operation.
- D. **Public Works Department (PWD)** looks after the laying and repair of water pipes, addressing leaks, etc.

7.4 Sanitation and Decentralized Sludge Management

7.4.1 Access to Sanitation Facilities, 2011-2023

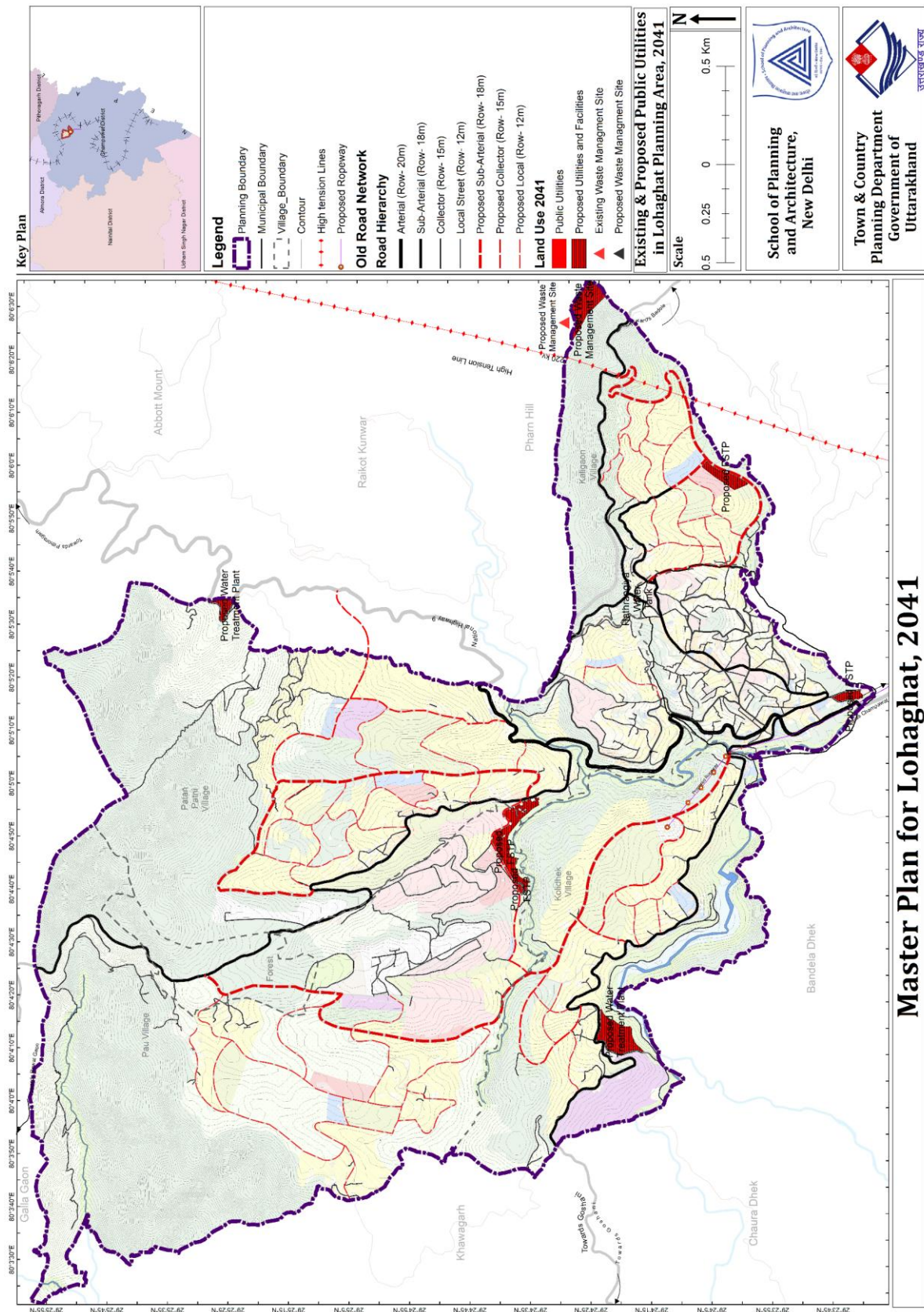
In the Lohaghat town, 97.9 percent of households currently have access to sanitation facilities within their premises. This should increase to 100 percent according to the Ministry of Urban Development's 2011 guidelines. The Lohaghat Nagar Palika must ensure that the remaining 2.1 percent of households are equipped with sanitation facilities as soon as possible to achieve open defecation-free status. Overall, in Lohaghat planning area 91.8 percent have latrine facilities within their premises whereas in villages Pau and Kolidhek less than 80 percent. During survey, 2023 it was observed that the access to sanitation percentage have increased from 91.8 percent to 93 percent but still 7% do not have toilet within their premises.

Primary survey 2023, also reveals that 78 percent households with sanitation facilities rely on septic tanks. Due to the hilly terrain and the area spanning 10.92 sq km, a centralized sewerage system is not feasible. Therefore, a Decentralized Fecal Sludge Treatment Plant (FSTP) is proposed for the Lohaghat master plan for 2041. Given the proposed 7.7 MLD water supply for 2041 and considering an 80 percent conversion factor between supplied water and sewage, a 6.16 MLD capacity FSTP is proposed, as suggested by the CPHEEO Manual on Sewerage and Sewage Treatment Systems (2013). One FSTP site of 6.5 MLD, as shown in **Figure 7.3**, is proposed which is as an extension of the existing site new site will have FSTP of equal capacity as required.

This FSTP will treat the black and grey water collected from septic tanks of households and commercial places. A zero-tolerance policy will be implemented against manual scavenging, with heavy penalties for violations. Septic tank cleaning should be carried out mechanically with minimal human involvement, in accordance with governing guidelines. The FSTP is designed for a 15-year period and will follow the treatment procedures outlined by CPHEEO. The treated effluent must comply with the parameters set by URDPFI 2015 and CPHEEO guidelines to ensure environmental safety. Treated effluent can be disposed of in streams or, if necessary, returned to the water treatment plant for further treatment and recycling.

The execution, operation, and management of the project will be ensured through the collaborative efforts of Lohaghat Jal Nigam, Nagar Palika, and the Public Works Department.

Figure 7.3: Proposed Sanitation and Solid Waste Infrastructure in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2023)

7.4.2 Agencies responsible for Provision of Sanitation

- A. **Uttarakhand Jal Nigam (UJN)** is responsible for planning, survey, design, and execution of rural and urban schemes, multi village rural sewage schemes, including undertaking major repairs and augmentation of existing schemes. Infrastructure construction is usually done by contractors/companies hired by UJN, and UJN also monitors the construction company.
- B. **Uttarakhand Jal Sansthan (UJS)** is responsible for operating, and maintaining drainage infrastructure in the state, including repair and rejuvenation of all schemes affected by natural disasters in the planning area. Planning, executing, and operating sewerage treatment and disposal schemes and treatment of trade effluents is also the responsibility of UJS.
- C. **Public Works Department (PWD)** looks after the drain cleaning.

7.5 Solid Waste Management

The solid waste management of Lohaghat is overseen by the Nagar Palika Lohaghat. According to the 2011 census, the town has a population of 7,932, distributed across 7 wards, generating a total of 4.9 tons per day (TPD) of waste. This waste is comprised of 3.5 TPD of dry waste, 1.0 TPD of wet waste, and 0.4 TPD of unsegregated waste. Waste management operations in Lohaghat include household waste collection and waste segregation prior to landfilling.

Waste generation

Commercial areas are major generators of waste and collection from these areas is not properly planned. Waste reduction at source is not practiced efficiently. Public participation in source segregation is minimal. Each household is given a pair of dustbins to store segregated waste, but source segregation is minimal. The NP worker segregates waste during door-to-door collection. Collection vehicle has two separate bins for wet waste and dry waste and an extra bag for hazardous waste.

Waste generation in 2041 in Lohaghat will be 21.49 tonne per day, considering the 0.5 kg per capita per day generation.

Waste collection

Primary collection is door to door collection in the Lohaghat Municipal Area where almost 100% of coverage of households and commercial establishment is carried out. Two Mahindra Bolero, two Tata 407 and 20 pushcarts are used as primary collection vehicles.

Street Sweeping waste

Drain cleaning and road sweeping waste is collected during secondary collection. Street sweeping is performed in two shifts on alternate days. The sanitary workers sweep the

streets using brooms and pile the waste into small heaps, which is then collected using handcart and transferred to a tipper vehicle.

Final disposal of waste requiring landfilling should adhere to the SWM Rules, 2016, which provide comprehensive regulations on the siting, design, and operation of sanitary landfills. Although current waste generation is 4.9 TPD, the guidelines suggest a waste generation rate of 0.5 kg per capita per day, projecting future waste generation would be 21.49 TPD.

An existing landfill site is located in the east, just outside the Lohaghat planning area. It is recommended that the capacity of this site be increased to accommodate estimated waste. The proposed site would be an extension or up gradation of existing landfill site to solid waste management site. The site will include a surrounding buffer zone of 200 meters.

As outlined in the Municipal Solid Waste Management Manual (MSWMM) 2016 and the CPHEEO guidelines, the priority should be placed on minimizing solid waste at its source. Citizens within the Lohaghat planning area are encouraged to use recyclable bags to help reduce solid waste generation.

The waste management site will feature facilities for plastic reuse, a wastepaper recycling unit, and organic waste decomposition for compost production. This organic compost can be utilized by local farmers for crop production. Waste collection vehicles will be covered and designed with separate chambers for dry and wet waste to facilitate source segregation. These vehicles will collect waste daily and transport it to the waste management site.

For the safety of waste collectors, it is recommended that they wear protective gloves, masks, glasses, and helmets during working hours. Regular health check-ups for waste collectors should be provided free of charge to ensure their optimal health.

The development, operation, and maintenance of the waste management site will be a collaborative effort between Nagar Palika Lohaghat, the Uttarakhand Urban Sector Development Agency, and the Public Works Department. On-site segregation of waste will be ensured by providing different coloured bins for various types of waste. Public dustbins will also feature separate chambers for waste segregation.

The selection and adoption of municipal solid waste processing technologies should be based on defined criteria and subject to a detailed due diligence study. This study will determine the technology's suitability for the specific conditions of the respective Urban Local Bodies (MSWMM, 2016).

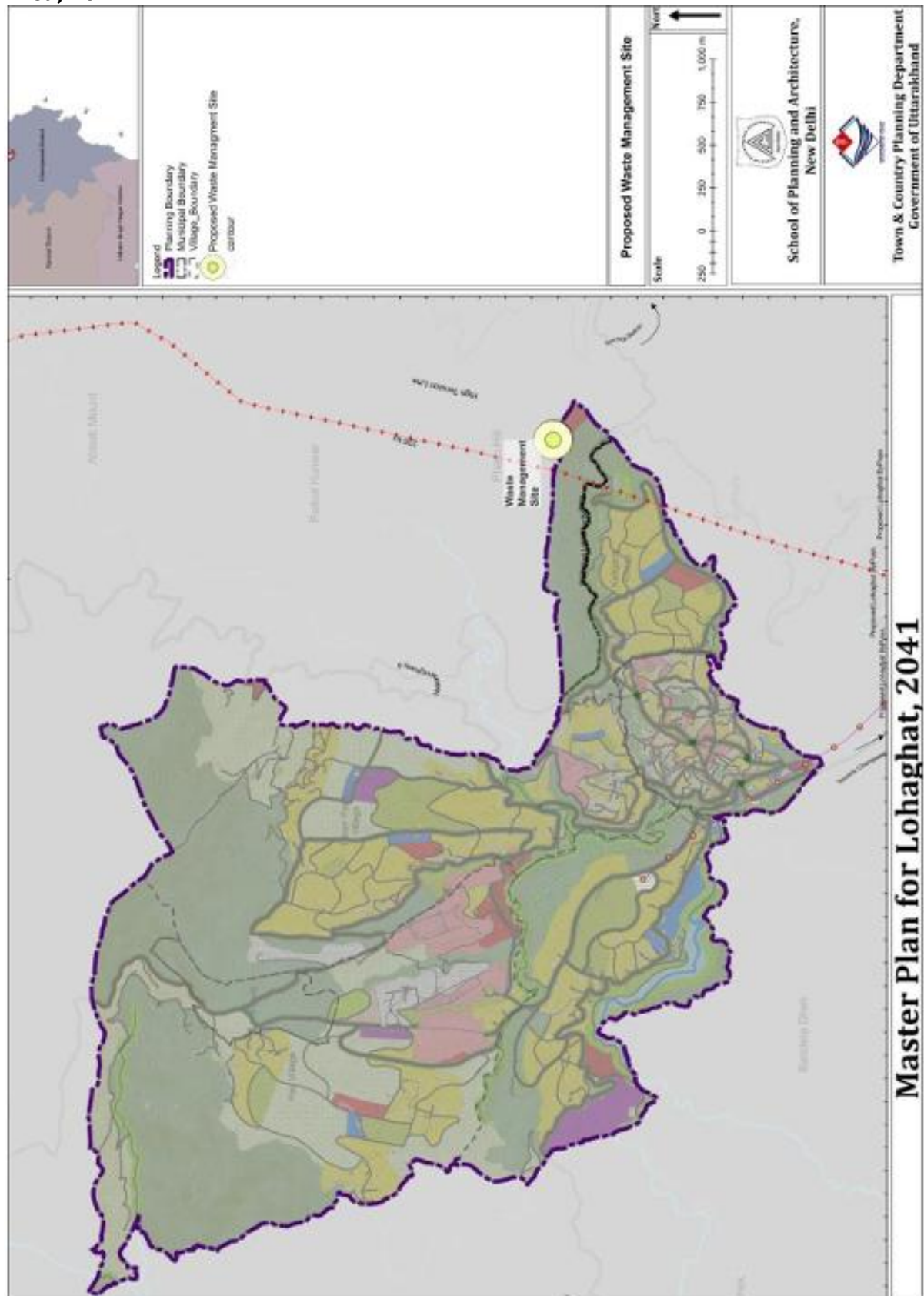
7.5.1 Agencies responsible

Nagar Palika Parishad, Lohaghat, is responsible for solid waste management in the Lohaghat Planning Area.

Uttarakhand Urban Sector Development Agency (UUSDA) under Urban Development Department, Government of Uttarakhand, is the implementing agency for the ADB Aided Integrated Urban Infrastructure Development Project in select towns in Uttarakhand.

The Public Works Department (PWD) looks after street and drain cleaning.

Figure 7.4: Proposed Solid Waste Management Infrastructure in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2023)

CHAPTER 8: TRANSPORTATION

8.1 Introduction

The Draft Master Plan envisages a forthcoming urban transportation system that is both sustainable and efficient, tailored to the specific needs of the area. It outlines the development of an accessible and advanced transportation system for the tourist town, seamlessly integrated with regional transportation networks.

Situated amidst near major towns such as Champawat in South and Pithogarh in North-East. The area plays a crucial role as a vital connection point for both daily commuters. The Master Plan delineates essential principles and planning strategies to connect the area with the surrounding region, emphasizing the enhancement of the existing road network to optimize the use of available resources.

8.2 Existing Situation Scenario

8.2.1 Level of Service, 2023

The level of service as on primary survey 2023 falls in the grade of A – C and does not require major intervention. But considering the growth and projected population for 2041, the level of service for these roads will degrade from D to F and would require intervention either in the form of road widening or new connections.

8.2.2 Mode of Travel and Purpose of Trip, 2023

There is a dominance of private vehicle where majority of the people travel through two-wheeler and cars followed by car/Taxi across all surveyed cordons and directions. 45.8 percent of the trips are related to work and 29.2 percent are tourism purpose. It was observed during survey that the Lohaghat Planning Area lacks in PT and IPT services and need to be addressed in master plan which will reduce the dependency on private vehicle for commute.

8.2.3 Frequency of Trip Distribution, 2023

55% of the trips are of daily nature which are majorly for work whereas 25% trips are weekly which is mainly on weekends for leisure and tourism.

8.2.4 Traffic Flow, 2023

Lohaghat being the old town and with more economic activity in the form of khadi market, Meena Bazar Road sees a good Outer-Inner Movement. About 25% of the total trips are outer-outer where people are generally commuting from Tanakpur, Champawat to Pithrogarh and vice-versa and 38% movement is outer to inner.

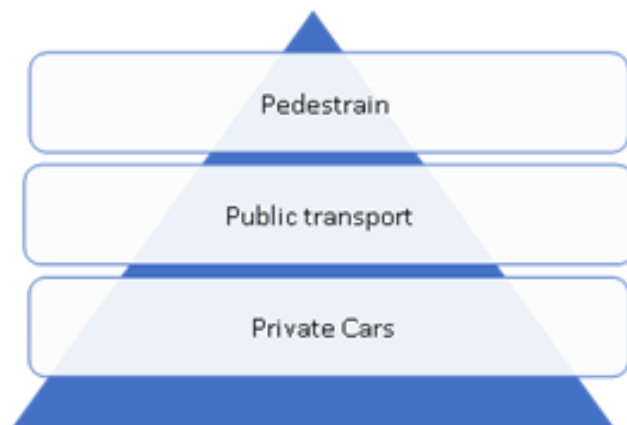
8.3 Key Principles and Planning Strategies

Transportation system is developed with the following principles and strategies:

8.3.1 Traffic Segregation

A hierarchy diagram is proposed where pedestrians have the highest priority and private cars have the least priority (see Figure 8.1).

Figure 8.1: Traffic Prioritization Hierarchy



Source: School of Planning and Architecture, New Delhi (2023)

8.3.2 Prioritize Walking and Cycling as Modes of Transportation

Emphasizing walking and cycling takes precedence in the development of sustainable towns. The assessment of the walking conditions, particularly for children and the elderly, serves as a crucial benchmark in planning.

8.3.3 Topography based Road Network

Adding inter and intra level connections in lieu of the natural topography to increase accessibility and connectivity within the planning area and surrounding major towns.

8.4 Proposals Related to Roads

Mobility is a major component for the Lohaghat Planning Area for ease of movement. During survey it was observed that the public transport and inter-mediate public transport services are not to the required level.

The proposed road network ensures a balanced and efficient road system for enhanced accessibility and connectivity of regional urban centres.

8.4.1 Proposed Road Network System

Designing road networks in hilly areas requires a multidisciplinary approach that considers geological, engineering, environmental, and social factors. It's essential to balance the need for connectivity with the preservation of the natural landscape and the safety of travellers. Road Network Plan envisaged for the Lohaghat Planning Area is a hierarchical system comprising of the following road system.

The proposed roads are broadly classified into 2 categories i.e. major road and other road. The major road is the arterial roads which are main intra connections of the town whereas the other road serves as sub arterial or collector road.

Major Road

During analysis it was observed that as on 2023 survey the level of service of these roads are fair and does not require any intervention. **Table 8.2** shows the level of service for the estimated population 2041, and the need to propose new connection and widening of few existing roads. Considering the dense built in the municipal area, the road widening does not seem to be a viable option. Therefore, the bypass road is proposed which will divert the traffic from NH, and the proposed new connections will take the traffic from municipal area and divert it through the nearby villages. Also considering the future proposal, the connection would also help in increasing connectivity between municipal area and villages such as Koli Dhek, Pau, Patan Patni and Kaligaon.

Table 8.1: Volume and Capacity Ratio at Various Survey Locations, 2023

Survey Point	Location	Directions	Volume/ Capacity Ratio	Level of Service
OC1	NH9	Towards Lohaghat	0.23	A
		Towards Champawat	0.31	A
IC1	Lohaghat-Devidura-Almora Road	Towards Lohaghat	0.36	A
		Towards Kolidhek	0.34	A
IC2	NH9	Towards Lohaghat	0.18	A
		Towards Patan Patani	0.25	A
IC3	NH9	Towards Champawat	0.33	A
		Towards Patan Patani	0.29	A
IC4	Meena Bazaar Road	Towards Main Market Lohaghat	0.31	A
		Towards the 5 arm intersection	0.20	A
IC5	Pulla Road	Towards Lohaghat	0.12	A
		Towards Kaligaon	0.10	A

Source: School of Planning and Architecture, New Delhi (2023)

Table 8.2: Level of Service in Lohaghat Planning Area, 2041

Survey Point	Location	Directions	Volume/ Capacity Ratio (2041)	Level of Service (2041)
OC1	NH9	Towards Lohaghat	0.77	C
		Towards Champawat	1.44	F
IC1	Lohaghat-Devidura-Almora road	Towards Lohaghat	1.38	F
		Towards Kolidhek	1.27	F
IC2	NH9	Towards Lohaghat	0.85	D
		Towards Patan Patani	0.90	D
IC3	NH9	Towards Champawat	1.48	F
		Towards Patan Patani	1.28	F

IC4	Meena Bazaar Road	Towards Main Market Lohaghat	1.09	F
		Towards 5 arm intersection	0.58	A
IC5	Pulla Road	Towards Lohaghat	0.27	A
		Towards Kaligaon	0.25	A

Source: School of Planning and Architecture, New Delhi (2023)

The analysis of transport survey also shows that there is a need for improvement in level of services of Lohaghat-Devidhura-Almora Road. Henceforth, the road widening proposal is given for the road, where it is proposed to be widened from Right of way of 6m to 12m. The connection would also be a part of Tourist circuit 1, which is induced to see high footfall because of the existing and proposed tourist points. Almora Champawat Road is another major connection and observing the growth pattern of the last 2 decades shows the potential for future development in this region. Therefore, the proposed residential and mixed-use development is expected to be developed in the coming years. Considering all the factors the road widening from 12m to 20m is proposed. The connection will help in increasing not only the intra connectivity, but this will act as inter-city connection which will connect to Almora.

Table 8.3 Road Hierarchy Expansion in Lohaghat Planning Area, 2041

	Hierarchy	Label	Length in kms	Existing ROW (in meter)	Proposed ROW (in meter)
Proposed Road Widening	Arterial	NH/ Lohaghat Pithoragarh Road (Row- 20 m)	2.87	8-9	20
	Sub-Arterial	Meena Bazar Road (Row- 12m)	1.45	4-7	12
	Sub-Arterial	Pulla Road (Row 18m)	1.96		18
	Sub-Arterial	Khetkhan Road (Row 18m)	2.55		18
	Sub-Arterial	Kaligaun Road (Row 18m)	0.05		18
	Sub-Arterial	Lohaghat Devidhura Almora Road (Row 18m)	0.15		18
	Sub-Arterial	Khetkhan Road (Row 18m)	0.28		18
	Sub-Arterial	Almora Champawat Road (Row 18m)	4.43		18
	Sub-Arterial	Kaligaun Road (Row 18m)	0.03		18
	Sub-Arterial	Kaligaun Road (Row 18m)	0.01		18
	Sub-Arterial	Kaligaun Road (Row 18m)	0.03		18
	Sub-Arterial	Lohaghat Devidhura Almora Road (Row 18m)	0.67		18
	Collector	Chowk Bazar Road Row- 12m	0.02	3-6	12
	Collector	Khari Bazar Road Row- 12m	0.04		12
	Collector	Tharadunga Road Row- 12m	0.22		12
	Collector	Khari Bazar Road Row- 12m	0.01		12
	Collector	Chowk Bazar Road Row- 12m	0.10		12
	Collector	Chowk Bazar Road Row- 12m	0.09		12
	Collector	Tharadunga Road Row- 12m	0.07		12
	Collector	Chandmari Road Row- 12m	1.33		12
	Collector	Tharadunga Road Row- 12m	0.11		12
	Collector	Chowk Bazar Road Row- 12m	0.21		12

	Collector	Tharadunga Road Row- 12m	0.17		12
	Collector	Tharadunga Road Row- 12m	0.09		12
	Collector	Chowk Bazar Road Row- 12m	0.21		12
	Collector	Canal Road Row- 12m	0.15		12
	Collector	Chowk Bazar Road Row- 12m	0.00		12
	Collector	Degree College Road Row- 12m	0.38		12
	Collector	Chowk Bazar Road Row- 12m	0.16		12
	Collector	Chowk Bazar Road Row- 12m	0.15		12
	Sub-Arterial	(Row 18m)	1.44	4-7	18
	Collector	Row- 12m	1.12	3-6	12
	Local Street	Row- 9m	43.69	3-6	9
	Total		64.27		
Proposed Roads	Hierarchy	Label	Length in kms	Existing ROW (in meter)	Proposed ROW (in meter)
	Proposed Sub-Arterial		9.23	-	18
	Proposed Collector		5.47	-	12
	Proposed Local		18.98	-	9
	Total		33.68		
Grand Total			97.94		

Source: School of Planning and Architecture, New Delhi (2023)

8.4.2 Road Hierarchy Expansion in Lohaghat Planning Area, 2041

The proposed road hierarchy framework for Lohaghat Planning Area aims to optimize connectivity, enhance traffic flow, and align with the town's projected growth to 45,475 residents by 2041. As illustrated in **Figure 8.6**, the road network is categorized into Arterial, Sub-Arterial, Collector, and Local Streets, with a total proposed network length of 97.70 km **Table 8.3** existing: 64.27 km + proposed: 33.43 km .

Arterial Roads (2.87 km): Retain their existing length, serving as primary corridors for regional connectivity (e.g., NH9). No expansion is proposed to minimize ecological disruption in hilly terrain.

Sub-Arterial Roads (22.29 km): Expanded by 9.23 km to improve intra-town connectivity, linking key nodes like the proposed bus stop Section 8.5.3 and tourist circuits.

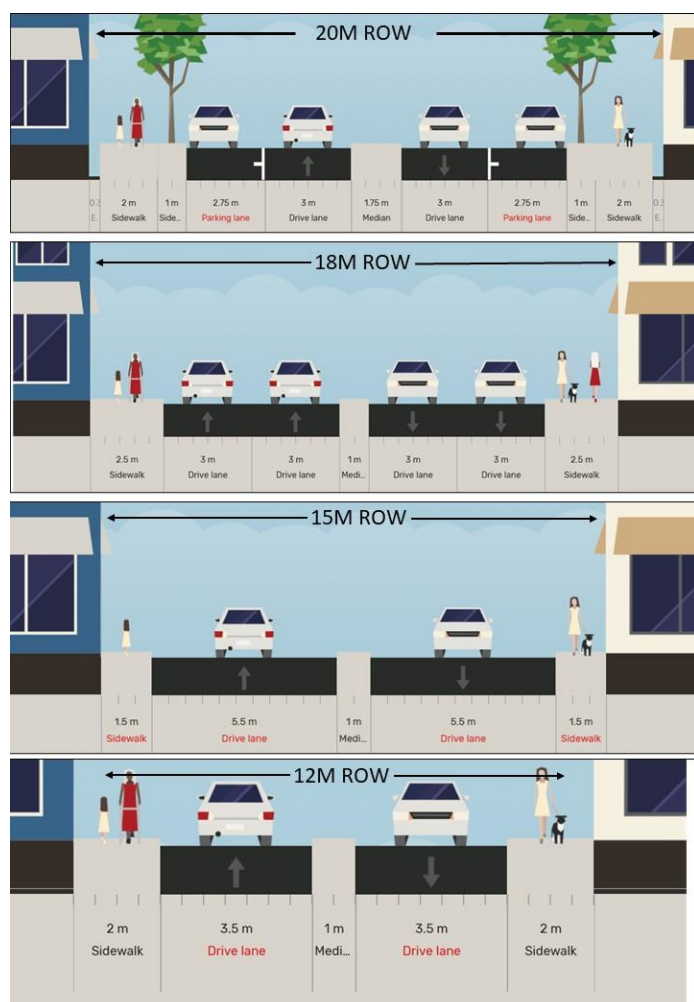
Collector Roads (10.11 km): Increased by 5.47 km to facilitate access to residential clusters, commercial zones, and upcoming tourism hubs to Koli Dhek Lake.

Local Streets (62.42 km): Augmented by 18.73 km (42.8% increase) to ensure last-mile accessibility in high-density neighbourhoods and villages, prioritising pedestrian safety and non-motorised transport.

This hierarchy adheres to URDPFI 2014 guidelines, emphasising a balanced modal share and slope-compliant design, with the gradient within 10% of the slope. The expansion

focuses on decongesting existing corridors Meena Bazar Road while integrating with proposed cable car routes **Figure 8.4** and public transit nodes. The framework supports the Master Plan's vision of equitable access, disaster-resilient infrastructure, and sustainable tourism-driven growth.

Figure 8.2: Proposed Road Cross Sections in Lohaghat Planning Area, 2041



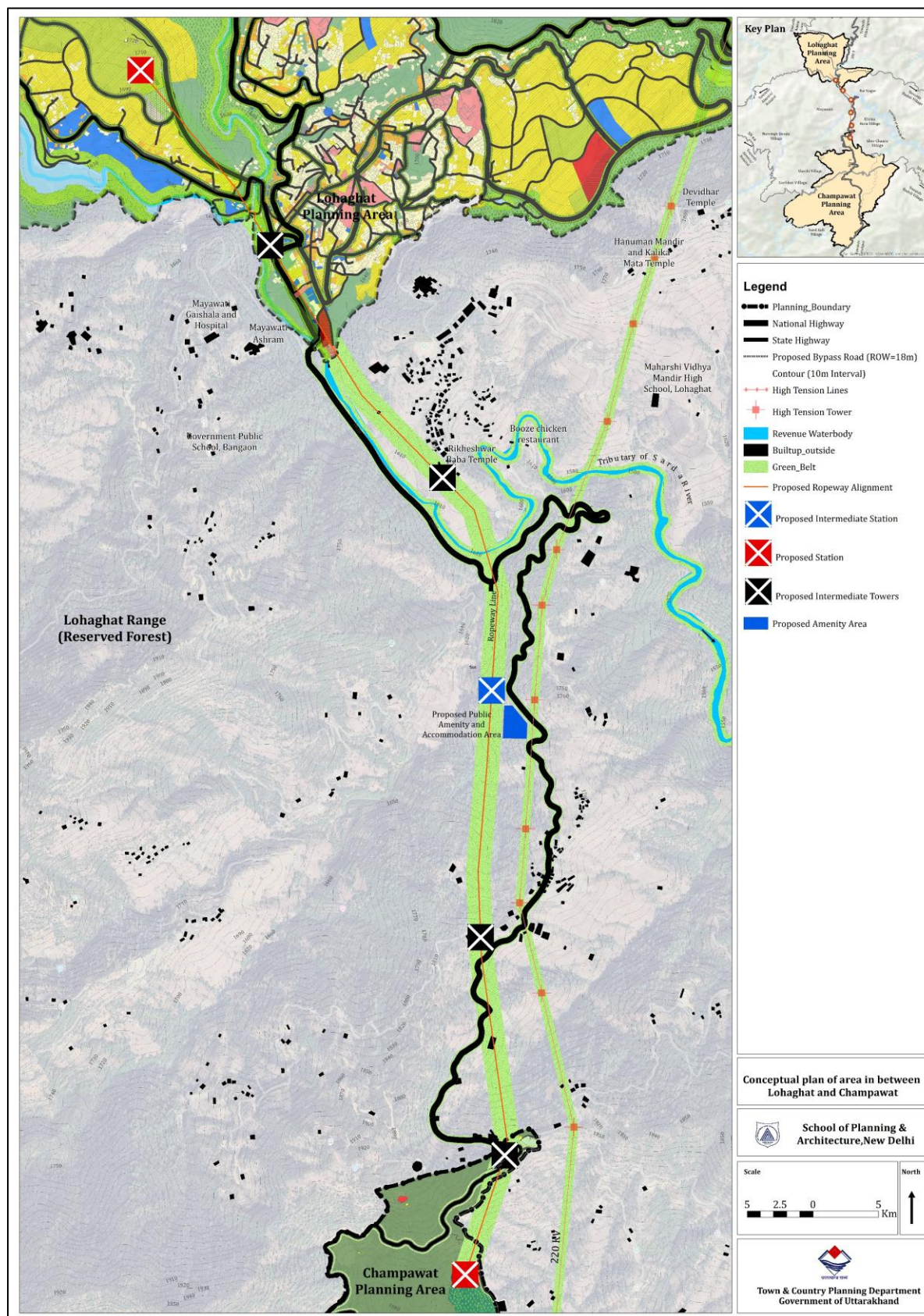
Source: School of Planning and Architecture, New Delhi (2023)

8.5 Proposal Related to PT Services

8.5.1 Ropeway: Safe Alternate to Public Transport

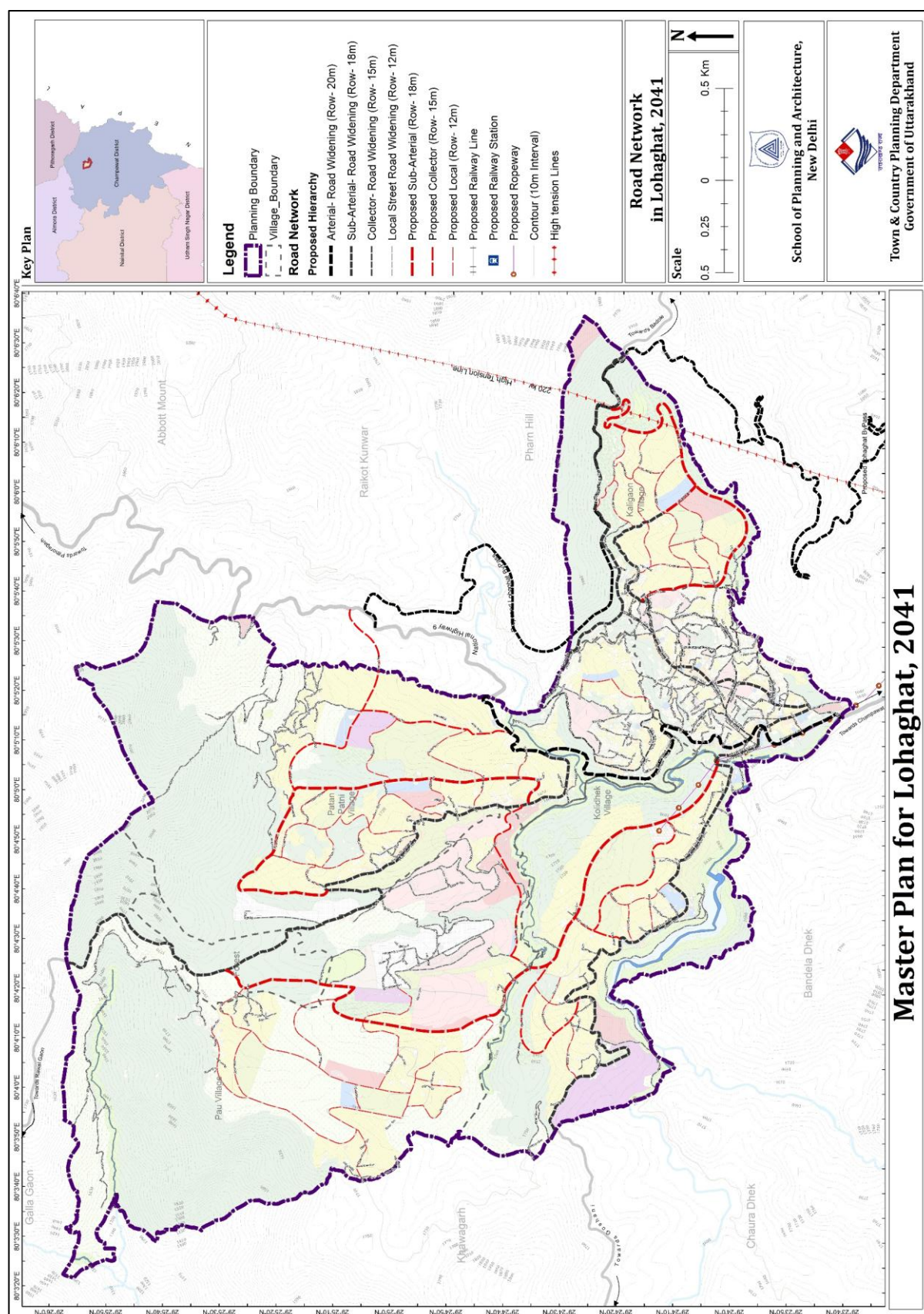
The average daily traffic volume count for the projected population is about 69,554, which would create the demand for IPT or PT services. Also, the town is emerging as a tourism town, which will see a lot of floating population. Therefore, accessibility via PT or IPT modes needs improvement. To increase accessibility, there is a need to improve PT services therefore the provision of cable car under National Ropeways Development Programme – “Parvatmala” is suggested. The idea is to improve connectivity and convenience for commuters. As per the policy, the ropeway maybe provided in difficult terrain where it is hard to access through roads or may also cover congested urban areas,

where conventional mass transit system is not feasible. Cable car technology is a viable mode of transport in mountainous or hillside urban areas, for distances of up to five kilometers. Leading to increasing access to job opportunities and other growth opportunities.

Figure 8.3: Proposed Ropeway Connecting Lohaghat and Champawat, 2047

Source: School of Planning and Architecture, New Delhi (2025)

Figure 8.4: Proposed Roads Network in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2023)

- **Case of Mexico**

The relatively low cost of construction, ranging from US\$19 million per kilometre in cities such as Medellín and Mexico City to US\$32 million in Guayaquil, and its rapid implementation (for example, the 4.1-kilometre Guayaquil cable car took 24 months to complete) have led more than 18 cities, mostly in emerging economies, to adopt cable car systems within their urban transport infrastructure. In 2004, the Colombian city of Medellín became the first place in the world to fully integrate cable cars into its existing metro system. Since then, a growing number of urban areas across the globe have begun installing cable car systems of their own, offering a clean, relatively cheap and innovative way to move people around.

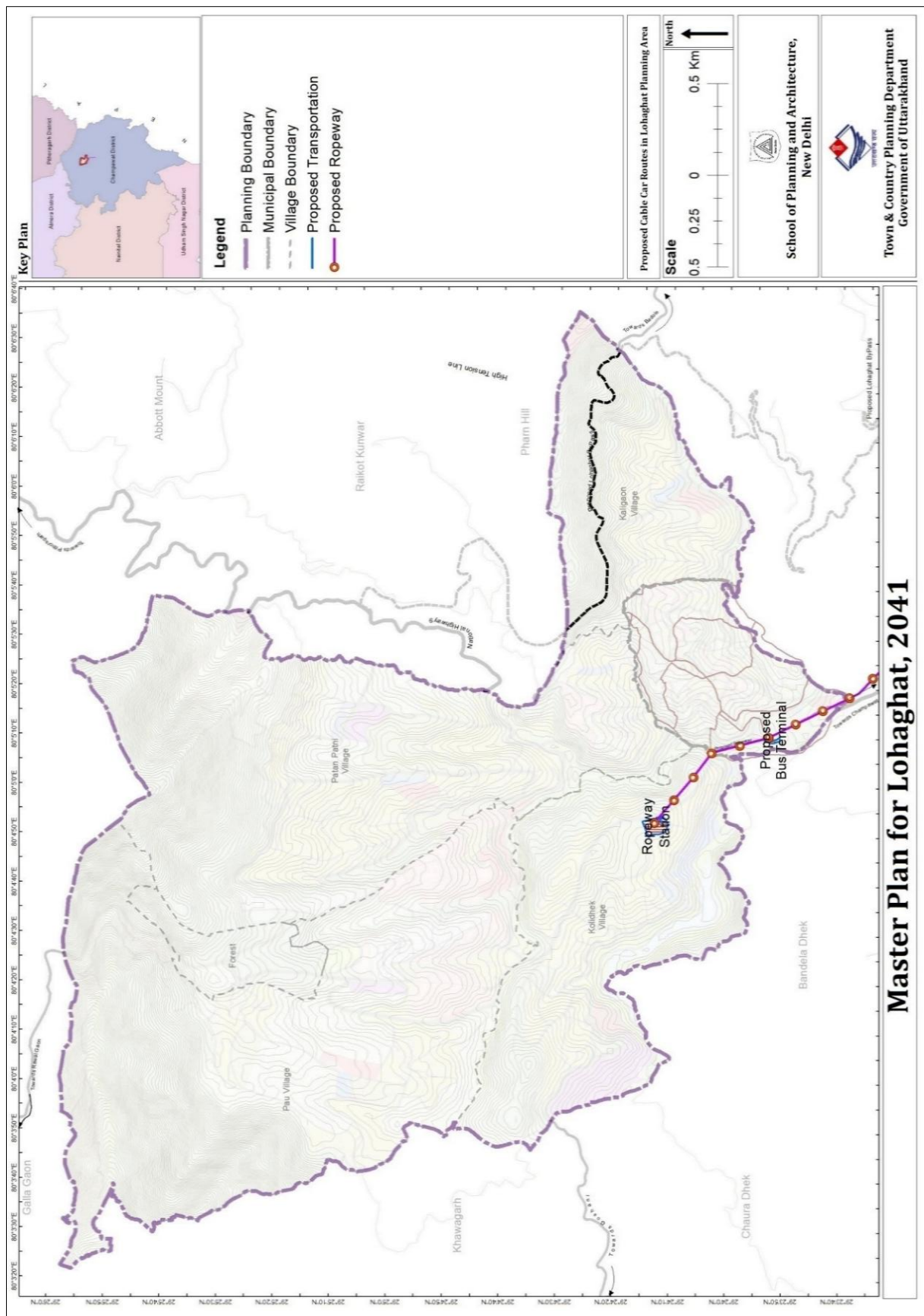
Since 2004, however, the city has invested in connecting these high-up neighbourhoods to the rest of the city through its innovative Metro Cable system – an investment widely credited with helping to cut the city’s crime rates. Since then, cities around the world have begun to follow Medellín’s example. From Caracas in Venezuela to Constantine in Algeria, and from New York in the US to Russia’s Nizhny Novgorod, authorities are turning to cable cars to overcome common transport challenges. A cable car from Lohaghat to Lake Champawat has been proposed. **(Figure 8.5).**

The cable cars will offer a quick and convenient way for visitors to reach Mayawati Ashram and Banasur Ka Kila, bypassing long, winding roads. This can be particularly helpful for elderly visitors, families, and those who may find it difficult to navigate hilly terrain. By connecting Koli Dhek Lake with these two popular tourist destinations, the cable cars will help integrate different parts of the region, making it more accessible to both locals and tourists. With easier access to these key locations, tourists might be more inclined to explore other nearby attractions in the region, such as local markets, natural trails, and cultural sites.

The cable car rides will provide a unique, aerial perspective of the beautiful landscapes of Lohaghat. This can attract tourists who are interested in scenic views and photography, adding an element of adventure tourism. The cable car system itself can become a tourist attraction. Visitors may come just to experience the ride, even if they weren’t initially planning to visit the ashram or the fort.

Promoting cable cars aligns with the principles of sustainable tourism, offering a greener, cleaner way for tourists to explore the region without adversely affecting the environment. Increased tourism can lead to the growth of local businesses, including hotels, restaurants, souvenir shops, and tour guides, thereby boosting the local economy.

Overall, the proposed cable car projects are likely to make Lohaghat more accessible, enhance the tourism experience, support the local economy, and promote sustainable travel in the region.

Figure 8.5: Proposed Cable Car Routes in Lohaghat Planning Area, 2041

Source: School of Planning and Architecture, New Delhi (2023)

8.5.2 Shuttle Service

The proposed shuttle service in the Lohaghat Planning Area represents a significant advancement in the town's urban mobility landscape. This forward-thinking initiative is designed to meet the evolving transportation needs of a growing community. The shuttle service will connect key residential, commercial, and recreational hubs, creating a well-integrated network that enhances accessibility and convenience for both residents and tourists. By prioritising high frequency, reliability, and seamless integration with existing transit systems, the shuttle service aims to redefine mass transit in the Lohaghat Planning Area. It incorporates eco-friendly technologies, including electric shuttles, to align with sustainability goals. Community engagement is central to the initiative, ensuring the service meets the unique needs of the local population. As part of the town's vision for 2041, the proposed shuttle service is set to improve connectivity, reduce traffic congestion, and contribute to a more sustainable and vibrant urban environment in Lohaghat.

Improving last-mile accessibility and connectivity through integrated public transport (IPT) services using electric vehicles (EVs) in Lohaghat

- This can be approached through a combination of strategies tailored to the unique challenges of these regions. Here's a detailed plan:
- Choose EVs suited for hilly terrain, focusing on compact, agile models that can handle steep inclines.
- Using different types of vehicles, like e-rickshaws or smaller vans, to accommodate various passenger loads and road conditions.
- Implement GPS-based tracking for real-time updates, allowing users to plan their journeys more effectively.
- Use data analytics to adjust service frequency based on demand, especially during peak hours.
- Involve local communities in planning and decision-making processes to ensure the services meet their specific needs.

By implementing these strategies, Lohaghat can significantly enhance last-mile accessibility and connectivity, fostering greater economic and social integration in the Lohaghat Planning Area.

8.5.3 Proposed Bus Stand

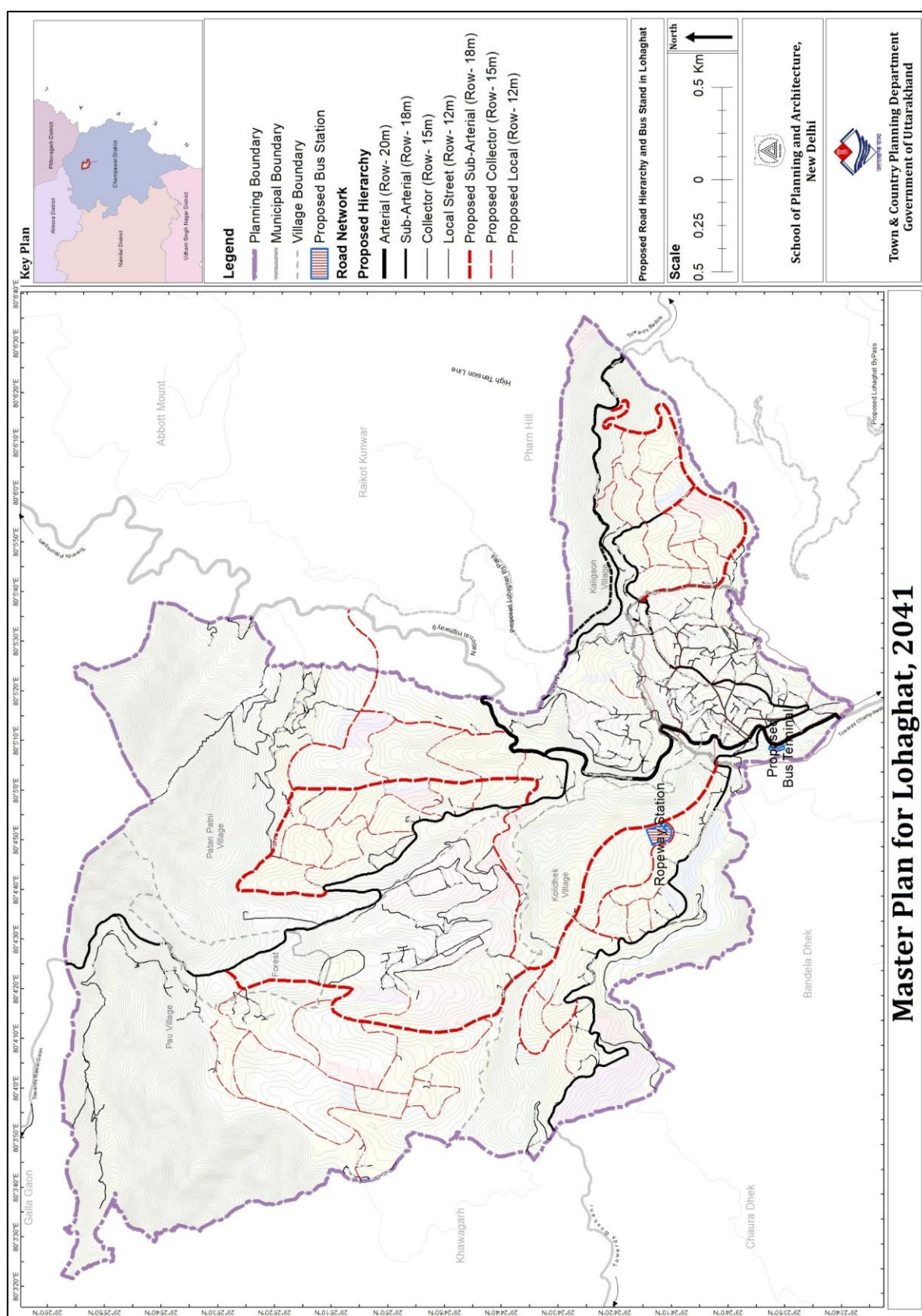
There is an existing bus stop in the Lohaghat municipal area, and a new bus stop has been proposed near the institutional hub in Pau Village.

To address congestion at existing bus stops and enhance commuter convenience, a new bus stop spanning 0.13 hectares is proposed within the Lohaghat Planning Area. Strategically positioned along the Lohaghat-Devidhura-Almora Road corridor **Figure 8.5** This facility will serve as a critical node in the revised road hierarchy, optimising connectivity between residential, commercial, and tourist zones.

According to traffic volume surveys (2023), existing bus stops along NH9 and Meena Bazar Road currently operate at a Level of Service (LOS) of C-D during peak hours, with overcrowding and prolonged waiting times. The proposed bus stop will alleviate pressure on these nodes by redistributing passenger demand, improving commuting by 2041 **Figure 8.2**. The design includes dedicated boarding/alighting bays, pedestrian pathways, and sheltered waiting areas that comply with the URDPFI 2014 guidelines.

Integration with the proposed cable car routes **Figure 8.4** and shuttle services will further enhance multi-modal connectivity, ensuring seamless transit for residents and tourists. This intervention aligns with the Master Plan's objectives of equitable access and sustainable mobility, serving a projected population of 45,475 while preserving the town's aesthetic and functional harmony.

Figure 8.6: Proposed Road Hierarchy and Bus Stand in Lohaghat Planning Area, 2041



Source: School of Planning and Architecture, New Delhi (2023)

CHAPTER 9: ENVIRONMENT AND DISASTER RISK

9.1 Introduction

The state of Uttarakhand lies in hilly terrain within a high seismic zone along the Himalayan belt and has experienced significant losses due to frequent seismic events. Lohaghat also falls under seismic zone IV, which is prone to earthquakes. Therefore, the proposal related to environmentally sensitive zones has been discussed in this chapter. Uttarakhand is vulnerable to a variety of natural disasters, including landslides, storms, intense rains, and flash floods. It has been difficult to deal with the significant disasters that Lohaghat has faced in the past, including landslides and floods.

9.2 Existing Natural Hazard Profile

Lohaghat, situated in a seismically active region, experiences tremors with epicentres primarily located in the Chamoli district, as well as in Dipayal and Jumla in Nepal. Typically, these seismic events have magnitudes of less than 5. However, over the past century, the area has experienced earthquakes with magnitudes exceeding 6.5, originating from Uttarkashi and Pipalkoti in the Chamoli district. These major earthquakes have caused property damage within the planning area. While no landslides have occurred directly within the planning area, nearby landslides along NH9 have disrupted daily activities. Based on data obtained from the Disaster Mitigation & Management Centre and Bhuvan, it has been observed that areas near the Lohaghat planning area in the north, such as Malan, Khulka, Bhartoli, and Basan village, are susceptible to landslides. According to the International Journal of Earth Sciences Knowledge and Applications report of 2022, heavy rains and cloudbursts caused a flash flood and a landslide in October 2021, resulting in 8 deaths, 4 injuries, and 1 house being completely damaged.

The presence of discontinuous aquifers in the area has led residents to rely on local streams for water. During a field visit, it was observed that these streams are contaminated with dumped solid waste. Consequently, water resources are under stress, leading to water scarcity in the area. Additionally, the lack of a proper waste management system exacerbates air and water pollution.

9.3 Proposals

9.3.1 Construction Restrictions

Figure 9.1 The slope map of the Lohaghat Planning Area divides the entire area into zones based on slope. The maximum slopes are observed on the northern and eastern sides. The majority of the area has slopes below 15 degrees, which is considered safe for any development. The slope analysis was performed using a DEM file, and the final output was generated using the slope tool in ArcGIS software. The moderate slope zone has slopes ranging from 0-29 degrees, while the steep slope zone has slopes of 30 degrees

and above. The steep slope zone has been preserved, and no development shall be allowed there.

9.3.2 Building Codes

9.3.3 Earthquake-resistant construction

Measures shall be implemented to minimise damage during seismic events. All new constructions must be approved or supervised by qualified engineers to ensure structural safety. Additionally, existing buildings would require further precautionary measures to enhance their resilience against earthquakes.

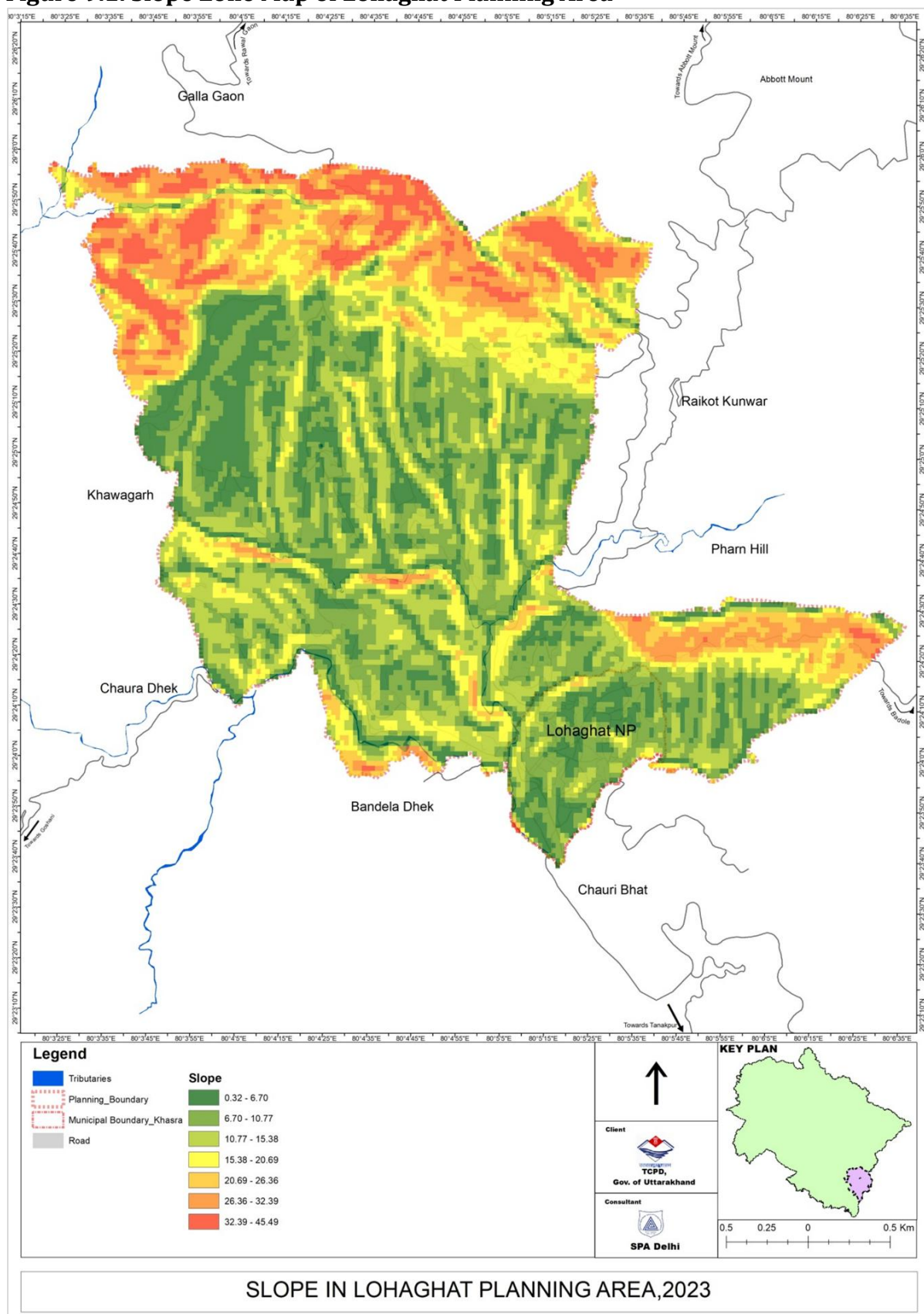
9.3.4 Warning Systems

Develop and implement early warning systems for landslides to promptly notify residents and authorities.

9.3.5 Water Body Rejuvenation

To facilitate the rejuvenation of water bodies within the Lohaghat Planning Area, it is proposed to establish buffer zones of 50 metres from the boundaries of Koli Dhek Lake and 25 metres from the boundaries of small streams passing through the region. Within these buffer zones, only restricted development will be permitted, and the area shall be maintained as a green belt to enhance ecological sustainability and flood resilience.

The designated green belt will primarily serve recreational purposes, supporting the development of a linear park with walking and cycling trails, seating areas, and open spaces. This initiative will not only improve public access to nature but also promote community well-being and environmental conservation. Additionally, the riverfront can be integrated with cultural spaces, heritage sites, and eco-tourism initiatives, fostering local economic development while preserving the natural landscape. **Figure 9.2** shows the proposed buffer along the streams within the Lohaghat planning area.

Figure 9.1: Slope Zone Map of Lohaghat Planning Area

Source: DEM, Bhuvan & School of Planning and Architecture, New Delhi (2023)

9.3.6 Green Buffer

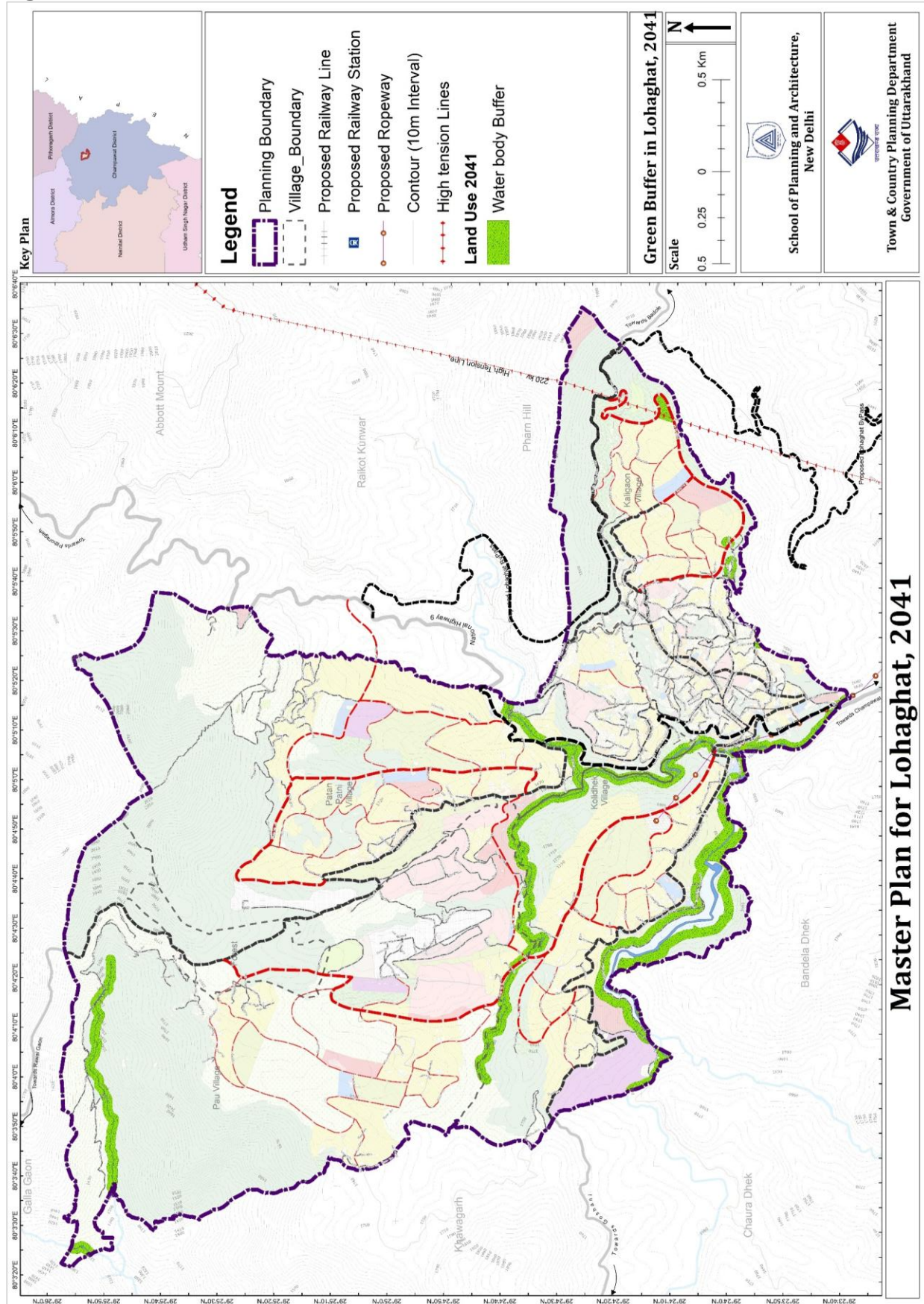
A green buffer is a designated strip of land, maintained with vegetation, that separates, protects, or enhances different land uses while promoting environmental sustainability. It serves as a transitional zone between urban development and ecologically sensitive areas such as rivers, lakes, and forests, mitigating the adverse impacts of urbanization. Green buffers can take various forms, including riparian buffers along water bodies, urban green corridors, and landscaped buffer zones between industrial and residential areas. In the Lohaghat Planning Area, the following green buffers of a total area of 45.9 hectare have been proposed (see **Figure 9.2**) to enhance ecological balance and regulate land use development:

- a. An 18-meter buffer is proposed along high-tension power lines to ensure public safety and prevent encroachments, reducing potential hazards and maintaining clear access for maintenance.
- b. A 50-meter buffer is proposed along the planned ropeway to prevent land-use conflicts and preserve the visual integrity of the surrounding landscape, ensuring seamless integration with the urban fabric.
- c. A 24-meter buffer for streams and a 50-meter buffer along Kolidhek Lake is proposed for the regeneration of the water body and to preserve the natural serenity of the tourist attraction.
- d. A 100-meter buffer is proposed between residential and industrial areas to minimise environmental hazards, reduce air and noise pollution, and enhance the overall liveability of the surrounding neighbourhoods.

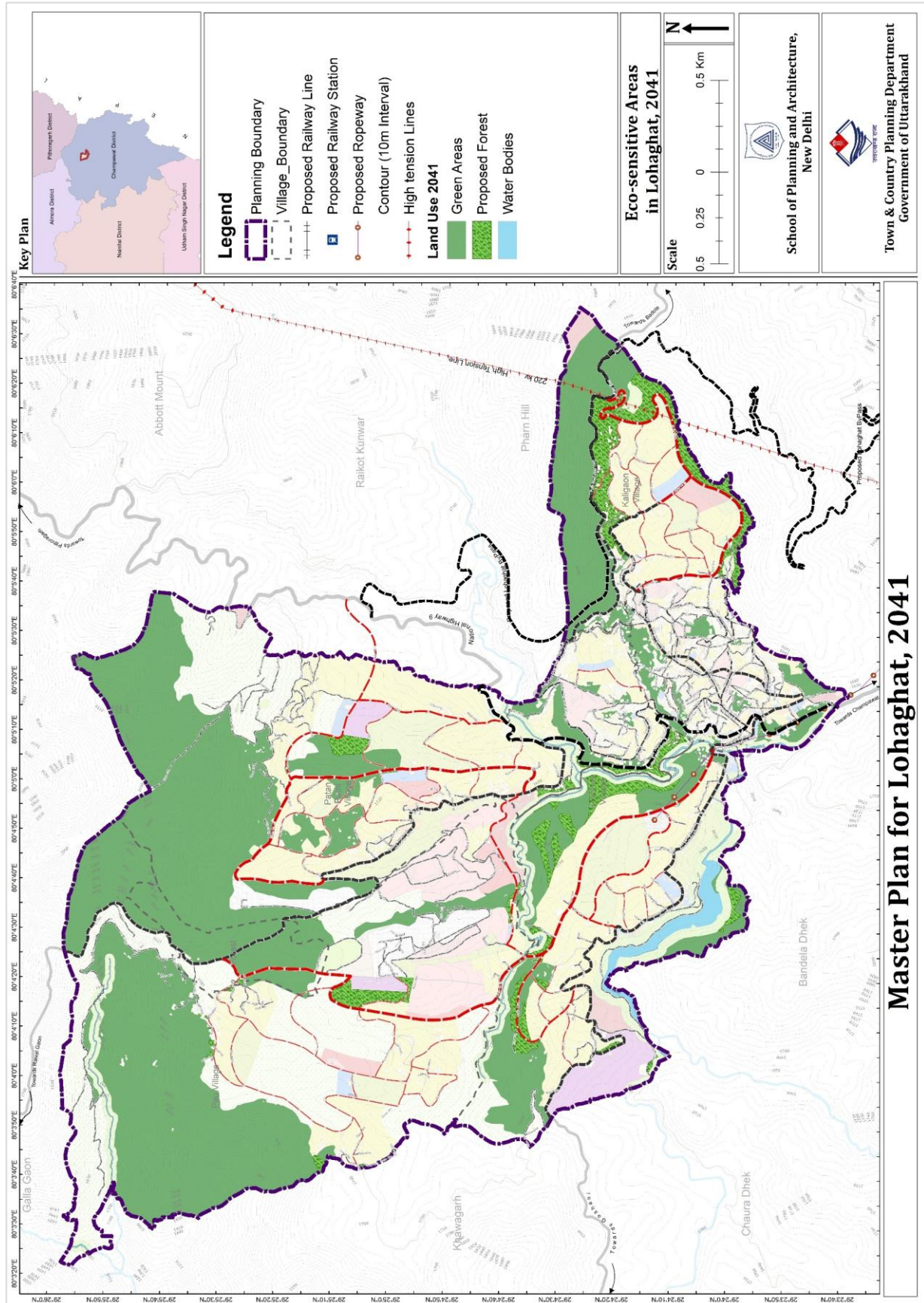
9.3.7 Forest Areas

The reserved forest areas within the Lohaghat planning area are critical for ecological balance, biodiversity conservation, and environmental protection. The Master Plan prioritises their preservation and integrates sustainable management practices. A total of 356.6 hectares of existing green cover, including forest area, and 33.1 hectares of proposed forest area will remain protected from any development. (see **Figure 9.3**). To mitigate the risk of forest fires, firebreaks, controlled burns, and surveillance systems will be established, with a focus on vulnerable areas such as Pau, Patan Patni, and Kaligaon village. Additionally, the plan promotes ecotourism and sustainable recreation by developing nature trails, camping sites, and regulated trekking paths while minimising ecological disturbance. Community engagement is a key strategy, with initiatives such as afforestation programs, sustainable agroforestry, and alternative livelihood opportunities, including honeybee farming and herbal plant cultivation, aimed at reducing dependence on forest resources. Strict land-use regulations will prevent encroachments and unauthorised construction. These proposals ensure that Lohaghat forest areas remain ecologically intact while contributing to sustainable urban growth and local economic development, striking a balance between conservation and responsible urban planning.

Figure 9.2: Green Buffer, 2041



Source: School of Planning and Architecture, New Delhi (2025)

Figure 9.3: Eco-Sensitive Areas in Lohaghat Planning Area, 2041

Source: School of Planning and Architecture, New Delhi (2025)

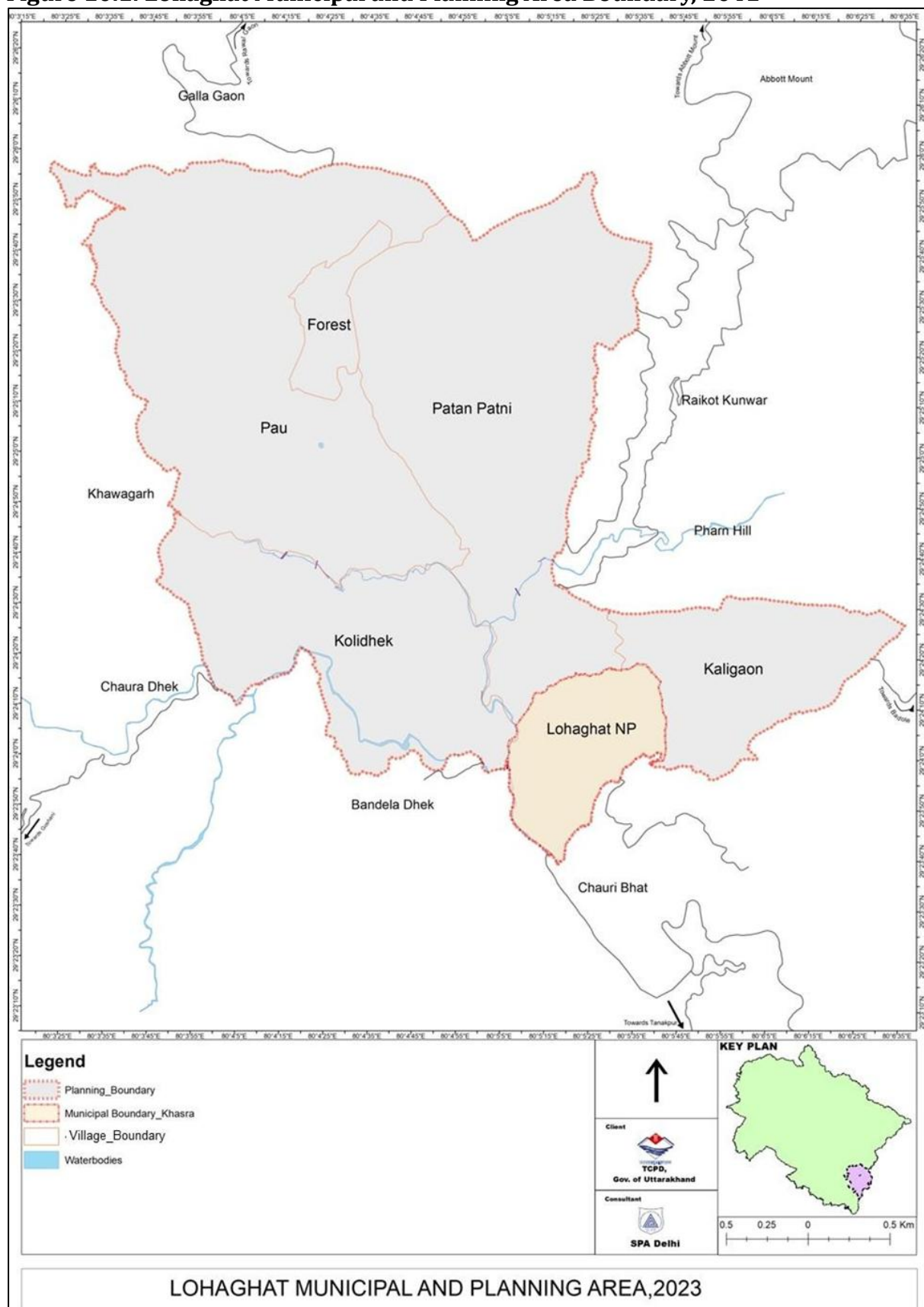
CHAPTER 10: LAND USE

10.1 Lohaghat Planning Area

Lohaghat town is in Champawat district, with a population of 7,926 as per the 2011 census. The municipal area covers 0.71 sq. km. and is divided into 7 wards, namely Sarki Tola, Bajranbali, Lohawati, Risheshwar, Thara Dunga, Meena Bazar and Kachhari.

As per the 2011 Census, the Lohaghat municipal area is 4.5 sq. km. with a population of 7,926. However, the field survey indicated that the Lohaghat municipal area is 0.71 sq. km., and the 7,926 people listed in the 2011 Census reside within this area. Taking this into account, we have considered 0.71 sq. km. as the municipal area and 7,926 as the population for calculating the gross density. The town's gross density is 111 persons per hectare, which is very high given its natural topography and ecology. As per URDPFI 2014, the density for small towns in hilly areas shall be in the range of 45-75 persons per hectare for the developed area.

There was a need to extend development beyond the municipal boundary for sustainable development, and to that end, the town's planning area has been increased to accommodate the existing and estimated future population for the master plan horizon year in a safe environment, while accommodating future planning proposals for better living conditions. Henceforth, 4 villages, namely Kaligaon, Kolidhek, Patan Patni, and Pau, have been added to the Lohaghat Planning Area, based on development trends, potential for future development, existing built-up areas, proposals, and natural topography. The Lohaghat planning Area is 10.92 sq. km., as shown in **Figure 10.1**.

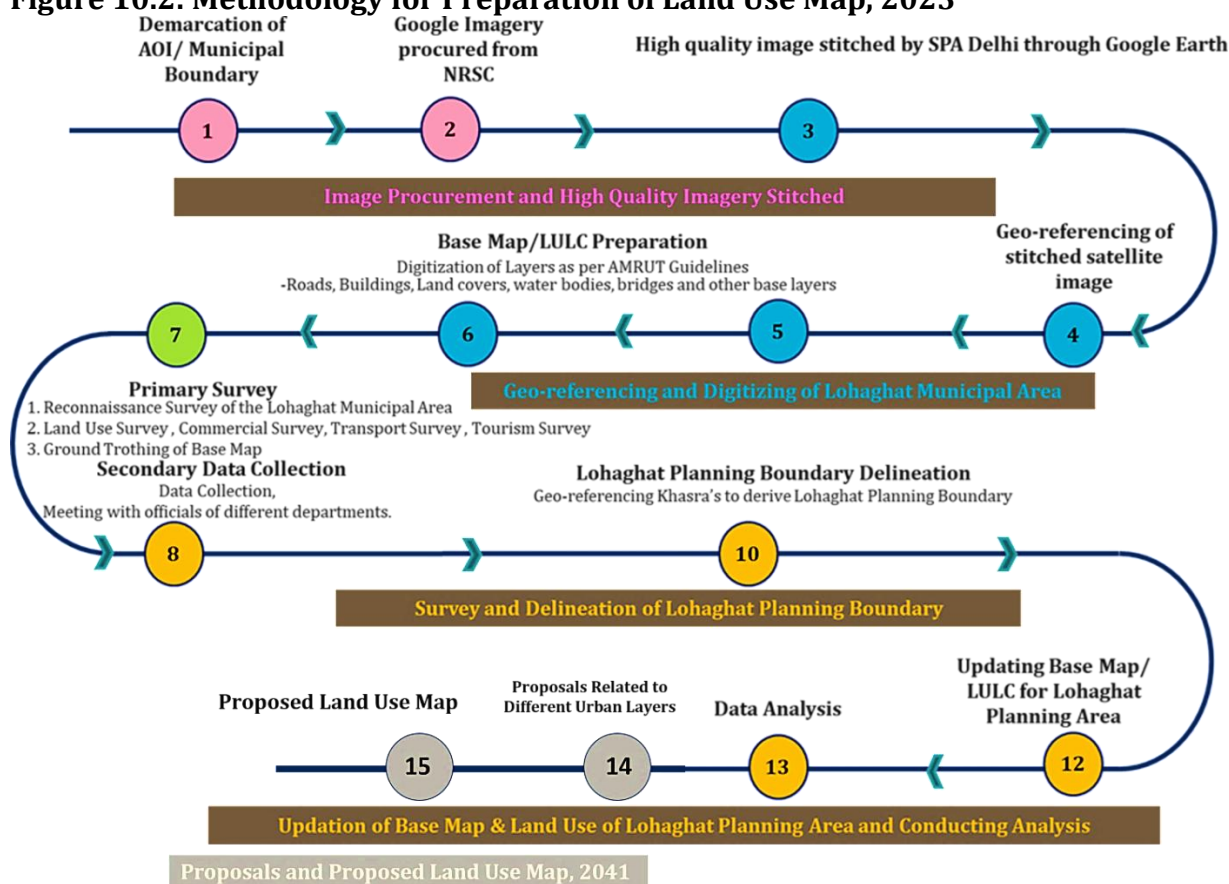
Figure 10.1: Lohaghat Municipal and Planning Area Boundary, 2041

Source: School of Planning and Architecture, New Delhi (2023)

10.2 Methodology for Preparing Land Use Map

A land use map is an essential part of urban planning, environmental management, and resource allocation. The map represents how land is utilised within a specific area, showing the distribution of various land uses such as residential, commercial, industrial, agricultural, recreational, and natural areas. Figure 10.2 shows the methodology for the preparation of the Land Use Map. To embark on this process, the first step was to define the study area and specify its geographical boundaries. Next, necessary data and information, including satellite or aerial imagery, were procured. Then the stitched image was georeferenced. Further, different urban layers were digitised. To enhance the accuracy of the land use map, ground truth validation was conducted, comparing the classification results with real-world data gathered during field surveys. Further, land use was updated, and the analysis was carried out. Thereafter, proposals were made, and the proposed land use map was prepared.

Figure 10.2: Methodology for Preparation of Land Use Map, 2023



Source: School of Planning and Architecture, New Delhi (2023).

10.3 Land Use 2023

Table 10.1 provides a comprehensive overview of land use within the Lohaghat Planning Area 2023, detailing various land-use categories, their respective areas in hectares (Ha), and the percentage of each category's coverage. Developed land accounts for 14 per cent

of the total planning area, whereas undeveloped land accounts for about 86 per cent in the Lohaghat planning area.

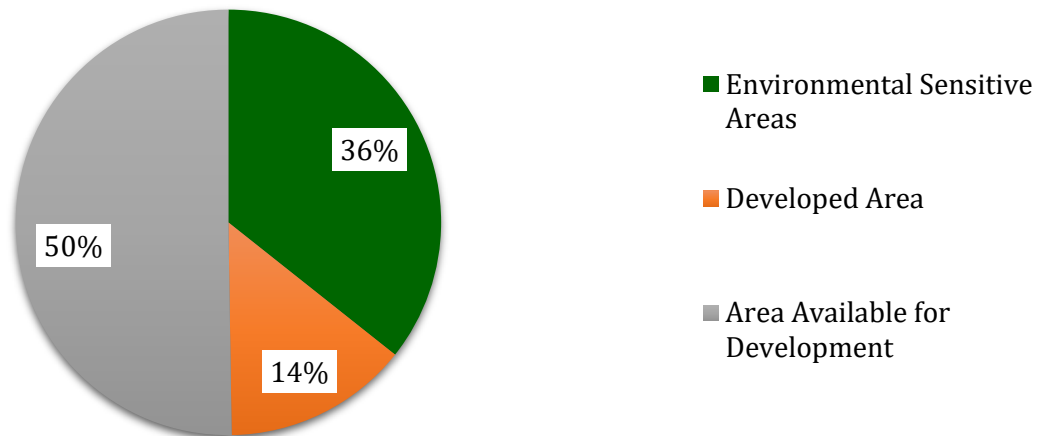
Agriculture dominates land use, accounting for a substantial 48 percent of the total area. This high share of cropland may be attributed to the fact that most people living in villages are engaged in agriculture, primarily growing seasonal fruits and vegetables. However, during the site visit, it was observed that there are very few people engaged in agriculture-based activities in the Lohaghat municipal area. The people in Lohaghat town are primarily working in the tertiary sector, with most of them running commercial or retail shops from their homes, supporting jobs for government officials, etc. People living in villages engage in agricultural activities.

It also reveals a diverse range of land use categories, including Green Areas, commercial, water bodies, educational, etc. This diversity suggests a varied landscape that combines urban, rural, and natural elements. In terms of urban development, land uses such as "Residential," "Commercial," "Educational," "Public-Semi Public," and "Transport" collectively cover approximately 14 percent of the total Lohaghat planning area. This suggests that the region is experiencing urbanisation and population growth, with people residing in urban areas. As urbanisation continues, careful planning for housing, infrastructure, and transportation will be essential to accommodate the needs of the growing population.

Table 10.1: Area Distribution of Land Use in Lohaghat Planning Area, 2023

Small Town (5000 - 50000 population as per URDPFI 2014)					
S. No.	Land Use Category	Area in Ha	% of Total Area	% of Developed Area	URDPFI, 2014 guideline for total area
A	Environmental Sensitive Areas				
	Forest	384.85	35.24%		
	Waterbodies	4.77	0.44%		
	Total A	389.62	35.67%		
B	Developed Area				
	Residential	64.86	5.94%	42.18%	50 to 55
	Commercial	2.97	0.27%	1.93%	2 to 3
	Industrial	0.12	0.01%	0.08%	3 to 4
	Mixed Use	14.95	1.37%	9.73%	
	Public & Semi Public	37.38	3.42%	24.31%	8 to 10
	Recreational	4.37	0.40%	2.84%	15 to 18
	Transportation & Communication	29.11	2.67%	18.93%	5 to 6
	Total B	153.77	14%	100.00%	
C	Area Available for Development				
	Agriculture	523.09	48%		
	Vacant	25.67	2%		
	Total B	548.8	50%		
		1092.1	100%		

Source: School of Planning and Architecture, New Delhi (2023)

Figure 10.3: Land Use in Broad Categories in Lohaghat Planning Area, 2023

Source: School of Planning and Architecture, New Delhi (2023)

Key Plan

The map shows the following districts:

- Pithoragarh District
- Nainital District
- Chamoli District
- Uttarakhand State

Legend

- Planning Boundary
- Municipal Boundary
- Village_Boundary
- High Tension Lines
- contour

Land Use 2023

- Residential
- Commercial
- Public-Semi Public
- Industrial
- Green Areas
- Recreational
- Mixed
- Road
- Transport
- Vacant Land
- Wastelands
- Special Area
- Agricultural
- Water Bodies

Scale

0.5 0.25 0 0.5 Km

Land Use, 2023

Master Plan for Lohaghat, 2041

School of Planning and Architecture, New Delhi

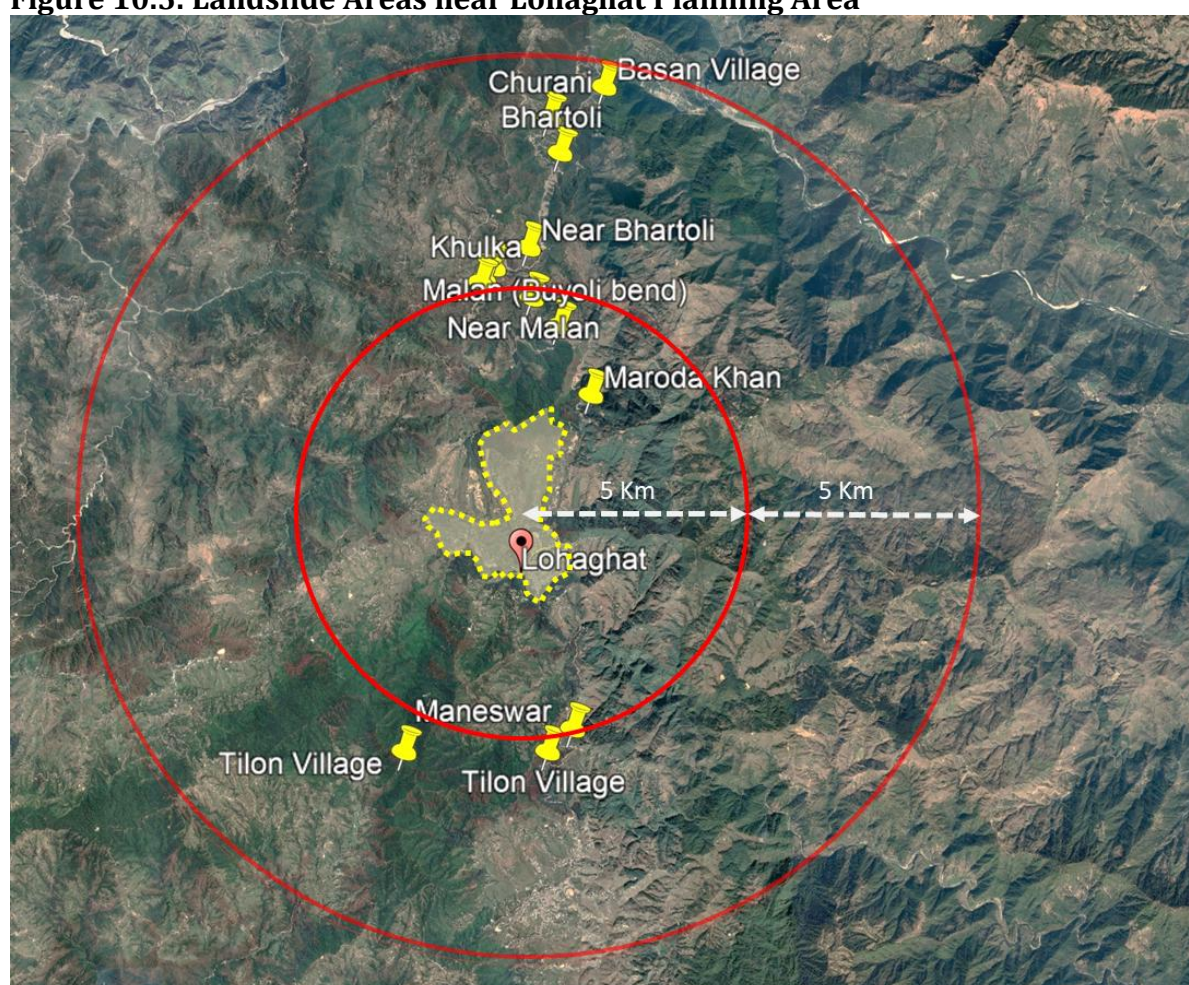
Town & Country Planning Department Government of Uttarakhand

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10.4 Land Suitability Analysis

As the population continues to grow and infrastructure demand increases, effective spatial planning becomes essential, particularly in hilly areas like Lohaghat. Land suitability analysis plays a pivotal role in this process by aiding the allocation of land for optimal uses, promoting sustainable development, and mitigating environmental impacts, with landslides being a major concern highlighted by the primary survey and secondary sources. Within the Lohaghat Planning Area, there are no landslide points, but within a 5 km radius, landslides have damaged infrastructure and the environment. In the first step of the land suitability analysis, the necessary data were gathered. This involved collecting information on the identified criteria, including Slope, Aspect, Road Proximity, LULC, and Drainage.

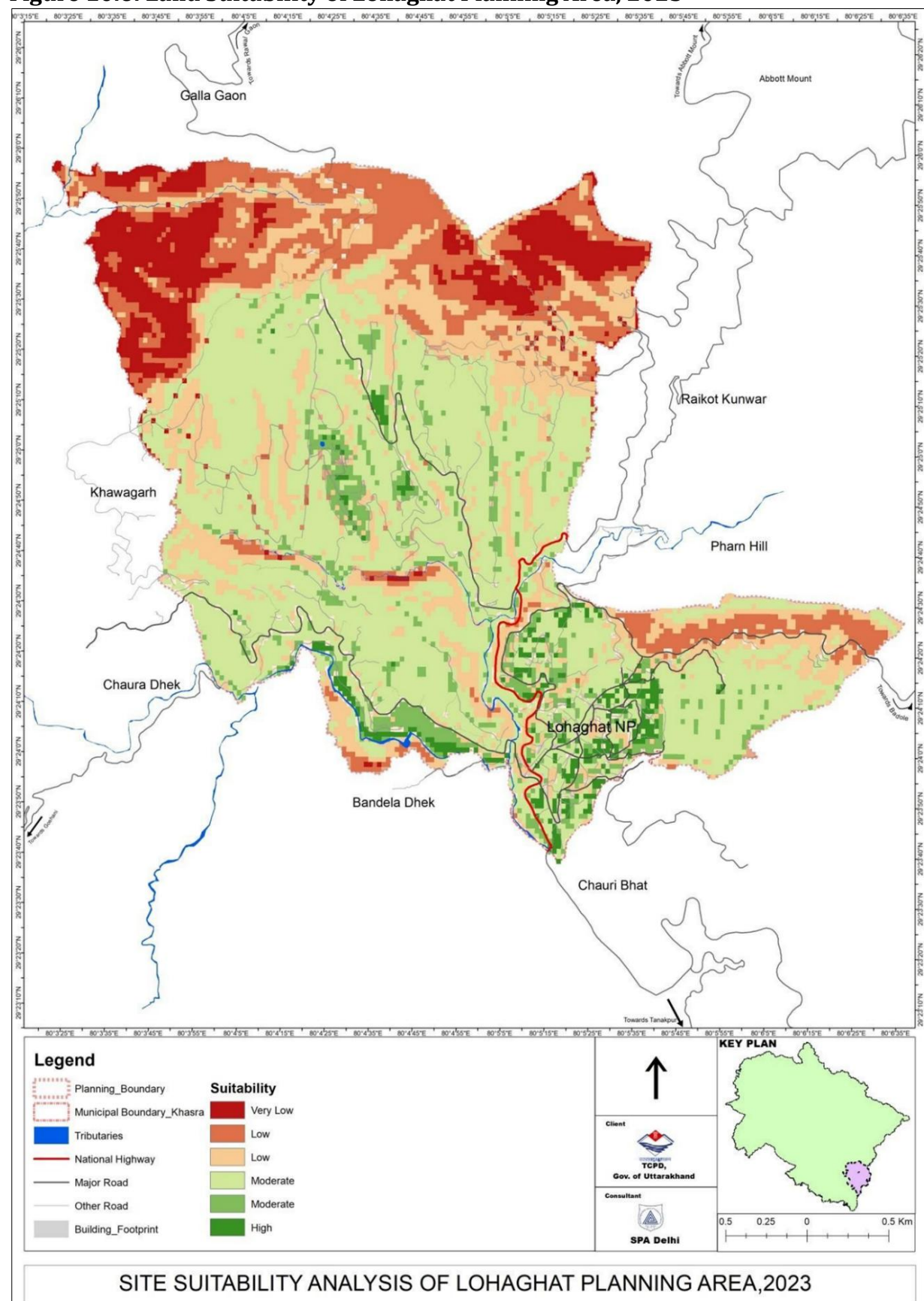
Figure 10.5: Landslide Areas near Lohaghat Planning Area



Source: District Disaster Management Action Plan (DDMAP)2023 (Part-I)

After conducting the weighted overlay using spatial analysis tools in ArcGIS, a definitive suitability map is generated. This map is divided into distinct categories, including very low, low, moderate, and high suitability classes (Figure 10.6). According to the suitability analysis, most of the developable land is situated within the Lohaghat municipal area and the central portion comprising Pau and Patan Patni villages. Also, when compared with the existing land use of the planning area, the development trend is very similar to the

suitability analysis map. Thus, further incorporating this analysis into our decision-making process would mitigate potential risks associated with the development of the planning area.

Figure 10.6: Land Suitability of Lohaghat Planning Area, 2023

Source: School of Planning and Architecture, New Delhi (2023)

10.5 Strategies for Development as per URDPFI,2014

Hilly regions present unique challenges and opportunities, requiring a comprehensive and integrated planning approach that emphasizes conservation, preservation, and sustainable development. The following strategies outline key considerations for effective urban planning in the Lohaghat planning area:

Strategy 1: Land Conservation and Optimization

1. **Environmental Inventory and Impact Assessment:** Prior to planning new settlements or expanding existing ones, it is crucial to conduct a detailed environmental assessment. This includes geological studies, slope analysis, soil quality evaluation, and an inventory of local flora and fauna, along with assessments of climate patterns and natural disaster vulnerabilities (such as earthquakes, landslides, and floods). In addition to environmental factors, cultural, architectural, historical heritage, and the scenic value of landscapes have also been considered.
2. **Identification of Developable Areas:** The developable area should be determined by excluding ecologically sensitive zones from the total jurisdiction of a hill town. Land-use classifications should be applied only to the developable area, while natural ecological regions must be preserved or restored. This ensures that urban growth does not encroach upon vital ecosystems.

$$\text{Hill Town Developable Area} = \text{Hill Town Jurisdiction Area} - \text{Natural Ecological Area}$$
 The total developable area for the Lohaghat Planning Area is **550.01 Ha**.
3. **Land Use Optimisation: Given the limited availability of buildable land and the high cost of construction in hilly areas, land use must be optimised.** This can be achieved through carrying capacity and land suitability analysis. A green building approach should be adopted, incorporating cost-effective, eco-friendly materials and sustainable construction technologies.

Strategy 2: Sustainable Development through Watershed Management

A watershed, or drainage basin, is a critical component of sustainable development in hilly regions, as it influences water flow, land use, and disaster risk.

Key recommendations for watershed management in urban planning include:

- **Water and Land Use Optimisation: Implementation of better water management strategies and control of soil erosion** through effective watershed management practices.
- **Promotion of Rural and Small Industries:** Utilise the favourable climatic conditions to support small-scale rural industries, non -polluting industries.

10.6 Character of the Planning Area

Lohaghat holds significant regional importance as both a commercial hub and a scenic destination in the Kumaon region of Uttarakhand. Its natural beauty makes it a focal point for tourism development.

According to the Uttarakhand Tourism Development Master Plan, Champawat falls under Zone 5 of the state's seven designated tourism zones. The plan identifies key circuits within Zone 5, including the Pithoragarh-Champawat circuit, which connects destinations such as Pithoragarh, Ghat, Lohaghat, Champawat, Almora, Binsar, Jageshwar, and Rameshwar, and returns to Ghat and Pithoragarh. Developing these circuits positions Lohaghat as a critical node in the regional tourism network. With its potential to offer diverse experiences, including eco-tourism, adventure tourism, and leisure tourism, the town is set to play an increasingly vital role in the state's tourism economy.

By 2041, Lohaghat is envisioned to evolve into a tourism-centric hub while retaining its role as a spoke to the district administrative headquarters, Champawat. This dual role will strengthen its position as a key destination for both governance and experiential tourism, enhancing its regional significance and fostering sustainable economic growth.

The Draft Master Plan for Lohaghat, developed after a comprehensive land suitability analysis, is designed to manage and guide this growth sustainably. The plan proposes a balanced framework that integrates economic development, residential needs, and physical and social infrastructure while preserving the town's natural environment. By creating distinct land-use zones tailored to the town's evolving roles, the plan ensures that Lohaghat achieves a blend of economy and ecology, serving both its residents and visitors. The Master Plan includes provisions for green spaces, eco-friendly tourism infrastructure, and sustainable industrial practices that align with the region's environmental priorities. By prioritising sustainable growth and the enhancement of key infrastructure, this chapter will explore the concept of development and the proposed land-use strategies in detail.

10.7 Concept Development

The Master Plan for Lohaghat 2041 envisions a sustainable and resilient hill town by balancing urban expansion with ecological preservation. With 50.1 per cent of the total area designated as developable land and 49.9 per cent retained as non-developable, the plan ensures that growth is topographically sensitive, climate-responsive, and environmentally sustainable. Given the region's steep slopes, fragile ecosystems, and hydrological significance, urban development must be carefully managed to prevent landslides, erosion, and deforestation, while ensuring economic opportunities and infrastructure accessibility (**refer Table 10.2**).

To optimise urban expansion within the hilly terrain, the plan promotes compact, contour-based development that minimises land cutting and slope instability. Multi-tiered infrastructure solutions, such as ropeways, pedestrian pathways, and stepped road

systems, will enhance connectivity without excessive land modification. Additionally, low-risk zones will be designated for commercial, institutional, and tourism-driven activities, ensuring that economic growth aligns with environmental stability.

With nearly half the area designated as non-developable, including forests, tree-clad areas, agricultural land, and water bodies, the plan places strong emphasis on watershed protection, slope stabilization, and biodiversity conservation (**refer Figure 10.7**). Natural drainage channels and river catchment areas will be safeguarded to mitigate landslides, flash floods, and water shortages. Moreover, blue-green infrastructure solutions, such as rainwater harvesting, terraced farming, and afforestation programs, will enhance climate resilience and water security. The plan also encourages eco-tourism, agroforestry, and community-driven forest management, fostering sustainable livelihoods while preserving the region's natural heritage.

The Lohaghat Master Plan 2041 aspires to create a model hill town that integrates modern development with ecological responsibility. By adopting a topography-sensitive, disaster-resilient, and community-driven planning approach, the plan ensures that Lohaghat evolves into a thriving, sustainable, and culturally vibrant urban centre while maintaining its natural beauty and environmental integrity.

10.8 Proposed Land Use 2041

Master Plan for the Lohaghat Planning Area 2041, focuses on the following Land Use:

- Residential
- Commercial
- Mixed Use
- Industrial
- Transportation
- Recreational
- Public and Semi-Public
- Water bodies
- Agriculture
- Green Areas
- Green Buffers
- Forest
- Special Area

Table 10.2: Land Use Distribution in Lohaghat Planning Area, 2041

S.No	Land Use	Area in Hectares	Percent of Developable Area	URDPFI, 2014 (in Percent)	Percent of Total Area
1	Residential	237.8	43.4	50 to 55	21.8
2	Commercial	9.7	1.8	2 to 3	0.9

3	Mixed	11.1	2.0		1.0
4	Public Semi-public	59.3	10.8	8 to 10	5.4
5	Industrial	16.4	3.0	3 to 4	1.5
6	Recreational	54.4	9.9	15 to 18	5.0
7	Proposed Green Buffers	45.9	8.4		4.2
8	Roads and Transportation	113.0	20.6	6.0	10.3
Developed Area		547.6	100.0		50.1
9	Tree Clad Area	356.6	-		32.7
10	Proposed Forest	33.1	-		3.0
11	Water Body	10.7	-		1.0
12	Agriculture	129.9	-		11.9
13	Special Area	14.2	-		1.3
Non-Developable Area		544.5	-		49.9
Total Area		1092.1	-		100.0

Source: School of Planning and Architecture, New Delhi (2023)

10.8.1 Residential Land Use

The proposed residential land use is set at 43.4% of the developable area, which is lower than the URDPFI guideline of 50-55% (**refer Table 10.2**). However, this allocation has been carefully planned to ensure that the proposed residential area is more than sufficient to meet future housing demand while maintaining environmental sustainability. Expanding residential land beyond this provision, as per URDPFI norms, would not be viable given the region's topographical constraints and ecological sensitivity. Instead, the master plan prioritises compact, efficient, and sustainable residential development that optimises land use without excessive urban sprawl.

10.8.2 Commercial and Mixed-Use Development

The commercial sector is expected to occupy 1.18% of the developable area, slightly within URDPFI's recommended range of 2-3%, ensuring adequate provision for business activities, retail establishments, and service sectors. However, mixed-use development, currently at 2%, will be expanded to encourage integrated land use patterns that support walkable communities, reduce travel distances, and foster a vibrant urban environment. (**refer Table 10.2**).

10.8.3 Public and Semi-Public Land Use

Public and semi-public facilities will cover 10.8% of the developable area, slightly exceeding URDPFI's guideline of 8-10% (**refer Table 10.2**). This ensures ample space for healthcare, education, administrative, and institutional services. The master plan will focus on the equitable distribution of these services while incorporating climate-resilient infrastructure and accessible locations for all residents.

10.8.4 Industrial Land Use

The industrial sector is planned to occupy 3% of the developable area, aligning with URDPFI's recommended 3-4% (**refer Table 10.2**). Given the hill town's environmental constraints, future industrial growth will focus on small-scale, eco-friendly industries and traditional handicrafts, ensuring economic sustainability without causing environmental degradation.

10.8.5 Recreational and Open Spaces

Recreational spaces will constitute 9.9% of the developable area, which is below the URDPFI recommendation of 15-18% (**refer Table 10.2**). However, instead of allocating large tracts of land, the master plan emphasises nature-based recreational areas, eco-tourism zones, and integrated green spaces that blend with the natural landscape. This approach will ensure sufficient outdoor spaces for residents while maintaining ecological integrity. Additionally, 8.4% of the developable area will be reserved for green buffers, along water bodies and roads, strengthening climate resilience, erosion control, and environmental sustainability.

10.8.6 Traffic and Transportation

Road infrastructure is planned to take up 20.6% of the developable area, significantly exceeding URDPFI's guideline of 6% (**refer Table 10.2**). Given the challenging terrain, this provision will ensure a well-connected transport network with strategically designed road alignments, pedestrian pathways, and alternative mobility solutions such as ropeways and cable cars.

The master plan designates 50.1% of the total area as non-developable, reinforcing a strong commitment to ecological preservation (**refer Table 10.2**). Approximately 32.7% of the total land area will remain tree-clad, ensuring biodiversity protection, carbon sequestration, and slope stabilisation. Additionally, 11.9% of the land will be preserved for agriculture, supporting food security and rural livelihoods. The plan will also implement afforestation, agroforestry, and watershed management strategies to enhance environmental resilience.

Key Plan

Legend

Land Use 2041

- Proposed Residential
- Proposed Commercial
- Proposed Industrial
- Proposed Agricultural
- Proposed Water Bodies
- Proposed Forest
- Proposed Recreational
- Proposed Special Area
- Proposed Transport
- Proposed Water Bodies

Proposed Land Use in Lohaghat, 2041

Scale

North Arrow

S.No.	Land Use	Area in Hectares	Percentage of Total Area	Area in Acres	Percentage of Total Area
1	Residential	277.8	48.1	68.75	48.1
2	Commercial	8.7	1.5	2.15	1.5
3	Industrial	13.1	2.3	3.25	2.3
4	Agricultural	14.4	2.5	3.55	2.5
5	Forest	14.4	2.5	3.55	2.5
6	Recreational	14.4	2.5	3.55	2.5
7	Special Area	14.4	2.5	3.55	2.5
8	Transport	14.4	2.5	3.55	2.5
9	Water Bodies	14.4	2.5	3.55	2.5
10	Forest	14.4	2.5	3.55	2.5
11	Special Area	14.4	2.5	3.55	2.5
12	Transport	14.4	2.5	3.55	2.5
13	Water Bodies	14.4	2.5	3.55	2.5
14	Forest	14.4	2.5	3.55	2.5
15	Special Area	14.4	2.5	3.55	2.5
16	Transport	14.4	2.5	3.55	2.5
17	Water Bodies	14.4	2.5	3.55	2.5
18	Forest	14.4	2.5	3.55	2.5
19	Special Area	14.4	2.5	3.55	2.5
20	Transport	14.4	2.5	3.55	2.5
21	Water Bodies	14.4	2.5	3.55	2.5
22	Forest	14.4	2.5	3.55	2.5
23	Special Area	14.4	2.5	3.55	2.5
24	Transport	14.4	2.5	3.55	2.5
25	Water Bodies	14.4	2.5	3.55	2.5
26	Forest	14.4	2.5	3.55	2.5
27	Special Area	14.4	2.5	3.55	2.5
28	Transport	14.4	2.5	3.55	2.5
29	Water Bodies	14.4	2.5	3.55	2.5
30	Forest	14.4	2.5	3.55	2.5
31	Special Area	14.4	2.5	3.55	2.5
32	Transport	14.4	2.5	3.55	2.5
33	Water Bodies	14.4	2.5	3.55	2.5
34	Forest	14.4	2.5	3.55	2.5
35	Special Area	14.4	2.5	3.55	2.5
36	Transport	14.4	2.5	3.55	2.5
37	Water Bodies	14.4	2.5	3.55	2.5
38	Forest	14.4	2.5	3.55	2.5
39	Special Area	14.4	2.5	3.55	2.5
40	Transport	14.4	2.5	3.55	2.5
41	Water Bodies	14.4	2.5	3.55	2.5
42	Forest	14.4	2.5	3.55	2.5
43	Special Area	14.4	2.5	3.55	2.5
44	Transport	14.4	2.5	3.55	2.5
45	Water Bodies	14.4	2.5	3.55	2.5
46	Forest	14.4	2.5	3.55	2.5
47	Special Area	14.4	2.5	3.55	2.5
48	Transport	14.4	2.5	3.55	2.5
49	Water Bodies	14.4	2.5	3.55	2.5
50	Forest	14.4	2.5	3.55	2.5
51	Special Area	14.4	2.5	3.55	2.5
52	Transport	14.4	2.5	3.55	2.5
53	Water Bodies	14.4	2.5	3.55	2.5
54	Forest	14.4	2.5	3.55	2.5
55	Special Area	14.4	2.5	3.55	2.5
56	Transport	14.4	2.5	3.55	2.5
57	Water Bodies	14.4	2.5	3.55	2.5
58	Forest	14.4	2.5	3.55	2.5
59	Special Area	14.4	2.5	3.55	2.5
60	Transport	14.4	2.5	3.55	2.5
61	Water Bodies	14.4	2.5	3.55	2.5
62	Forest	14.4	2		

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CHAPTER 11: DEVELOPMENT CONTROL REGULATIONS

11.1 Introduction

The main objective of the development control regulations for the Master Plan of the Lohaghat Planning Area, 2041, is to regulate development in the Lohaghat Planning Area to make it safe, secure, and sustainable. This includes assigning use zones and use premises, dividing use zones into premises, specifying the use premises allowed in each use zone, and defining the use activities permitted in the use premises.

In the Master Plan of the Lohaghat Planning Area, 2041, development proposals will be governed by these development control regulations. The regulations will serve as a framework for implementing both the general land use plan and the policies of the Master Plan. To achieve the anticipated growth, these restrictions will serve as both promotional tools and development control tools.

The implementation of the Master Plan proposals for the Lohaghat Planning Area cannot be regulated solely by the land use plan provided in the Master Plan. It must be further supplemented by zonal development plans and sector plans. The regulations specified in these plans shall guide and facilitate development within the Lohaghat Planning Area.

11.2 Definitions

- i. Master Plan: The master plan defines the various zones into which the development area may be divided for the purposes of development, and indicates the manner in which the land in each zone is proposed to be used. It also serves as a basic framework within which any such development shall be carried out.
- ii. Zonal Development Plan: A Zonal Development Plan for each zone into which the development area may be divided.

11.3 Designated Use Zones

The major designated use zones of the Lohaghat Planning Area are as follows:

1. Residential
2. Commercial (Retail and Wholesale, including Warehousing)
3. Mixed Use
4. Industrial
5. Public and Semi-public (Institutional, Facilities and Utilities)
6. Recreational (Recreational Greens, Parks and Playgrounds)
7. Green Buffers (Buffer along roads and water bodies)
8. Transportation (Roads, Bus Stand, Parking)
9. Water Bodies (Tributaries and Canals)

10. Agricultural
11. Green Areas (Forest)
12. Special Area

11.4 Zoning Regulations

In general, the Master Plan of the Lohaghat Planning Area identifies land uses such as residential, commercial, industrial, mixed-use, public and semi-public facilities, transportation, recreational, and other specific land uses. Zoning regulations also apply to ancillary or incidental activities not shown separately on the land use map of Lohaghat. To ensure public health, welfare, and security of the people in the master plan areas, the provisions for ancillary or incidental activities or utilities must be made by the competent authority in accordance with the zoning regulations and the specific requirements of a particular scheme.

11.5 Permissible and Permitted Uses in Various Land Use Zones

One of the goals of the master plan is to create a balanced and liveable city with a coherent social life. People should be able to live a healthy lifestyle, get access to work through an easy commute, and their children should be able to play freely in safe places. It is critical to establish regulations to accomplish this. The development plan specifies various land uses and development regulations, such as coverage, density, setbacks, conformity of use, premises, and other critical developmental issues. The different activities or utilities to be provided or planned in the proposed main land use categories are as follows:

- a. **Permitted Uses:** These activities or utilities, which are ancillary to the main land use and are planned and permitted.
- b. **Permissible Uses:** These activities will be planned or able to be allowed under specific permission of the Authority, keeping in view the infrastructure and its environmental impact on the surrounding area, which shall be done by the Authority, and if found satisfactory, shall be presented to the board for approval.

11.6 Subdivision Regulations

Subdivision of land to prepare a zonal plan is carried out for an area designated primarily for a specific land use under the master plan. The regulations described here are intended to assist in the creation of use-area zonal plans. These rules specify requirements for the provision of a circulation system, public areas, and facilities. The service plans that accompany these zonal plans for the provision of physical infrastructure, such as water supply, sewage, drainage, power, telecom, gas, and solid waste management, must adhere to the standards set forth from time to time by the Authority. The regulations related to

FAR, building height, ground coverage, setback, parking, etc., shall be followed as listed in Uttarakhand Building Byelaws, 2016.

11.6.1 Residential Use Areas

As per the Master Plan of Lohaghat Planning Area, 2041, nearly 20 per cent of the area is designated for residential use. This residential use comprises a newly planned residential area and an existing residential area. The use areas within the proposed residential areas will primarily comprise plotted housing, with small-scale group housing. The subdivision of use premises at the sector level will include:

Recreational Greens and Open Spaces: The minimum area required for playgrounds, parks, and tot lots under the green and open space category must comply with the provisions of the Uttarakhand Building Byelaws, 2016.

Circulation: A vehicular road must have a minimum right-of-way of 4.5m. However, if the road is adjacent to a park or other open area with a building on only one side, it may have a minimum width of 4.5 meters. Apart from these norms, road widths are given below **Table 11.1**.

Table 11.1: Minimum Right of Way Required as per for Residential Use Areas

Sr. No.	Residential	Minimum Right of Way (M)
1	Single Residential plot	2
2	Multiple units on a single residential plot	6
3	Residential-Plotted Development	6
4	Residential-Group Housing	6
5	Affordable Housing	6
6	EWS & Rehabilitation housing schemes	6

Source: Uttarakhand Building Byelaws (2016).

Considering the growth pattern, market trends, and the development that will be induced by the proposed infrastructure, the 2m ROW is not viable and shall be increased to a minimum of 3m.

11.6.2 Commercial Use Areas

With the current development pattern, where almost all major roads are mixed-use, and there is anticipated demand for residential and institutional spaces, various commercial stretches are being developed and positioned in strategic locations. Commercial and financial activity will be concentrated primarily along the major roads with access to IPT and PT services. Both automobiles and public transportation can reach such major commercial spines. The commercial activities are concentrated along the main road, i.e., Meena Bazar Road, NH-9, which has developed into a mix of land uses, with small-scale retail and service-based shops around the residential area and in the city centre. Most of the shops are single-unit, and the commercial area lacks complexes. Other newly developed commercial areas are along the existing and proposed major stretches.

As of 2023, the Lohaghat town's major character was mixed-use development. Considering the existing pattern and demand for commercial and institutional spaces, the mixed-use development along major roads is proposed. The mixed-use character not only helps in achieving the desired form but also provides an extra edge in creating a liveable neighbourhood. Commercial (shopping centre, small businesses), hospitality (hotels, restaurants), and administrative (banks, etc.) uses are permitted in the mixed-use development. The remaining 30 per cent will be used for residential (apartments), public (civic centre, theatres, and museums), and medical purposes (hospital, health centre, clinics).

11.6.3 Industrial Use Areas

Lohaghat, being in a hilly area, is sensitive to the environment and does not have a major industrial base as of the 2023 survey. Given the potential of available natural resources and local products, there is a need to promote non-polluting industries to strengthen the economic base and create job opportunities.

11.6.4 Public and Semi-public Use Areas

The public and semi-public areas contribute to the vibrancy of the Lohaghat Planning Area. Zoning for major institutional uses and public semi-public areas has been proposed in different parts of the planning area. The various heads under which these facilities are provided are education, healthcare, socio-cultural, distribution services, safety management, and police and administrative facilities. Greens, Parks, Open Spaces, Recreational Greens

Lohaghat, situated in a hilly region, possesses an eco-sensitive environment. The classification of organised green spaces, including parks, playfields, and other open areas such as designated parks, amusement parks, maidans, multipurpose open spaces, botanical gardens, zoological parks, and traffic parks, is presented in **Table 11.2**.

Table 11.2: Hierarchy of Organised Green in Hilly Areas

Sr. No.	Category	URDPFI 2014 (Population served per unit)	Area Requirement (Ha)
1	Housing Area Park	5000	0.50 – 1.0
2	Neighborhood Park	10000	1.20 – 2.0
3	City Park/Play Ground/maidan/exhibition grounds/cultural gathering grounds	1 or more depending on site	-
4	Botanical Garden	1 for every town	10.0 -20.0
5	Recreational complex including zoo	1 for settlement with tourist potential	10.0 – 12.0

Source: URDPFI Guidelines (2014).

11.7 Mandatory Provisions

11.7.1 Rooftop Solar Power Panels

Solar power plants on the building rooftops that cover 50 percent of the clear rooftop area are required for all structures (commercial, institutional, and industrial buildings) with more than 10,000 sq m of built-up area. Guidelines on Off-Grid and Decentralized Solar Applications and Rooftop and Other Small Solar Power Plants set by the Ministry of Renewable Energy, Government of India, must be adhered to while installing solar power plants on building rooftops. Plans that are submitted for the competent authority's approval by the applicant must explicitly disclose information on rooftop solar power plants, based on which the competent authority will incentives. When granting the building completion certification, the competent authority shall make the completion and operation of the rooftop solar power plant a requirement.

11.7.2 Rainwater Harvesting

Rooftop rainwater harvesting systems are required to be developed and installed in every building, regardless of use type or size. In general, the amount of rooftop water that can be collected should be considered while designing a rainwater harvesting system. The Central Ground Water Board has provided the following calculation to calculate how much water should be collected from rooftops:

Total quantity of water to be collected (cu m) = Roof Top Area (sq m) x Average Monsoon Rainfall (m) x 0.8.

11.8 Parking Provision

Parking may be provided in open, under stilt, or underground in basements or separate block plots for multi-level parking through mechanized methods or conventional ramps. Surface parking shall be allowed in setback after leaving clear space of tree plantation and Fire Tender movement.

11.9 Permissibility of Various Activities in Major Land Use Zones

The permissibility of various activities or uses has been classified into land use zone such as Residential, Commercial, Mixed Use, Industrial, Recreational, Public- Semi Public, Transportation where the permissible support activities in use premise or on plot as

shown **Table 11.3**. The supporting facilities shall be allowed maximum on 25% of aggregate proposed land use in each patch.

Table 11.3. Permissible Support Activities in Use Premise or on a Plot

1	Residential
1.1	Single House/Plot/Flat Permissible uses- Residence Support Facilities- Professional practice by the residents, only in 20 sq. mt. area, for more than 20 sq. mt. area plot shall be located on ROW more than 6m and 1 ECS @100 SQMT shall be provided for office space
1.2	Group Housing Permissible uses- As per Building Regulations Support Facilities- As per Building Regulations
1.3	Staff Housing Permissible uses- As per Building Regulations Support Facilities- As per Building Regulations
1.4	Guard/Chaukidar residence Permissible uses- Residence for Guard/ Chowkidar
2	Commercial
2.1	Retail Shop/Plat Form Permissible uses- Retail Shop, Hawkers' Platform
2.2	Repair shop Permissible uses- Repair shop, spare parts shop
2.3	Personal service Shop Permissible uses- Personal service shop
2.4	Vending booth Permissible uses- Vending booth/kiosk
2.5	Showroom Permissible uses- Showroom
2.6	Weekly Market Permissible uses- Weekly market, informal retail trade, kiosks, (all structures will be temporary and mobile, only for one day in a week, public conveniences temporary or permanent as per decision of the Authority)
2.7	Convenience shopping centre Permissible uses- Retail, Repair and Personal Service shop, Showroom, Restaurant, Canteen, Food Court, Clinic and Polyclinic, Clinical Laboratory, Kiosk/ Vending booth, Bakery, Confectionary, <i>Atta Chakki</i> , Office, Bank, Coaching Centres/ Training Institutes, Informal Commercial units / platform, Multilevel Parking. Support Facilities- Guest House, Service Apartment, Health centre/ Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, religious centre, <i>Barat Ghar</i> , Exhibition Hall
2.8	Local/Sector level Shopping Centre Permissible uses- Retail, Repair and Personal Service shops, Showroom, Restaurant, Canteen, Food Court, Clinic and Polyclinic, Clinical Laboratory, Kiosks, Vending booth, Bakery, Confectionary, <i>Atta Chakki</i> , Office, Bank, Coaching Centres/ Training Institutes, Informal commercial units / platform, Cinema/Multiplex, Multilevel Parking,

	Support Facilities- Guest House, Service Apartment, Banquet Hall, Exhibition Hall, Health Centre/Dispensary, Nursing home, Health club/Gym, Yoga Meditation centre Dance/Music/Art centre, religious centre, Convention/Conference centre, Auditorium, Barat Ghar
2.9	Shopping Centre/Commercial Centre/shopping mall Permissible uses- Retail shop, Showroom, Personal Service shop, Bakery, Confectionary, Food Court/ Canteen/ Restaurant, Office, Cinema/Multiplex, Drive in Cinema, Bank, Hotel, Guest House, Service Apartment, Banquet Hall Barat Ghar, Convention/ Conference centre, Auditorium, Art Gallery, Health Club/ Gym/ Spa, Guest House/ Lodging/ Boarding House, Vending Booth/ kiosk, Milk Booth, Clinic and Polyclinic, Clinical Lab, Internet/ Information Centre, Petrol / Diesel/ Gas filling Station, Coaching Centres/ Training Institutes, Fruit and Vegetable market, Informal Commercial unit/Platform, Multilevel Parking, Taxi/ Autorickshaw/Rickshaw Stand, Bus Shelter, Transport /Cargo Booking Centre, Residential (as per Building Regulations) Support Facilities-Repair Shop, Motor garage and Workshop, Automobile showroom/ Showroom cum service centre, Warehousing, Exhibition Hall /Exhibition Centre, Recreational Club/Swimming pool, Socio Cultural centre, Dance/ Music/ Art Centre, Yoga/ Meditation Centre, Museum, Indoor Stadium/ Games Hall, Amusement/ Specialized /Theme Park, Open Air Theatre, Library, R&D Centre, Religious Centre, Community Centre, Social Welfare Centre, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home
2.10	Informal commercial unit / Platform Permissible uses- Informal commercial unit / Platform
2.11	Wholesale Market/Mandi Permissible uses-Wholesale shop, Repair Shop, Bank, Automobile showroom/ Showroom cum service centre, Restaurant/Canteen/Food court, Coal/Wood/Building Material Market, Vegetable/ Fruit Market, Cold Storage, Warehouse/ Godown for Non-Hazardous items, Loading/unloading facility, Vending Booth/kiosk, Multilevel Parking, Taxi/Auto Rickshaw/Rickshaw stand, Office. Weighbridge/ <i>Dharamkanta</i> , Petrol / Diesel/ Gas filling Station, Cinema/Multiplex, Informal Commercial unit/Platform Supporting Facilities-Guest House/Lodging/Boarding House, Hotel, Showroom, Retail Shop, Personal Service Shop, Truck Parking and other logistics, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home, Service apartment
2.12	Bakery/Confectionary/Atta Chakki Permissible uses- Bakery/Confectionary/Atta Chakki
2.13	Coal/Wood/Building Material Market Permissible uses- Wholesale shop, Repair Shop, Showroom, Bank, Automobile showroom/ Showroom cum service center, Restaurant/Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Loading/unloading facility,

	Truck Parking and other logistics, Vending Booth/ Kiosk, Multilevel Parking, Taxi/Auto Rickshaw/Rickshaw stand, Office, Weighbridge/Dharamkanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/Platform Supporting Facilities-Guest House/Lodging/Boarding House, Retail Shop, Personal Service Shop, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home, Service apartment
2.14	Vegetable/Fruit Market Permissible uses- Wholesale shop, Retail Shop, Repair Shop, Personal Service Shop, Bank, Restaurant/Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Cold Storage, Gas Godown, Loading/unloading facility, Truck Parking and other logistics, Vending Booth/ Kiosk, Multilevel Parking, Taxi/ Auto Rickshaw/ Rickshaw stand, Weighbridge/ Dharamkanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/Platform Support Facilities- Guest House/Lodging/Boarding House, Showroom, Office, Health centre/Family Welfare Centre/ Dispensary, Nursing Home
2.15	Cold Storage Permissible uses- Cold storage, Loading/unloading facility, Truck Parking, and other logistics. Supporting Facilities- Office, Canteen, Vending Booth/Kiosk
2.16	Hotels Permissible uses- Lodging facility, Restaurant /Canteen/ Food court, Dining hall, Cafeteria, Tourist Information centre, Convention centre/Conference centre/ Auditorium, Seminar Hall, Exhibition Hall, Banquet Hall Laundry. Recreational Club/Swimming pool, Internet/Information Center, Health Club/Gym/Spa, Discotheque, Yoga/ Meditation Center. Multilevel Parking, Office. Supporting Facilities- Bank, Creche, Automobile showroom/ Showroom cum service center Retail Shop, Personal service shops, Showroom, Service Apartment, Health centre/Dispensary
2.17	Service Apartments Permissible uses- Guest Suite, Conference Facilities, Office, Supporting Facilities- Bank, Creche, Health Centre/Dispensary, Retail Shop, Personal Service Shop, Restaurant/Canteen/Food Court
2.18	Restaurant/Canteen/Food Court Permissible uses- Restaurant, Canteen, Food court, Banquet Hall, Vending Booth. Supporting Facilities- Office, Bank extension counter
2.19	Drive-in cinema Permissible uses- Open air theatre, Drive in cinema, Open Air Restaurant, Supporting Facilities- Office related to cinema activity

2.20	Exhibition Hall/Exhibition centre Permissible uses- Exhibition Hall, Exhibition centre and art gallery, Library, Store/Godown facility, Auditorium, Multilevel Parking Supporting Facilities- Office, Showroom, Dance/ Music/ Art centre, Yoga/ Meditation centre, Museum, Restaurant/Canteen/Food court, Vending Booth/Kiosk
2.21	Banquet hall/Barat Ghar Permissible uses- Banquet Hall, Barat Ghar, Guest suite/room, Restaurant, Food court, Vending Booth/kiosk, Multilevel Parking Supporting Facilities- Retail shop, Personal service shop, Bank, Auto-rickshaw stand, Office
2.22	Petrol/ Diesel/ Gas Filling Station Permissible uses- Petrol/Diesel Pump/Fuel Station, Gas filling station, Automobile Repair Shop, Automobile Service station, Supporting Facilities- Office, Retail shop/Departmental Store, Showroom
2.23	Gas Godown Permissible uses- Gas Godown, Truck Parking, Supporting Facilities- Booking Office
2.24	Warehouse/Godown for Non-Hazardous Items Permissible uses- Store/Godown. Loading unloading facility, Truck Parking, Support Facilities- Booking Office
2.25	Automobiles Showroom/ Showroom cum service centre Permissible uses- Automobile showroom, Licensed service center, Parking. Retail shop (Spare Parts), Truck Parking. Supporting Facilities- Office, Retail shop, Kiosk/ending Booth
2.26	Freight Complex/Logistic Park Permissible uses- Booking Office, Warehouse, Store/ Godown, Cold Storage, Space for Container Stocking, Truck Parking, Loading /Unloading facilities, Repair shop, Weighbridge, Vending Booth/Kiosk, Truck Parking. Supporting Facilities- Office, Petrol/Diesel/Gas filling station, Bank, Service Station, Restaurant/Canteen/ Food court
2.27	Steel/Cement/Building Material Yard Permissible uses- Storage Yard, Loading Unloading Facility, Truck Parking, Weigh Bridge. Supporting Facilities- Office, Storage God owns
2.28	Weigh Bridge/Dharamkanta Permissible uses- Weighbridge/ Dharamkanta, Vending booth/Kiosk Supporting Facilities- Office

2.29	Cinema/Multiplex Permissible uses- Cinema/ Multiplex, Retail Shop, Personal Service Shop, Showroom, Office, Restaurant, Food Court, Vending booth/ kiosk, Multilevel Parking Supporting Facilities- Bank, Gym/ Health club/ Spa, Taxi/Auto/Auto rickshaw stand
2.30	Govt./Semi Govt. /Public Undertaking/Local Body Office Permissible uses- Govt./Semi Govt./Public Undertaking/Local Body Office, Multilevel parking, Conference facilities, Seminar Hall, Supporting Facilities- Auditorium, International conference centre, Cultural and information centre, Stationary shop, Book store, Chemist store, Vending booth/Kiosk, Health Club / Gym, Bank extension counter, General store, Crèche, Indoor games halls, Dispensary, Internet centre, Library, Museum, Planetarium, R&D centres, Radio and television station, Canteen, Staff Housing, Guest house, Hostel, Transit Hostel
2.31	Office/Corporate office Permissible uses- Office/Corporate office, Conference room, Seminal Hall, Multilevel Parking Supporting Facilities- Auditorium, International conference centre, Cultural and information centre, Stationary shop, Book store, Chemist store, Vending booth/Kiosk, Health Club / Gym, Bank extension counter, General store. Crèche, Indoor games halls, Dispensary, Internet centre, Library, Museum, Planetarium, R&D centres, Radio and television station, Canteen, Staff Housing, Guest house, Hostel, Transit Hostel
2.32	Professional/Personal/Agent Office Permissible uses- Professional/Personal/Agent Office, Conference room. Supporting Facilities- Canteen, Bank extension counter
2.33	Bank Permissible uses- Bank, Canteen
2.34	Project Development/Management/Maintenance office Permissible uses- Project Development/Management/Maintenance office, Supporting Facilities- Bank extension counter, Canteen
2.35	Satellite/Wireless/Telecommunication centre Permissible uses- Satellite/Wireless/Telecommunication Centre, residential flat (for maintenance staff), Supporting Facilities- Research laboratory, Canteen
3	Industrial
3.1	Service/Cottage Industry Permissible uses- Service/Cottage Industry (Non-Hazardous, Non-polluting) as per stipulation of Industries department, residential unit, Supporting Facilities- Creche/ Daycare centre, Retail shop for the product manufactured, Storage
3.2	Flatted Factories

	Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of Industries department, Canteen, Loading Unloading Facility, Truck parking, Multilevel Parking Supporting Facilities- Office, Bank, Gym, Storage, Taxi/Auto/Auto rickshaw stand, vending booth/kiosk, internet centre, Creche and Day care centre
3.3	a. Commercial Shops, Areas for storage, display and sale of merchandise, Cinema halls, Restaurants, open eating kiosks b. Residential uses, Hostel, Guest house, Staff quarters
3.4	Small/Light Industry Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Multilevel Parking Supporting Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit. Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand
3.5	Industrial plot (specific industry type) Industrial units (Non-Hazardous, non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth, kiosk, Storage, Internet centre, Multilevel Parking. Supporting Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand
3.6	Medium scale Industry Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Showroom for display/sale of industrial products Canteen, Creche and daycare centre, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Internet centre, Multilevel Parking Supporting Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand
3.7	Film Centre/TV, Radio Programme Production Centre Permissible uses- Film Centre/TV centre, Radio Programme Production Centre, Auditorium, Media centre, Canteen, Library, Vending booth/ Kiosk Supporting Facilities- Office, Bank, counter Gym/ Health club, Creche and daycare centre Taxi/Auto/Auto rickshaw stand
4	Public / Semi-public / Institutional Facilities
4.1	Reformatory and Orphanage Permissible uses- Reformatory and orphanage, Hostel, Supporting Facilities- Health centre/ Dispensary, Residence of Caretaker and maintenance staff. Personal service shop
4.2	School for mentally/Physical challenged Persons Permissible uses- School for mentally, physically challenged, Hostel. Supporting Facilities- Health centre/ Dispensary, Medicine shop, Residence of Caretaker, and maintenance staff. Personal service shop

4.3	Creche & Day Care Centre/Play & Nursery School Permissible uses- Creche and Day Care Centre/ Play and Nursery School, Supporting Facilities- Residence of caretaker and maintenance staff
4.4	Old age home Permissible uses- Rooms/suites, Dining facilities, Canteen, Supporting Facilities- Guest Room, Bank, Retail shop, Personal service shop, Chemist, Health centre/Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, religious centre, Bank extension counter, Vending booth/Kiosk
4.5	Primary School Permissible uses - Primary school, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel. Supporting Facilities- Retail shop for books and stationery, uniform, Bank extension counter, Staff housing, Vending booth/Kiosk
4.6	Secondary School/Integrated Residential School Permissible uses- Senior secondary school, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel Supporting Facilities- Retail shop for Books and Stationery. Uniform, Chemist: Bank extension counter, Vending booth/Kiosk, Staff housing,
4.7	Vocational Institute Permissible uses- Vocational training centre, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel Supporting Facilities- Guest house, Transit hostel, Retail shops for Books and Stationary Chemist, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing
4.8	Degree/PG/professional (MBA/Engineering, etc.) college Permissible uses- Degree/P G/professional (MBA /Engineering, etc.) college, Canteen, Swimming pool, Library, Auditorium, Indoor games Hall, Hostel Supporting Facilities- Guest house, Transit hostel, Retail shop for Books and Stationery, Chemist, Fruits and vegetables, general store; Personal service shop, Repair shop, vending booth/Kiosk; Bank extension counter, Staff housing
4.8(a)	Medical College with Hospital Permissible uses- Hospital, Medical college, Swimming pool, Library Supporting Facilities- Auditorium, Indoor games Hall, Hostel, Guest house, Canteen, Retail shop for Books and Stationery, Chemist, Flowers, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing, Cultural and information centre, international conference centre, internet café, Library, Museum, Planetarium, R&D Centre, Radio and Television station, Gym/ Health club, Guest House, Transit Hostel,
4.9	University Permissible uses- University, Educational Colleges, Canteen, Swimming pool, Indoor games Hall, Convention centre, Exhibition Hall

	Supporting Facilities- Auditorium, Indoor games Hall, Hostel, Guest house, Canteen, Retail shop for Books and Stationery, Chemist, Flowers, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing, Cultural and information centre, International conference centre, internet café, Library, Museum, Planetarium, R&D Centre, Radio and Television station, Gym/ Health club, Guest House, Transit Hostel
4.10	Post Office Permissible uses- Post and Telegraph Office, Canteen
4.11	Telephone Exchange Permissible uses- Telephone exchange/RLU/RSU, Supporting Facilities- Canteen, Bank Extension Counter, Staff Housing
4.12	Police Station Permissible uses- Police Station, Support Facilities- Canteen, Bank Extension Counter, Staff Housing, Fire Station, Service workshop, Hostel/dormitory. Support Supporting Facilities- Canteen, Bank extension counter, Staff Housing
4.13	Police Post Permissible uses- Police post Supporting Facilities- Canteen, Bank extension counter, Staff Housing,
4.14	Library Permissible uses- Library, Internet/information centre, Exhibition Hall and art gallery, Supporting Facilities- Auditorium, Canteen, Staff housing, Bank extension counter
4.15	R & D Centre Permissible uses- Research and Development centre, internet/Information centre, Hostel, Library Supporting Facilities- Auditorium, Canteen, Staff housing, Guest House, Transit hostel, Bank Extension counter, Health/Gym
4.16	Health Centre/Family Welfare Centre/Dispensary Permissible uses- Health centre, Dispensary, Family welfare centre, Supporting Facilities- Canteen, Chemist shop, Vending Booth/kiosk, Office,
4.17	Trauma Centre Permissible uses- Trauma centre, hostel, Supporting Facilities- Canteen, Vending Booth/ Kiosk, Bank extension counter, Chemist shop, Books/Stationery Shop, General Departmental store, Personal service Shop, Office, Staff Housing, Patient attendant accommodation, Gym,
4.18	Hospital Permissible uses- Hospital Supporting Facilities- Auditorium, Bank extension counter, Cultural and Information centre, Chemist shop, Canteen, Books/Stationery /Flower Shop, Indoor Games Hall, International conference centre, Internet centre, Library, Museum, Planetarium, R&D centre, Radio and Television centre, General Departmental store, Personal service Shop, Office, Staff Housing, Patient

	attendant accommodation, Health club/Gym, Guest House, Hostel, Transit Hostel, Vending booth/kiosk
4.19	Clinic Permissible uses- Clinic Supporting Facilities- Chemist shop
4.20	Nursing home Permissible uses- Nursing Home, Clinical lab. Supporting Facilities- Chemist shop, Vending booth/kiosk
4.21	Clinical Lab Permissible uses- Clinic laboratory, Supporting Facilities- Clinic, Chemist shop, Vending Booth/kiosk
4.22	Veterinary Hospital/Dispensary Permissible uses- Veterinary Hospital/Dispensary, Diagnostic centre, Supporting Facilities- Canteen, Chemist shop, Staff Housing
4.23	Health club/Gym/Spa Permissible uses- Health club/Gym, Vending booth/Kiosk
4.24	Dance/Music/Art centre Permissible uses- Dance/Music/Art centre, Supporting Facilities- Auditorium, Guest House, Canteen, Vending booth/kiosk, hostel
4.25	Yoga/Meditation centre Permissible uses- Yoga/Meditation centre, Library, Conference Facilities, Hostel Supporting Facilities- Guest House, Auditorium, Canteen, Vending booth/Kiosk
4.26	Milk Booth Permissible uses- Milk Booth
4.27	Religious Building/Centre Permissible uses- Religious Building/Centre, Yoga and Meditation Hall, Library, Ashram, Bathing Ghat, Gaushala, Dargah, Supporting Facilities- Residence for essential staff/ priest, Retail shop for flowers/ offerings, Charitable Dispensary, Dining Hall with kitchen,
4.28	Convention centre/ Conference Centre/Auditorium Permissible uses- Convention centre/Conference Centre/Auditorium, Exhibition Hall, Art Gallery, Internet/ information centre, Multilevel parking Supporting Facilities- Restaurant, Hostel, Canteen, Library, Guest room, Bank extension counter, Caretaker and Maintenance Staff Housing
4.29	Planetarium Permissible uses - Planetarium, Office, Canteen
4.30	Socio-cultural Centre Permissible uses- Socio-cultural Centre, Exhibition Center, Art Gallery, Dance/ Drama/Music Training center, Swimming Pool, Multilevel parking, Supporting Facilities- Auditorium, Library, Museum, Canteen, Vending Booth/kiosk, Bank extension counter
4.31	PCO Permissible uses- PCO

4.32	Internet/Information Centre Permissible uses- Internet/Information Centre, Supporting Facilities- Bank Extension counter, Canteen, Library
4.33	Social Welfare Centre Permissible uses- Social Welfare center. Supporting Facilities- Canteen, Library, Vending Booth/kiosk, Bank extension counter
4.34	Cremation/Burial ground/Crematorium Permissible uses- Cremation/Burial ground/Crematorium. Supporting Facilities- Retail shop of wood, flowers and related material, Maintenance staff residence.
5	Public Utilities
5.1	Faecal Sludge treatment plant
5.2	Sanitary landfill site/Solid waste treatment plant Permissible uses- Sanitary landfill site/Solid waste treatment plant. Supporting Facilities- Office, Maintenance staff residence
5.3	Tube well/Overhead tanks/Underground tanks/Rainy well Permissible uses- Tube well/Overhead tanks/Underground tanks/Rainy well Supporting Facilities- Office, Maintenance staff residence
5.4	Electric sub-station Permissible uses- Electric sub-station. Supporting Facilities- Office, Maintenance staff residence
5.5	Public Toilet Permissible uses- Public toilet
5.6	Transmission tower/Mobile tower as per existing Policy. Permissible uses- Transmission tower/Mobile tower as per existing Policy
6	Transportation
6.1	Open parking Permissible uses- Open Parking, Vending booth/Kiosk
6.2	Multi-level parking Permissible uses- multi-level parking. Supporting Facilities- Office, Maintenance staff residence
6.3	Taxi/Auto/Rickshaw Stand Permissible uses- Taxi/Auto/Rickshaw Stand. Supporting Facilities- Vending Booth/kiosk.
6.4	Truck Terminal/Transport Nagar Permissible uses- Truck parking, Service Garage, Spare parts shops, Repair shop, Transport Agencies offices and other related offices, Showroom, Weighbridge/Dharamkanta, Storage Godowns, Multi-level parking. Supporting Facilities- Retail shop, showroom, Office, Restaurant, Hotel, Bank, Vending booth/kiosk.
6.5	Bus Stand/Shelter Permissible uses- Bus stand/ Shelter
6.6	Bus Depot Support Facilities- Office, Canteen

6.7	Motor Garage/Service Garage/Workshop Permissible uses- Motor Garage/Service Garage/Workshop, Service Station. Supporting Facilities- Automobile showroom, Spare parts shop, office, Vending Booth/kiosk
6.8	Traffic Park/Children Traffic Park/Training Centre Permissible uses- Traffic Park/Children Traffic Park/Training Centre. Supporting Facilities- Restaurant, Vending Booth/kiosk
6.9	Loading/Unloading Facilities/Space Permissible uses- Loading/Unloading Facilities/Space, Weighbridge Supporting Facilities- Vending booth/kiosk
6.10	Transport/Cargo booking centre Permissible uses- Transport/Cargo booking office, Warehousing/Godowns, Truck Parking. Supporting Facilities- Office, Vending booth/kiosk, Canteen
6.11	Toll Plaza Permissible uses- Toll Plaza, Maintenance office Supporting Facilities- Office
6.12	Helipad Permissible uses- Helipad, Office, Waiting Area
6.13	Roads
7	Recreational – Parks and Open Spaces
7.1	Park/ Play Ground Permissible uses- Park, play Ground. Supporting Facilities- Vending Booth/ Kiosk
7.2	Multipurpose open space Permissible uses- Multipurpose open space Supporting Facilities- Vending Booth/ Kiosk
7.3	Golf course/ Race course Permissible uses- Golf Course, Race course, Swimming Pool, Indoor/ Outdoor games facilities, Multilevel Parking Supporting Facilities- Pro shop/ Sports goods shop, Bar/ Restaurants, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Golfers' temporary accommodation
7.4	Stadium/ Sports Training Centre/ Sports Complex Permissible uses- Stadium/ Sports Training Centre/ Sports Complex, Indoor/ Outdoor games facilities, Hostel, Swimming pool, Multilevel parking Supporting Facilities- Staff housing, Grocery shop, Sports goods shop, Personal service shop, Canteen, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Players' temporary accommodation
7.5	Picnic Spot Permissible uses- Picnic huts, camping site, Park, play Ground, landscaped garden Supporting Facilities- Restaurant/Food court/ Canteen, Vending booth/ Kiosk, Caretaker Residence

7.6	Indoor Stadium/ Games Hall Permissible uses- Multipurpose Indoor Stadium, Indoor Games Hall, Indoor Games facilities, Swimming pool, Outdoor sports facilities, Park, Play Ground Supporting Facilities- Hostel, Canteen. Office related to sports facilities, Vending booth/ Kiosk Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Players temporary accommodation
7.7	Amusement / Specialized/ Theme Park Permissible uses- Amusement/ Specialized/ Theme Park, Play Ground Supporting Facilities- Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
7.8	Recreational Club/Swimming pool Permissible uses- Recreational Club, Swimming Pool, Indoor/Outdoor games facilities, Park, play Ground Supporting Facilities- Restaurant/ Food court/ Canteen, Vending booth/ Kiosk, Caretaker residence, Library, Bank extension counter
7.9	Museum cum Auditorium/Conference Hall/ Art Exhibition Gallery Permissible uses- Museum cum Auditorium/Conference Hall/ Art Exhibition Gallery, Open air theatre, Multilevel Parking Supporting Facilities- Canteen, office, Vending booth/ Kiosk, Caretaker residence, Library. Bank extension counter
7.10	Open Air Theatre Permissible uses- Open Air Theatre, Supporting Facilities- Canteen, Office, Vending booth/ Kiosk, Caretaker residence
7.11	National Memorial Permissible uses - National Memorial, Supporting Facilities - Canteen, Office, Card/gift shop, Vending booth/ Kiosk, Caretaker residence

Table 11.4: Land Use Permissibility Matrix

	Permitted	Resd: Existing Residential and Proposed Residential		Mix Use: Mixed Use (Residential and Commercial)		PSP: Public Semi-public Facilities and Utilities		Trans: Traffic and Transportation		Forest: Existing Tree Clad Area and Proposed Forest		Green Buffer: Buffer along road and streams	
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing		Ind: Industry		Rec: Recreational, Parks, Playground and Open Spaces		Spl Ar: Special Area (Cantonment and Defence Area)		W.B: Water Bodies		Agri: Agriculture	
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
1	Residential												
1.1	Single House/Plot/Flat												
1.2	Group Housing												
1.3	Staff Housing				4								
1.4	Guard/chaukidar residence												
2	Commercial												
2.1	Retail Shop/ Plat Form	1			1	1		1					
2.2	Repair shop	1			1								
2.3	Personal service Shop	1											
2.4	Vending booth	1			1	3							
2.5	Showroom	1			2			1					
2.6	Weekly Market	3	3		3			3					
2.7	Convenience shopping centre	1			1	1		1					

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
2.8	Local/ Sector level Shopping Centre	1			1	1							
2.9	Shopping Centre/ Commercial Centre/ shopping mall	1			1								
2.10	Informal commercial unit/ Platform	1			1								
2.12	Wholesale Market/ Mandi												
2.14	Bakery/ Confectionary/ Atta Chakki	1											
2.16	Coal/ Wood/ Building Material Market												
2.18	Vegetable/ Fruit Market	1											
2.20	Cold Storage												
2.22	Hotel	1			1	1							
2.24	Service Apartment					1							

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
2.26	Restaurant/ Canteen/ Food Court	1											
2.28	Drive-in cinema												
2.30	Exhibition Hall/Exhibition centre	1											
2.32	Banquet hall/Barat ghar	1			1	1							
2.34	Petrol/Diesel/Gas Filling Station	1				1							
2.36	Gas Godown												
2.38	Warehouse/Godown for Non-Hazardous Items												
2.40	Automobiles Showrooms/Showroom cum service centre												
2.42	Freight Complex/Logistic Park							4					

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
2.44	Steel/Cement/Building Material Yard												
2.46	Weigh Bridge/DharmKanta												
2.48	Cinema/Multiplex	1			1	1						1	
2.50	Govt./Semi Government /Public Undertaking/Local Body Office	5			5								
2.52	Office/Corporate office	5			5								
2.54	Professional/Personal/Agent Office												
2.56	Banks	5											
2.58	Project Development/Management/Maintenance office	5			5								

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
2.60	Satellite/Wireless/Telecommunication centre	5											
3	Industrial												
3.1	Service/Cottage Industry												
3.2	Flatted Factories												
3.3	Information/Software Technology Industry												
3.4	Small/Light Industry												
3.5	Industrial plot (specific industry type)												
3.6	Medium scale Industry												
3.7	Film Centre/TV, Radio Programme Production Centre												
4	Public / Semi-public / Institutional Facilities												
4.1	Reformatory and Orphanage	4											

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
4.2	School for mentally/Physical challenged Persons	4											
4.3	Crèche & Day Care Centre/Play & Nursery School												
4.4	Old age home												
4.5	Primary school	4			4	4							
4.6	Secondary School/Integrated Residential School	4			4								
4.7	Vocational Institute	4											
4.8	Degree/P G/professional (medical/Engg etc) college	4											
4.9	University												
4.10	Post Office												

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
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	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
4.11	Telephone Exchange	4			4								
4.12	Police Station/Fire station	4			4								
4.13	Police Post												
4.14	Library												
4.15	R & D Centre	4											
4.16	Health Centre/Family Welfare Centre/Dispensary	4			4								
4.17	Trauma Centre	4											
4.18	Hospital/Medical college	4											
4.19	Clinic												
4.20	Nursing home	4			4								
4.21	Clinical Lab	1			1								
4.22	Veterinary Hospital/Dispensary												
4.23	Health club/Gym	4											
4.24	Dance/Music/Art centre	4			1								

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
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	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
4.25	Yoga/Meditation centre												
4.26	Milk Booth												
4.27	Religious Building/Centre	4			4								
4.28	Convention centre/Conference Centre/Auditorium	4			4								
4.29	Planetarium				4								
4.30	Socio-cultural Centre	4											
4.31	PCO												
4.32	Internet/Information Centre	1			1								
4.33	Social Welfare Centre	1											
4.34	Cremation/Burial ground/Crematorium												
4.35	Roads												
5	Public Utilities												

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
5.1	Fecal Sludge treatment plant/Pumping station	4										4	
5.2	Sanitary landfill site/Solid waste treatment plant												
5.3	Tube well/Overhead tanks/Underground tanks/Rainy well												
5.4	Electric sub-station	4		4									
5.5	Public toilet												
5.6	Transmission tower/Mobile tower as per existing Policy												
6	Transportation												
6.1	Open parking												
6.2	Covered/multi-level parking												

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
6.3	Taxi/Auto/Rickshaw Stand	1		1									
6.4	Truck Terminal/Transport Nagar				4								
6.5	Bus Stand/Shelter												
6.6	Bus Depot/Terminal				4								
6.7	Motor Garage/Service Garage/Workshop				4								
6.8	Traffic Park/Children Traffic Park/Training Centre	4		4	4								
6.9	Loading/Unloading Facilities/Space												
6.10	Transport/Cargo booking centre	1		1									
6.11	Toll Plaza												

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
6.12	Helipad												
6.13	Roads												
7	Recreational												
7.1	Park/Playground												
7.2	Multipurpose open spaces												
7.3	Golf course/Racecourse												
7.4	Stadium/Sports training centre/Sports complex	4		4	4								
7.5	Picnic Spot												
7.6	Indoor stadium/Games Hall	4		4									
7.7	Amusement/Specialised/Theme Park	4		4									
7.8	Recreational Club/Swimming pool	4		4	4								

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
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S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
7.9	Museum-cum-Auditorium/Conference Hall/ Art/Exhibition gallery	4		4	4								
7.10	Open air theatre	4		4	4								
7.11	National Memorial												
8	Agriculture												
8.1	Orchard/ Plant nursery/ Social Forestry												
8.2	Farmhouse												
8.3	Dairy farm/ poultry farm												
8.4	Agricultural equipment workshop/ service centre												
	Note:												
	1. This Zoning regulation shall be applicable for planning of Land uses at the Master Plan/ Sector Plan Level.												
	2. The Authority may decide the activities to be permitted in Special Projects.												
	3. Activities already permitted in the various schemes shall continue as per the terms & conditions specified in the scheme.												

	Permitted	Resd: Existing Residential and Proposed Residential	Mix Use: Mixed Use (Residential and Commercial)	PSP: Public Semi-public Facilities and Utilities	Trans: Traffic and Transportation	Forest: Existing Tree Clad Area and Proposed Forest	Green Buffer: Buffer along road and streams						
1-5	Permitted with Condition												
	Permitted by Board	Comm: Commercial, Retail and Wholesale/ Warehousing	Ind: Industry	Rec: Recreational, Parks, Playground and Open Spaces	Spl Ar: Special Area (Cantonment and Defence Area)	W.B: Water Bodies	Agri: Agriculture						
	Not Permitted												
S.No	Activities / Use Premises	Land Use											
		Resd.	Comm.	Mix. Use	Ind.	PSP	Rec.	Trans	Spl Ar.	Forest	W.B.	Green Buffer	Agri
		1	2	3	4	5	6	7	8	9	10	11	12
	4. Commercial Activities in other land uses shall be permitted based on impact fee or additional reserve price as decided from time to time by the Authority.												
	Conditions:												
	1. In Planned Designated Commercial Plot/ Area												
	2. Only for the products of Industry/factory.												
	3. Only on 8m or more wide roads/Plots earmarked by Authority.												
	4. Planned / Designated Plots.												
	5. Planned commercial or facility or institutional Plots.												

CHAPTER 12: IMPLEMENTATION STRATEGIES

12.1 Land Management Implementation Techniques

Land management refers to the systematic and practical use of land resources, employing appropriate technologies tailored to specific land use systems. Urban land, a critical yet finite resource, is essential for every aspect of development. However, its localized nature and limited availability pose significant challenges. Effective land management is, therefore, vital for fostering the sustainable growth of towns and cities. One of the foremost challenges faced by planners, engineers, and policymakers is ensuring Sustainable Land Management (SLM) across both urban and rural landscapes. This encompasses the judicious exploration and utilisation of a nation's natural and environmental resources while addressing essential needs such as food security, social services, education, healthcare, infrastructure development, transportation networks, industrial growth, communication, and environmental conservation. The goal is to balance economic growth and orderly development without compromising the environmental integrity needed for future generations.

In Uttarakhand, land management plays a pivotal role in securing legal land rights while safeguarding its social, economic, and environmental functions. Recognising land as a finite and irreplaceable resource underscores the need for its optimal utilization, particularly in rapidly growing urban centres. The complexities of land-related issues demand innovative and effective land-use planning strategies to meet both current and future needs.

12.2 Master Plan Approach

Effective implementation of a Master Plan requires structured mechanisms to assemble and develop land. These methods ensure the efficient allocation of land for infrastructure, housing, and public amenities while addressing socio-economic and environmental priorities. Below are the key mechanisms that could be employed:

1. Land Acquisition using RFCTLARR Act 2013
2. Land Pooling and Redistribution
3. Land Reservation
4. Transfer of Development Rights (TDR)
5. Guided Land development

12.2.1 Land Acquisition

The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement (RFCTLARR) Act, 2013, establishes a transparent and equitable framework for land acquisition for public purposes. It ensures fair compensation to landowners and provides robust rehabilitation and resettlement (R&R) measures for those affected by such acquisitions. The Act incorporates four schedules that outline:

- i. Minimum norms for compensation, determined by market value, applicable multipliers, and solatium.
- ii. Entitlements for resettlement and rehabilitation, benefitting both landowners and those whose livelihoods are impacted.

- iii. Essential facilities and services to be provided at resettlement sites for displaced persons.
- iv. Furthermore, the Act grants flexibility to states and implementing agencies to adopt higher standards for compensation and R&R measures, fostering regional adaptability. It is specifically applicable in cases where land acquisition is involuntary, i.e., when direct purchase agreements with landowners cannot be reached.

Some of the models of land acquisition that could be used or inspired from are as follows:

A. The Uttarakhand Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social Impact Assessment and Consent) Rules, 2015 (UK RFCTLARRR, 2015)

The UKRFCTLARRR provides a structured framework for implementing the provisions of the RFCTLARR Act, 2013, in Uttarakhand. These rules ensure fair, transparent, and equitable land acquisition processes for public purposes while safeguarding the rights and livelihoods of affected communities. Key Features of the UKRFCTLARRR

1. Social Impact Assessment (SIA):
 - a. Establishes a systematic process for conducting an SIA to assess the socio-economic implications of land acquisition on affected individuals and communities.
 - b. Evaluates the project's impact on livelihoods, community resources, infrastructure, and cultural heritage.
2. Resettlement Action Plan (RAP)/R&R Scheme:
 - a. Mandates the preparation of a Resettlement Action Plan (RAP) or an R&R Scheme to provide appropriate rehabilitation measures for displaced individuals and families.
 - b. Ensures that affected persons are adequately compensated and supported in rebuilding their lives.
3. Applicability:
 - a. Specifically applicable to projects requiring involuntary land acquisition, i.e., where direct purchase agreements with landowners cannot be reached.
4. Transparency and Fairness:
 - a. Emphasises transparency in acquisition procedures and ensures public participation in decision-making.
 - b. Provides a legal framework to minimise disputes and grievances related to land acquisition.

B. Ghaziabad Joint Venture Model

The Ghaziabad Joint Venture (JV) Model, implemented by the Ghaziabad Development Authority (GDA), represents an innovative approach to urban development that combines public- and private-sector participation. The model is designed to promote efficient land use, affordable housing, and timely project execution while ensuring compliance with regulatory standards. The key features are as follows:

- a. Efficient Land Use: The JV model optimises land resources by integrating public welfare objectives with private sector efficiency.
- b. Affordable Housing: Ensures provision of housing for EWS/LIG segments in compliance with social equity goals.

- c. **Reduced Public Sector Burden:** The private sector undertakes development costs, reducing financial pressure on the development authority.
- d. **Timely Execution:** Time-bound agreements with penalties for delays enhance project efficiency.
- e. **Profitability for Developers:** Allows developers to earn profits from a portion of the developed land, making the model attractive to private participants.

C. Haryana Guided Land Development Model

The Haryana Guided Land Development Model represents a progressive approach to urban development by encouraging private sector participation while empowering landowners. It is designed to streamline land acquisition and enhance the pace of development, reducing the financial and administrative burden on the government. Key Features are as follows:

- a. **Efficiency:** Avoids delays and disputes commonly associated with compulsory land acquisition.
- b. **Empowerment:** Provides landowners with an active role in development, offering opportunities for greater economic benefits.
- c. **Private Sector Engagement:** Enhances participation from private developers, leveraging their resources and expertise.
- d. **Timely Development:** The fixed timeframe ensures optimal land utilization and faster urbanization.
- e. **Reduced Public Liability:** Shifts the financial responsibility of land acquisition from the government to private entities.

12.2.2 Land Pooling and Redistribution

The Land Pooling Scheme (LPS) in Uttarakhand is an innovative urban planning approach aimed at addressing the growing demand for land in urban areas while ensuring equitable development. This scheme allows the consolidation of land from multiple owners to facilitate organized urban expansion, infrastructure development, and better land utilization, without resorting to traditional land acquisition methods. Key Features of the Uttarakhand Land Pooling Scheme are:

- i. **Voluntary Land Contribution:** Landowners voluntarily contribute a portion of their land to a designated land pool, which is later consolidated and developed for urban growth. Unlike traditional land acquisition, no transfer of ownership occurs in land pooling, and the landowners retain a stake in the final development.
- ii. **Master Plan Development:** A comprehensive master plan is created, detailing the land use, infrastructure layout, roads, and locations for public amenities. This ensures that the area is developed in a planned and efficient manner, promoting sustainable growth.
- iii. **Redistribution of Developed Land:** After the land is pooled and developed with infrastructure, it is redistributed to the original landowners based on the proportion of their initial contribution. This ensures that landowners receive back a part of their land, which is now more valuable due to the infrastructure and urban integration.
- iv. **Landowner Benefits:** The land pooling scheme ensures that landowners benefit from the increase in land value that results from infrastructure development. Unlike

traditional land acquisition, they are not displaced but remain in possession of a portion of their land, which has now become more valuable due to urban development.

Benefits of the Land Pooling Scheme in Uttarakhand

- i. **Efficient Land Use:** The scheme allows for better land utilization, particularly in growing urban areas where land availability is a major challenge. It helps in preventing urban sprawl and encourages organized growth.
- ii. **No Displacement of Landowners:** Unlike compulsory land acquisition, landowners are not displaced. They retain ownership and benefit from the development, ensuring minimal social disruption.
- iii. **Increased Land Value:** The infrastructure improvements and urban integration significantly increase the value of the land, offering substantial financial benefits to landowners.
- iv. **Cost-Effective for Authorities:** The scheme reduces the need for the government to compensate landowners through traditional acquisition methods. Instead, the private sector can play a more active role in development, with costs largely covered by betterment charges and land sales.
- v. **Sustainable Urban Growth:** By planning infrastructure and services from the outset, the scheme encourages sustainable development, ensuring that necessary amenities like roads, drainage, and public spaces are integrated into urban planning.

For land areas between 250 and 5000 square meters (Sq. M.), the owner receives 20% of the surrendered area as developed residential plots and 4% as commercial plots. For areas between 5001 and 10,000 (Sq. M.), the allocation increases to 22% for residential and 6% for commercial plots. For areas exceeding 10,000(Sq. M.), the entitlement rises further to 27% for residential and 7% for commercial plots.

Challenges of TPS Implementation in Uttarakhand

- i. **Administrative Complexity:** Coordinating with multiple landowners, preparing detailed plans, and ensuring equitable redistribution can be challenging and time-consuming.
- ii. **Betterment Charges and Cost Recovery:** Delays in project execution may lead to mismatched betterment charges and infrastructure costs, requiring robust financial management.
- iii. **Legal Disputes:** Ensuring transparent and fair redistribution of plots is critical to avoid conflicts and disputes among landowners.

12.2.3 Land Reservations

Land reservation is a strategic mechanism used to manage urban development while addressing the need for public amenities and infrastructure without imposing significant financial burdens on local authorities. The concept involves allowing landowners to retain development rights while contributing portions of their land for public purposes. This approach enables planned urban growth and efficient utilization of land resources.

The Accommodation Reservation model allows landowners to develop sites reserved for public amenities in the development plan by utilizing the full permissible Floor Space Index (FSI)/Floor Area Ratio (FAR). The model works as follows:

- i. **Development and Handover:** Landowners develop the reserved site and hand over the built-up area designated for public amenities (such as schools, dispensaries, or markets) to the local authority free of encumbrances. In return, they receive the full FAR/FSI compensation.
- ii. **FAR/FSI Exclusion:** The area utilized for public amenities is excluded from the FAR/FSI calculations, incentivizing landowners to participate.
- iii. **Cost Savings for Authorities:** Local authorities avoid the financial burden of land acquisition and compensation.
This model has been particularly effective in Mumbai, where it is integrated into Development Control Regulations.
- iv. **Application to Roads and Infrastructure:** For road widening or new construction, landowners can surrender required land to the authority in exchange for additional FAR/FSI, ensuring seamless infrastructure development.

In Uttarakhand, the potential of accommodation reservation model are:

- i. **Public Amenities and Open Spaces:** The model can be used to secure land for non-economic activities such as open spaces, public utilities, and essential infrastructure.
- ii. **Affordable Housing:** It offers a way to develop spaces for economically weaker sections (EWS) by reserving a portion of the developed land for affordable housing.
- iii. **Cost-Effective Development:** Relieves local authorities from incurring significant expenses in acquiring land for public purposes.
- iv. **Incentives for Landowners:** Encourages voluntary participation by providing additional development rights as compensation.
- v. **Mitigating Displacement:** In cases where existing structures are affected by infrastructure projects, the model can allocate portions of land for rehabilitating displaced persons.

Challenges and Considerations

- i. **Implementation in Hilly Terrain:** Uttarakhand's topography presents unique challenges, requiring careful planning and design for infrastructure placement and development.
- ii. **Regulatory Framework:** Clear guidelines need to be established under Uttarakhand's urban development policies to implement and monitor land reservation schemes.
- iii. **Monitoring and Enforcement:** Robust mechanisms are needed to prevent misuse of additional FAR/FSI and ensure compliance with development plans.

12.2.4 Transfer of Development Rights (TDR)

The Transfer of Development Rights (TDR) is a progressive urban planning tool being explored in Uttarakhand to facilitate sustainable urban development. Drawing inspiration from the successful implementation of TDR in cities like Mumbai, Ahmedabad, it allows the government to acquire land for public purposes without immediate financial compensation,

thereby overcoming the financial constraints associated with land acquisition. Key Features of TDR in Uttarakhand

- i. **Efficient Land Acquisition:**
 - a. Reduces the financial burden on local authorities for acquiring land for public projects.
 - b. Provides a systematic approach to acquire land without displacing landowners or leading to prolonged legal disputes.
- ii. **Flexibility in Land Use:**
 - a. Landowners can use TDR certificates in other designated zones, encouraging balanced urban development.
 - b. Encourages vertical growth in urban areas, optimizing land use in high-demand regions.
- iii. **Market-Driven Mechanism:**
 - a. The DRC creates a tradable asset that landowners can monetize, providing them with a fair market-based return.
 - b. Developers can purchase TDR to expand their projects within permissible zones, creating a dynamic urban land market.

Benefits of TDR in Uttarakhand

- i. **Facilitates Public Projects:** Ensures timely acquisition of land for critical infrastructure such as roads, parks, and utilities without the financial strain of cash compensation.
- ii. **Encourages Vertical Growth:** Promotes higher-density development in urban areas, thereby reducing urban sprawl and conserving peri-urban and rural land.
- iii. **Equitable Compensation:** Offers landowners an alternative form of compensation, ensuring they are not financially disadvantaged when their land is reserved for public use.
- iv. **Market-Driven Urban Development:** Creates opportunities for developers to acquire additional FSI/FAR, balancing urban development with economic growth.

Challenges in Implementation

- i. **Zoning Restrictions:** Proper zoning regulations must be established to avoid over-concentration of FSI/FAR in specific areas, which could strain infrastructure.
- ii. **Valuation Disparities:** Determining the fair market value of TDR and ensuring transparency in transactions is crucial for equitable compensation.
- iii. **Regulatory Framework:** Clear and efficient policies need to be developed to avoid delays and disputes during implementation.

12.2.5 Guided Land development

Guided Land Development (GLD) is an urban planning approach that leverages the availability of infrastructure as a catalyst for organized and sustainable urban development. It involves collaboration with landowners, ensuring their participation in the urbanization process while providing equitable benefits. The strategy aims to balance urban growth with the provision of essential infrastructure and services, making it a viable option for addressing the challenges of unplanned urban sprawl in Uttarakhand. Key Features of Guided Land Development

- i. Partnership with Landowners:
 - a. Landowners contribute a portion of their land for public infrastructure development.
 - b. They pay a betterment levy for the added value resulting from the provision of infrastructure.
- ii. Urban Growth Management:
 - a. Infrastructure provision, such as roads, water supply, and sewage systems, is used to guide and control the direction and pace of urban development.
 - b. Ensures the integration of newly urbanized areas into the overall city plan.
- iii. Equitable Land Assembly:
 - a. GLD minimizes the need for compulsory land acquisition by encouraging direct negotiation between developers and landowners.
 - b. Landowners are compensated through market-driven mechanisms, ensuring fairness and higher satisfaction.
- iv. Focus on Economic Inclusivity:

GLD secures urban land for economically weaker sections (EWS) by reserving portions of developed land for affordable housing and other public purposes.

Benefits of Guided Land Development in Uttarakhand

- i. **Infrastructure-Driven Growth:** Focuses urban expansion in areas with planned infrastructure, reducing the environmental impact and preserving ecologically sensitive regions.
- ii. **Minimized Conflict:** By engaging landowners and developers in direct negotiations, GLD reduces disputes and delays associated with traditional land acquisition methods.
- iii. **Economic Inclusivity:** Ensures the availability of serviced urban land for affordable housing, addressing the needs of EWS and low-income groups.
- iv. **Efficient Land Utilization:** Encourages planned urban layouts that integrate residential, commercial, and public spaces, enhancing overall liveability.
- v. **Cost Efficiency:** Reduces the financial burden on government agencies by shifting some development costs to private developers and beneficiaries.

Challenges and Considerations

- i. **Regulatory Framework:** Clear policies and guidelines are needed to prevent misuse by private developers and ensure adherence to urban planning principles.
- ii. **Topographical Constraints:** Uttarakhand’s hilly terrain presents unique challenges for infrastructure development, requiring innovative design solutions.
- iii. **Monitoring and Transparency:** A robust framework is necessary to monitor projects and ensure transparency in negotiations and land transactions.

Figure 12.1: Land Management Implementation Models

Key Mechanism	Key Enablers	Key Features	Benefits	Challenges and Considerations
Land Acquisition	Government	Transparent framework under RFCTLARR Act, 2013 ensuring fair compensation, rehabilitation, and	-Fair compensation and R&R for affected individuals. -State-specific rules like UKRFCTLARRR	-Lengthy and complex procedures. - Risk of disputes in compensation

Key Mechanism	Key Enablers	Key Features	Benefits	Challenges and Considerations
		resettlement through Social Impact Assessment (SIA) and Resettlement Action Plan (RAP).	enhance transparency and fairness.	or R&R implementation.
Land Pooling and Redistribution	PPP Model	Voluntary contribution of land for urban development; redistributed post-development with enhanced value; infrastructure integrated into master plans.	-Prevents displacement and ensures equitable benefits. -Increased land value for contributors. -Cost-effective and promotes sustainable growth.	-Requires coordination among landowners. -Potential legal disputes over equitable redistribution.
Land Reservation	Private	Landowners retain development rights while contributing land for public amenities in exchange for additional FSI/FAR.	-Secures land for public infrastructure without financial burdens. -Encourages private participation and affordable housing.	-Difficult to implement in hilly terrain like Uttarakhand. -Requires robust regulatory oversight to avoid misuse of incentives.
Transfer of Development Rights (TDR)	PPP Model	Landowners compensated with tradable TDR certificates for surrendering land for public purposes; encourages vertical urban growth.	-Cost-effective land acquisition for public projects. -Promotes higher density urban development. -Market-driven mechanism ensures equitable returns.	-Zoning and valuation disparities may create inequities. -Requires strong regulatory framework for transparency.
Guided Land Development (GLD)	Government and PPP Model	Landowners contribute land for infrastructure development; growth directed by planned provision of essential services.	-Minimizes disputes and delays. -Promotes economic inclusivity with affordable housing provisions. -Encourages efficient and sustainable urban layouts.	-Regulatory clarity needed to prevent misuse. -Topographical challenges in infrastructure implementation.

Source: UK RFCTLARRR, 2015; Land pooling scheme, 2015; Uttarakhand TDR Policy, 2022; Guided land Development, 2016.

12.3 Urban Regeneration and Urban Renewal

Urban regeneration and urban renewal are pivotal for fostering sustainable urban development and enhancing the quality of life in Uttarakhand. These processes aim to revitalize underutilized assets, redistribute economic opportunities, and improve urban prosperity, while addressing critical challenges such as inadequate infrastructure, deteriorated buildings, and environmental degradation. However, these initiatives require a balanced approach to ensure inclusivity, sustainability, and alignment with local policies and environmental norms.

Scope and Approaches in Urban Regeneration process involves:

- i. **Redevelopment of Brownfields:** Transforming abandoned or underutilized industrial or commercial sites into productive urban spaces.

- ii. **Densification and Intensification:** Encouraging more efficient use of land and infrastructure, especially in high-demand areas.
- iii. **Economic Diversification:** Promoting varied economic activities to reduce dependency on limited sectors, ensuring economic resilience.
- iv. **Heritage Preservation and Adaptive Reuse:** Maintaining Uttarakhand's cultural and architectural heritage by repurposing historical structures.
- v. **Public Space Reactivation:** Enhancing parks, plazas, and communal areas to promote social interaction and improve urban aesthetics.
- vi. **Strengthening Service Delivery:** Improving access to water, sanitation, waste management, and public transportation.

Challenges and Considerations are as follows:

- i. **Risk of Gentrification and Privatization:** Urban regeneration can inadvertently displace low-income communities or privatize public spaces, restricting access. To avoid such outcomes, policies must ensure equitable development and prioritize affordable housing and community participation.
- ii. **Adherence to Building Byelaws:** All regeneration efforts should align with local building byelaws, heritage conservation guidelines, and environmental protection regulations to maintain ecological balance and urban aesthetics.
- iii. **Slum Redevelopment:** The Pradhan Mantri Awas Yojana (PMAY-Urban) provides a framework for slum redevelopment. This includes replacing informal settlements with affordable, well-serviced housing. Authorities should identify priority areas for implementing these schemes to achieve inclusive urban renewal.
Policy Framework Supporting Urban Renewal
- iv. **Pradhan Mantri Awas Yojana - Urban (PMAY-U):** This scheme includes a specific focus on slum redevelopment, providing affordable housing and access to essential services for economically weaker sections.
- v. **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Focuses on improving urban infrastructure, such as water supply and sewerage systems, to enhance the quality of life in targeted cities.
- vi. **State-Level Building Byelaws and Policies:** Guide urban development to ensure safety, environmental conservation, and aesthetic integration.

Implementation and Future Directions are as follows:

- i. **Community-Centric Development:** Engaging local communities in the planning and implementation process to ensure inclusivity and address their specific needs.
- ii. **Disaster-Resilient Urban Design:** In a disaster-prone state like Uttarakhand, urban renewal must incorporate resilience to earthquakes, landslides, and floods.
- iii. **Public-Private Partnerships (PPPs):** Leveraging partnerships to fund and execute large-scale urban regeneration projects effectively.

12.4 Land Bank Creation

A Land Bank is a repository of land parcels managed by the government to facilitate planned development, infrastructure projects, and economic growth. In Uttarakhand, the creation of a Land Bank is crucial for addressing challenges related to urbanization, infrastructure

development, and equitable land distribution, especially in a state with unique geographical constraints.

Special Provisions in the Uttarakhand Urban and Country Planning and Development Act, 1973

To facilitate Land Bank creation, amendments or special provisions under the Uttarakhand Urban and Country Planning and Development Act, 1973 could include:

- i. **Simplified Land Transfer Processes:** Streamlining the transfer of land parcels from private to government ownership with adequate compensation.
- ii. **Integration with Master Plans:** Aligning Land Bank objectives with urban development master plans to ensure strategic land use.
- iii. **Zoning Regulations for Reserved Lands:** Reserving certain land parcels for affordable housing, industrial development, or environmental conservation within Land Banks.
- iv. **Public-Private Partnerships (PPPs):** Encouraging private entities to contribute underutilized land for development in exchange for incentives.
- v. **Digital Land Record Management:** Establishing a digital system for tracking land ownership, transactions, and availability, ensuring transparency.

Implementation Strategy are as follows:

- i. **Land Survey and Inventory:** Conduct a comprehensive survey to identify and catalogue available land parcels, including unused government lands.
- ii. **Policy Framework:** Develop a clear policy for Land Bank creation, including guidelines for land acquisition, compensation, and utilization.
- iii. **Stakeholder Involvement:** Collaborate with local governments, private entities, and communities to ensure equitable and inclusive land management.
- iv. **Capacity Building:** Train urban planning officials in modern land management tools and techniques.
- v. **Monitoring and Review:** Establish mechanisms for periodic review of Land Bank utilization and its impact on urban development.

12.5 Vacant Government Land Creation

The Optimum Utilization of Vacant Government Land (OUVGL) is a strategic initiative to identify and repurpose unused or underutilized government lands for various public and commercial uses. In Uttarakhand, where urban expansion is constrained by ecological and topographical factors, the effective use of vacant government lands can play a significant role in driving sustainable urban development while addressing infrastructural deficits and financial resource needs.

Strategies for Vacant Government Land Creation

- i. **Identification and Cataloging:** Conduct a comprehensive survey of government-owned lands, including municipal properties, in urban and peri-urban areas. Develop a centralized digital land inventory system to track land parcels and their current usage status.

- ii. **Reallocation of Underutilized Lands:** Reassess lands allocated to obsolete or irrelevant uses and repurpose them for current needs, such as affordable housing or green infrastructure.
- iii. **Zoning and Land Use Planning:** Integrate identified vacant lands into local master plans, zoning regulations, and sectoral development strategies to ensure their effective utilization.
- iv. **Land Sharing Mechanisms:** Develop frameworks where part of a land parcel can be used for revenue-generating purposes (e.g., commercial complexes) while the rest is allocated to public infrastructure or services.
- v. **Public-Private Partnerships (PPPs):** Partner with private entities to fund and execute large-scale infrastructure projects on government land, such as:
Intercity bus terminals with retail and hospitality facilities.
Multi-purpose civic centers combining government offices and community spaces.

Implementation Framework are as follows:

- i. **Legislative Support:** Incorporate provisions for OUVGL into the Uttarakhand Urban and Country Planning and Development Act, 1973 to facilitate the identification, reallocation, and optimal utilization of government lands.
- ii. **Stakeholder Engagement:** Involve municipal authorities, local governments, and private sector participants in decision-making to ensure the alignment of projects with community needs.
- iii. **Transparency and Accountability:** Use digital platforms to ensure transparent land allocation processes and prevent misuse.
- iv. **Incentivizing Innovative Uses:** Provide incentives for private sector involvement in developing sustainable and inclusive projects on government lands.
- v. **Monitoring and Evaluation:** Establish a task force or agency to oversee the implementation of OUVGL, track project outcomes, and make periodic policy adjustments.

12.6 Tourism Implementation Strategy

Lohaghat, with its unique blend of natural beauty, and adventure opportunities, holds significant potential for sustainable tourism development. An effective implementation strategy, supported by clear roles and responsibilities for the Ministry of Tourism, Department of Tourism, Government of Uttarakhand, and Destination Management Committees, is essential to unlock this potential.

Roles and Responsibilities of the Ministry of Tourism (MoT)

- i. Institutional and Governance Support
 - a. Provide technical and financial assistance to develop identified destinations as model sustainable tourist hubs.
 - b. Collaborate with state and local authorities to ensure alignment with national tourism goals.
- ii. Swadesh Darshan 2.0 Implementation
 - a. Guide the state government and local authorities in implementing the Swadesh Darshan 2.0 scheme, focusing on sustainable and theme-based tourism development.

- b. Ensure timely approvals and fund disbursement for projects under the scheme.
- iii. End-to-End Project Support
 - a. Deploy a Project Design and Management Consultant (PDMC) to assist the state in planning, designing, implementing, and managing tourism projects.
 - b. Monitor project progress and provide technical solutions to challenges.
- iv. Data-Driven Destination Management
 - a. Develop and implement systems for data collection and analysis to monitor tourist inflow, economic impact, and environmental sustainability.
 - b. Use insights to optimize resource allocation and identify emerging tourism trends.
- v. Strategies and Best Practices
 - a. Share strategies and global best practices for niche tourism areas such as adventure tourism (e.g., trekking, river rafting), wellness tourism (e.g., yoga retreats), and eco-tourism (e.g., wildlife and forest trails).
 - b. Promote responsible tourism practices to minimize the environmental footprint of tourism activities.

Roles and Responsibilities of the Department of Tourism, Government of Uttarakhand

- i. Synergy with Central and State Schemes
 - a. Pradhan Mantri Kaushal Vikas Yojana (PMKVY) for skill development.
 - b. Make in India and state-specific entrepreneurship programs for promoting tourism-related MSMEs.
 - c. Swadesh Darshan 2.0 and PRASAD Scheme for infrastructure and spiritual tourism development.
- ii. Leverage Central and State resources
 - a. Human capital development and job creation.
 - b. Marketing and investment promotion.
 - c. Infrastructure improvement and digital transformation.
- iii. Set up and operationalize Destination Management Committees (DMCs)
 - a. Coordinating destination planning, development, and management.
 - b. Implementing sustainable tourism practices.
 - c. Engaging local stakeholders, including communities, businesses, and authorities.
- iv. Ensure the alignment of tourism initiatives with key national priorities
 - a. Sustainability: Promote eco-friendly practices and reduce the environmental footprint.
 - b. Digitalization: On-board stakeholders to the NIDHI Plus platform for streamlined operations.
 - c. Skill Development: Train tourism and hospitality personnel in emerging industry requirements.
 - d. Tourism MSMEs: Provide support to local businesses and entrepreneurs to participate actively in tourism growth.
 - e. Destination Management: Develop comprehensive frameworks for managing tourism assets and services effectively.
- v. Monitoring and Reporting
 - a. Regularly update the central portal with progress on tourism schemes and initiatives.
 - b. Submit timely progress reports to the Ministry of Tourism, ensuring transparency and accountability.

- vi. Encourage private investment in destination development
 - a. Public-Private Partnerships (PPPs) for infrastructure and service projects.
 - b. Incentives for private operators to develop tourism facilities such as hotels, adventure parks, and cultural centers.
- vii. Focus on effective Operation and Maintenance (O&M) of tourism
 - a. Sustainability and longevity of infrastructure.
 - b. High-quality service delivery for tourists.
- viii. Accelerate implementation of strategies formulated by the Ministry in niche tourism
 - a. MICE (Meetings, Incentives, Conferences, and Exhibitions): Develop facilities for conferences and business tourism.
 - b. Medical & Wellness Tourism: Promote Uttarakhand as a hub for wellness retreats and ayurvedic treatments.
 - c. Ecotourism: Highlight destinations like the Valley of Flowers and Jim Corbett National Park.
 - d. Adventure Tourism: Capitalize on trekking, rafting, paragliding, and skiing opportunities.
- ix. Encourage stakeholders in the tourism and hospitality sector to embrace digital tools
 - a. Registering and maintaining profiles on the NIDHI Plus platform to enhance visibility and connectivity.
 - b. Implementing digital booking systems, virtual tours, and e-ticketing for tourist attractions.

Roles and Responsibilities of the Destination Management Committee (DMC)

- i. Destination Management Support
 - a. Act as the operational body for the Destination Management Organization (DMO) for the designated destination.
 - b. Ensure cohesive execution of tourism strategies and policies formulated at the state and central levels.
- ii. Monitoring and Implementation
 - a. Regularly review the on-ground implementation of tourism schemes and projects, identifying and addressing bottlenecks.
 - b. Foster synergy among various departments and organizations involved in the destination's development to streamline efforts and resources.
- iii. Enhance essential framework Improvement
 - a. Health and Hygiene: Implement measures for clean and sanitary conditions, including waste management and clean water access.
 - b. Safety: Establish robust safety measures for tourists, such as emergency services, security personnel, and safety guidelines.
 - c. Civic Infrastructure: Improve roads, transport, lighting, and public amenities to enhance the tourist experience.
 - d. Quality Maintenance: Ensure the upkeep of tourist facilities and attractions to maintain high standards of service and satisfaction.
- iv. Oversee operation and management
 - a. Hygiene and cleanliness of public spaces and tourist facilities.
 - b. Safety protocols for tourists, including hazard management and emergency response.

- c. Continuous monitoring and maintenance of infrastructure quality.
- v. Grievance Redressal

Establish mechanisms to resolve grievances and complaints from tourists efficiently and effectively, ensuring a seamless visitor experience.

- vi. Lead destination branding, marketing, and promotional activities through:
 - a. Digital campaigns targeting domestic and international tourists.
 - b. Collaboration with travel agencies, tour operators, and online platforms.
 - c. Organizing cultural events, festivals, and exhibitions to showcase the destination's uniqueness.
- vii. Skill Development and Entrepreneurship
 - a. Promote skill development programs for locals in hospitality, tour guiding, and other tourism services.
 - b. Support local entrepreneurship by encouraging initiatives like homestays, handicrafts, and local food outlets to generate employment and income.
- viii. Facilitate Public-Private Partnerships (PPPs)
 - a. Infrastructure development (e.g., hotels, transport hubs).
 - b. Adventure and eco-tourism activities.
 - c. Smart technologies for visitor management and destination operations.
- ix. Promote data collection and analysis for informed decision-making
 - a. Tourist demographics, behaviour, and preferences.
 - b. Impact assessments of tourism activities on local communities and the environment.
- x. Impact Assessment
 - a. Conduct periodic assessments of the economic, social, and environmental impact of tourism activities at the destination.
 - b. Use insights to refine strategies, ensuring sustainability and balanced growth.

Figure 12.2: Agencies Involved in Tourism Development

Institution/ Agency Involved	Roles and Responsibilities
Ministry of Tourism (MoT)	- Provide institutional and governance support for sustainable tourism development. - Guide Swadesh Darshan 2.0 implementation with focus on sustainability. - Offer end-to-end project support through PDMC for planning and management. - Develop data-driven systems for monitoring tourism impact. - Share strategies and best practices for niche tourism areas.
Department of Tourism, Uttarakhand	- Align with central and state schemes for tourism growth. - Set up and manage Destination Management Committees (DMCs). - Monitor and report progress on tourism initiatives. - Promote private investment through PPPs. - Ensure operation and maintenance of tourism infrastructure. - Foster digitalization and skill development in the tourism sector.
Destination Management	- Act as operational bodies for Destination Management Organizations (DMOs). - Monitor on-ground implementation of tourism projects.

Committees (DMC)	- Improve civic infrastructure and maintain hygiene and safety standards. - Address tourist grievances and maintain infrastructure quality. - Facilitate destination branding, marketing, and promotional activities. - Support local skill development and entrepreneurship.
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Source: School of Planning and Architecture, New Delhi (2024)

ANNEXURE A

1. Introduction

Uttarakhand, located in the Himalayas, has distinct land and economic development policies that are tailored to its specific needs. The state government places a high priority on long-term growth, investment attraction, and job creation. Industrial development, investment promotion, infrastructure expansion, skill enhancement, tourism and hospitality, micro, small, and medium enterprise (MSME) advancement, and agriculture and horticulture sectors are among the key areas of focus.

These policies aim to create an enabling business environment, attract investment, and cultivate sustainable industries, all of which contribute to Uttarakhand's overall economic growth and development. The government works hard to maintain a harmonious balance between economic development and environmental conservation, ensuring long-term progress in this environmentally sensitive region.

Land acquisition and economic development policies at the national and state levels work together to shape the socioeconomic landscape, attract investments, and foster long-term growth. The effective implementation of these policies is critical for achieving inclusive development and improving the overall welfare of the nation and the state of Uttarakhand. This chapter provides a brief overview of pertinent state and national policies applicable in Uttarakhand.

2. National Rehabilitation & Resettlement Policy, 2007

The National Rehabilitation & Resettlement Policy, 2007 was formulated to ensure a holistic approach to the rehabilitation and resettlement of affected persons due to land acquisition. The policy aims to address the needs of displaced individuals and communities by providing them with adequate compensation, rehabilitation assistance, and opportunities for livelihood restoration. It stresses the importance of community participation, social infrastructure development, and ensuring a better quality of life for the affected population.

The policy can serve as a reference to develop comprehensive rehabilitation and resettlement strategies for Lohaghat town. It can guide the town authorities in providing adequate support and assistance to affected individuals and communities during land acquisition and resettlement processes. The master plan can include provisions for the implementation of the policy's guidelines, addressing the socio-economic needs of the displaced population.

3. Optimum Utilization of Vacant Govt. Land (OUVGL) Scheme, 1997

It is a program aimed at identifying vacant government land, including municipal land, and utilizing it for the benefit of the public. However, to ensure the generation of financial resources from government land, it is not necessary to allocate the entire stock of government land for non-profit public purposes. Prior to resorting to compulsory land acquisition, specific land designations for various purposes must be made in the master plan to streamline the demand and supply of land. In the case of Panchayat land situated in villages within the local

planning area, such land should be utilized exclusively for the development of public utilities, services, and physical and social infrastructure, such as parks, open spaces, and community facilities, and not for any other objectives

4. The Uttarakhand Nazul Land Management, Settlement and Disposal Bill, 2021

The Uttarakhand Nazul Land Management, Settlement and Disposal Bill, 2021 is regarding better management, settlement, disposal of Nazul land, revenue receipts, affordable housing to economically weaker sections, securing self-employment opportunities, protecting the interests of leaseholders and illegal occupation of Nazul land etc. in the State of Uttarakhand and arrangement of concerned incidental matters thereto.

5. Uttarakhand Biotechnology Policy, 2018

The Biotechnology Policy 2018-23 in Uttarakhand aims to promote innovation, research, and development in the biotechnology sector by providing various incentives and support to biotech companies and start-ups. The policy includes the following key provisions:

- a. **Facilitation of Innovation:** The policy introduces a Grand Challenge program with two phases. In Phase I, five innovators receive proof of concept funding of INR 5 lakhs. In Phase II, funding of INR 25 lakhs is provided to scale up the prototype.
- b. **Certification Cost Reimbursement:** Companies are eligible for a reimbursement of 50 percent of the cost incurred in obtaining standards certificates such as ISO, BIS, GLP, GMP, and NABL, up to a maximum of INR 5 lakhs per case.
- c. **Support to New Initiatives:** Start-ups receive mentorship support of INR 5 lakhs to facilitate access to private investors. Additionally, reimbursement of project report preparation costs is available, up to INR 1 lakh.
- d. **Research Facilitation:** The policy promotes co-financing of industry-sponsored research and research projects of public interest. It also offers collaboration research grants specifically for Uttarakhand-based projects.
- e. **Preclinical Trial Support:** Part funding and legal backing are provided for preclinical trials of biopharmaceutical and bio-service companies/units, as well as field trials of hybrid or high yielding seed varieties, limited to INR 25 lakhs.
- f. **EPF Contribution Incentives:** Companies can avail incentives of up to 100 percent EPF (Employee Provident Fund) contribution.
- g. **Patent Registration Cost Assistance:** Assistance is provided for patent registration, up to INR 0.5 lakh for national patents and INR 2.00 lakh for international patents.
- h. **Anchor Unit Subsidy:** The first two manufacturing units that make an investment of INR 50 crore and employ 70-100 members are eligible for an anchor unit subsidy.
- i. **Marketing Incentives:** Companies can receive reimbursement of 30 percent of the actual costs incurred for marketing programs, up to a maximum of INR 2 lakhs per year per company through the Biotech corpus.

Overall, the Biotechnology Policy 2018-23 in Uttarakhand aims to foster innovation, research, and development in the biotech sector by providing financial assistance, support for certifications and trials, and incentives for marketing and patent registration. These provisions aim to attract investment, promote entrepreneurship, and facilitate the growth of

the biotechnology industry in the state. The biotechnology startups can avail the benefits of this policy in setting up the units at proposed industrial land use in Lohaghat Planning Area.

6. Uttarakhand and Aroma Park Policy, 2018

The Uttarakhand Aroma Park Policy provides specific incentives to the Aroma Park industry in the state. The policy includes the following incentives:

- a. Interest Subsidy: Businesses in the Aroma Park industry can avail a subsidy of 6 percent per annum, up to a maximum of 4 lakhs, for a period of 5 years. This subsidy aims to lower the interest rates on loans and reduce the financial burden on businesses.
- b. Power Bill Rebate: A rebate is provided on the power bill based on the applicable electricity tariff for Irrigation Tube wells, currently set at INR 1.55 per unit. This rebate is applicable for a period of 5 years from the date of starting production, and uninterrupted electricity supply is assured.
- c. Additionally, the Uttarakhand Aroma Park Policy offers the following incentives, which have been previously mentioned:
- d. Stamp Duty Exemption: There is a one-time exemption of 100 percent on stamp duty for the sale deed or lease deed of land related to the Aroma Park.
- e. SGST Concession: A 100 percent exemption on the State Goods and Services Tax (SGST) is provided for a period of 5 years from the date of starting production in the Aroma Park.
- f. Mandi Fee Exemption: There is a 100 percent exemption on the mandi fee for raw materials used in the Aroma Park for a period of 5 years from the date of starting production.

These incentives aim to support the growth of the Aroma Park industry in Uttarakhand by reducing financial burdens and providing advantages in terms of taxes, fees, and power expenses. The proposed herbal and Aroma park project in Pau village can be developed under this policy in Lohaghat Planning Area.

7. Uttarakhand AYUSH Policy, 2018

The Uttarakhand AYUSH Policy, 2018 provides specific incentives and assistance for the development of the AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homeopathy) sector in the state. The policy includes the following provisions:

Financial Assistance: A one-time financial assistance of either 10 percent of the project cost or INR 1.50 Crore for hill districts and INR 1 Crore for plain districts is provided to support the establishment and growth of AYUSH-related ventures. This assistance aims to facilitate investment and encourage the development of AYUSH infrastructure.

Investment Facilitation Desk (IFD): The Department of AYUSH sets up an Investment Facilitation Desk (IFD) to provide necessary information and support regarding available infrastructure, such as land and physical infrastructure, as well as various incentives and schemes. The IFD serves as a resource for potential investors, guiding them through the process of setting up AYUSH-related units in Uttarakhand.

It is important to note that specific incentives for AYUSH-related units may also be available under other policies, such as the MSME (Micro, Small, and Medium Enterprises) policy, Mega

Industrial and Investment policy, and the Government of India's Industrial Development Scheme 2017. The eligibility for these incentives would be determined based on the respective policies.

The Uttarakhand AYUSH Policy, 2018 aims to promote the growth and development of the AYUSH sector in the state. By providing financial assistance and investment facilitation, the policy aims to attract investment, enhance infrastructure, and create a conducive environment for the establishment of AYUSH-related ventures in Uttarakhand. Development around Mayawati ashram where the place can be developed as a yoga hub and attract tourists from all over the world. This proposal can facilitate under this policy.

8. Uttarakhand Agriculture Policy, 2018

The Agriculture Policy 2018 outlines a comprehensive approach to doubling farmers' income by 2022 through the Sankalp se Siddhi initiative. The policy focuses on sustainable agriculture development, value addition, and safe storage of crops. It aims to link agriculture with food processing industries and promote efficient land management. The policy emphasizes the production, processing, and value addition of coarse grains and nutritious crops. It also encourages the integration of horticulture, tea gardens, and aromatic plants with eco-tourism. Voluntary land consolidation, precision and protective agriculture, and promoting herbal cultivation, mushroom production, and mushroom rearing are key objectives. The policy aims to ensure proper marketing arrangements, including linking Haat/Collection Centres with e-NAM and declaring Minimum Assured Price for local crops. Increasing irrigated areas through water conservation and advanced irrigation techniques is prioritized. The policy aims to support sustainable practices, enhance value chains, improve market access, and ultimately uplift farmers' income. By promoting sustainable farming, value addition, and market integration, the policy aims to transform the agricultural sector and improve the livelihoods of farmers. The proposals related to encouraging tourism such as homestay clusters, haat for displaying local based products can be facilitated under this policy.

9. Uttarakhand MSME Policy, 2015 (Amendments & Guidelines)

The MSME Policy 2015 in Uttarakhand, as amended in 2019, provides incentives and support to Micro, Small, and Medium Enterprises (MSMEs) in the state. The policy categorizes different regions and industries based on their location and provide specific incentives accordingly. Here are the key provisions of the policy:

- a. **Categorization of Industries:** The policy categorizes industries into Category A, B, B+, C, and D based on their location in different districts and development blocks in Uttarakhand.
- b. **Interest Subsidy:** MSMEs in Category A are eligible for an interest subsidy of 10 percent per year or a maximum of INR 8 lakhs. Category B and B+ MSMEs can avail an 8 percent interest subsidy, with a maximum limit of INR 6 lakhs. Category C MSMEs can receive a 6 percent interest subsidy, with a maximum limit of INR 4 lakhs. Category D MSMEs are eligible for a 5 percent interest subsidy, with a maximum limit of INR 3 lakhs.
- c. **Capital Subsidy:** MSMEs in Category A can receive a capital subsidy of 40 percent of their annual turnover, with a maximum limit of INR 40 lakhs. Category B and B+ MSMEs are eligible for a 35 percent capital subsidy, with a maximum limit of INR 35 lakhs. Category C MSMEs can avail a 30 percent capital subsidy, with a maximum limit of INR 30 lakhs.

Category D MSMEs can receive a 15 percent capital subsidy, with a maximum limit of INR 15 lakhs.

- d. **Transport Subsidy:** The policy provides a transport subsidy based on the annual turnover or inbound/outbound logistics cost, whichever is less. Category A MSMEs can receive a 7 percent subsidy, Category B MSMEs can avail a 5 percent subsidy, and Category B+ MSMEs can receive a 5 percent subsidy with a maximum limit of INR 5 lakhs.
- e. **Stamp Duty:** MSMEs in Category A, B, B+, and C are eligible for a 100 percent stamp duty exemption, while Category D MSMEs can receive a 50 percent exemption.
- f. **Power Bill Rebate:** The policy offers a power bill rebate based on the sanctioned load of the MSMEs. Category A MSMEs can avail a rebate of 100 percent for the first 5 years and 90 percent thereafter for loads up to 100 KVA, and 60 percent for loads above 100 KVA. Category B and B+ MSMEs can receive a rebate of 100 percent for the first 5 years and 75 percent thereafter for loads up to 100 KVA, and 50 percent for loads above 100 KVA.
- g. **Other Incentives:** The policy also includes incentives such as reimbursement of internet usage charges, exemption on Mandi charges, reimbursement of state excise duty, and cost reimbursement for standardization and quality certification.

The policy was amended in 2018 and 2019, extending its validity until March 2023. It also expanded the coverage to include Software Development units under the IT & ITeS sector and Energy sector units involved in energy production using non-traditional methods. Additionally, service sector industries in Category C and D districts are now eligible for incentives.

Overall, the MSME Policy 2015 in Uttarakhand aims to promote the growth and development of MSMEs in the state by providing financial incentives and support to different categories of industries based on their location. These provisions are designed to encourage entrepreneurship, boost investment, and foster economic development in Uttarakhand.

The vision for Lohaghat 2041 supports MSME related to agriculture produces, iron-based products, the startups or investors can establish medium or small industries in the Lohaghat Planning Area and avail benefits under MSME policy.

10. Uttarakhand Start - Up Policy, 2018

The Uttarakhand Start-up Policy 2018 provides various incentives and support measures for start-ups in the state. Some of the key provisions of the policy include:

- a. **Monthly Allowance:** Start-ups can receive a monthly allowance of INR 10,000 for one year, with an increased amount of INR 15,000 for start-ups operated by SC/ST/women/physically challenged individuals or those belonging to Category-A regions of the MSME Policy 2015.
- b. **Marketing Assistance:** Start-ups are eligible for financial assistance of up to INR 5 lakhs for marketing and publicity of their innovative products. Additionally, if the start-up operates in a focus sector or is run by SC/ST/women/physically challenged individuals or falls under Category-A regions of the MSME Policy 2015, the assistance can be increased to up to INR 7.5 lakhs.
- c. **Patent (Intellectual Property):** Start-ups can receive up to 100 percent reimbursement of the actual cost of start-up patent fees, including filing fees, attorney fees, research fees, and

maintenance fees. The reimbursement amount is capped at INR 1 lakh for Indian patents and up to INR 5 lakhs for international patents.

- d. Stamp Duty: start-ups are exempted from paying stamp duty on lease deeds, places, or purchases of space, based on the category defined in the MSME Policy 2015. This exemption is 100 percent for Category A, B, and B+, and 50 percent for Category D.
- e. State Goods & Services Tax (SGST): start-ups can receive reimbursement of SGST deposited by them.
- f. Incubation Space: start-ups operated by SC/ST/women/physically challenged individuals and recognized by the start-ups Council can avail of space at recognized incubators at a 25 percent discount.
- g. Need-Based Assistance: start-ups' can receive financial assistance of up to INR 5 lakhs for the cost of raw materials, components, and other related equipment required for innovative product development or existing product improvement.
- h. Capital Grant: start-up's setting up or scaling up incubation facilities can receive a one-time capital grant of 50 percent of the capital cost (excluding the cost of building and land) up to INR 1 crore. Additionally, start-ups' can receive INR 2 lakhs per year for three years as part of operating and management expenses.
- i. Matching Grant: Incubators recognized by the state government that manage the seed fund scheme of the Government of India can receive a sum equal to that obtained from the Government of India or up to INR 2 crore, whichever is lesser, as alternate finance.

These provisions aim to support and nurture start-ups in Uttarakhand by providing financial assistance, access to infrastructure, and other incentives to foster their growth and development. The Master plan supports start-up in non-polluting industries in Koli Dhek Village, the investors can avail the benefits under this policy.

11. Uttarakhand Film Policy, 2015 (as amended in 2019)

Under the Uttarakhand Film Policy 2015 (as amended in 2019), the following incentives and provisions are provided:

- a. Discount on Rest Houses: Film units are eligible for a 50 percent discount on stay in the rest houses of Garhwal Mandal Vikas Nigam Ltd., except for the months of May, June, and October.
- b. Industry Status: Cinema houses situated at an altitude greater than 1000 meters are granted "Industry Status" by the state government.
- c. Production Cost Financing: The state government may consider financing up to 75 percent of the production costs (below INR 2 Crores) for eligible films.
- d. Tax Benefits: Films that have more than 50 percent outdoor shooting in Uttarakhand are eligible for tax-free status, based on merit.
- e. Grant for Film Processing Expenditure: Expenditure incurred in processing films produced in the Uttarakhand regional language may be reimbursed up to 30 percent or a maximum of INR 25 lakhs if processed in a lab situated in Uttarakhand. If processed in a lab outside Uttarakhand, the reimbursement is up to 25 percent or a maximum of INR 20 lakhs.
- f. Exemption from Shooting Charges: Films shot in Uttarakhand are exempted from shooting charges to promote the region as a tourist destination.

- g. SGST Reimbursement: Cinema houses located in hilly regions (above 600 meters altitude) are eligible for SGST reimbursement of up to 30 percent for revival purposes.
- h. Scholarship: Students from Uttarakhand pursuing their career at the Film & Television Institute, Pune, or Satyajit Ray Film & Television Institute, Kolkata, can receive a yearly scholarship of up to INR 25,000.

These policies and incentives aim to promote and support the film industry in Uttarakhand.

12. Development of Micro and Mini Hydro upto 2MW, 2015

Under the Policy for Development of Micro & Mini Hydro Power (Up to 2 MW) 2015 and the Policy for Development of Small Hydro Power (2-25 MW), the following incentives and provisions are provided:

- a. Capital Fund Support: Developers can avail the Social Venture Capital Fund available with the Rural Development Department through UPASaC (Uttarakhand Parvatiya Aajeevika Sanvardhan Company) and other eligible programs.
- b. Royalty Exemption: There is a 100 percent exemption on royalty for both micro and mini hydro power projects (up to 2 MW) as well as small hydro power projects above 5 MW for the first 15 years.
- c. Water Usage Charge Exemption: Projects awarded under these policies are exempted from water usage charges.
- d. Land Allotment: Government land, including land belonging to eligible Panchayati Raj Institutions (PRI), except forest land, can be allotted on a lease for 40 years at a premium of Rs. 1 per square meter.
- e. Court Fee Exemption: Developers are granted an exemption from court fees for the registration of documents relating to the lease of land.
- f. Industry Benefits: Micro and mini hydro power projects in Uttarakhand are treated as an industry, making them eligible for all benefits declared by the state government for the industry from time to time.

These policies aim to promote the development of micro, mini, and small hydro power projects in Uttarakhand by providing financial support, exemptions, and other incentives.

13. Uttarakhand Policy on Small Hydro Power 2 to 25 MW, 2015

The Policy for Development of Small Hydro Power (2-25 MW) provides guidelines and benefits for the development of micro, mini, and small hydro projects in Uttarakhand. Here are the key aspects of the policy:

- a. Industry Status: Micro and mini hydro projects in Uttarakhand will be treated as an industry. This means that all benefits declared by the State Government for the industry will also be applicable to these power projects.
- b. Small Hydro Power Projects (SHP): The policy focuses on SHP projects ranging from 2 MW to 25 MW in capacity.
- c. Royalty Exemption: For SHP projects between 2 MW and 5 MW in capacity, there is a 100 percent exemption from royalty payments. For projects above 5 MW, the 100 percent exemption is applicable for the first 15 years of operation.

These measures aim to encourage the development of small hydro power projects in Uttarakhand by providing industry status and offering royalty exemptions. The policy aims to facilitate the growth of clean and renewable energy sources in the state.

14. Uttarakhand Policy on Hydropower Development (25 MW to 100 MW), 2015

Under the Policy for Development of Hydro Power (25-100 MW) in Uttarakhand, the following incentives and provisions are provided:

- a. **Water Charges Exemption:** The developer of hydro power projects is exempted from water royalty charges for the units generated before the scheduled date of commissioning.
- b. **Industry Benefits:** Hydro power projects in Uttarakhand are treated as an industry. Therefore, all benefits declared by the state government for the industry from time to time are applicable to these power projects.
- c. **Right of Way:** Private developers are not required to obtain government permission for the right of way for the construction of transmission lines and associated works linking the small hydro power plant with the state grid substation.

These provisions aim to support the development of hydro power projects in the 25-100 MW range in Uttarakhand. By providing exemptions and treating them as an industry, the policy encourages investment and facilitates the smooth implementation of such projects.

15. Policy for Energy Generation from Pirul (Pine Leaves) and Other Biomass-2018

Under the Policy for Energy Generation from Pine Litter and Other Biomass-2018 in Uttarakhand, the following incentives and provisions are provided:

- a. **Electricity Duty Exemption:** Developers of biomass-based power plants are exempted from paying electricity duty on the electricity generated by the power plant for a period of 10 years after commissioning.
- b. **Training Support:** The Uttarakhand Renewable Energy Development Agency (UREDA) and the Forest Department provide support for training and capacity building activities for Community-Based Organizations (CBOs) on various aspects related to the establishment of biomass-based projects.
- c. **Stamp Duty Exemption:** If the power generation unit is set up on private land, the developer is exempted from paying stamp duty for the registration of documents. However, if the developer later uses the land for another purpose, the amount of stamp duty shall be recovered from the developer.

These provisions aim to encourage and support the generation of energy from pine litter and other biomass sources in Uttarakhand. The exemptions and support provided by the policy help facilitate the development of biomass-based power projects in the state.

16. Uttarakhand Town and Country Planning Act, 1973

This act is legislation specific to the state of Uttarakhand, located in northern India. It was enacted to regulate and control the development and planning of urban and rural areas in Uttarakhand.

The key objectives of the Uttarakhand Town and Country Planning Act, 1973 include:

- a. Promoting planned and balanced development of urban and rural areas in Uttarakhand.
- b. Regulating land use and development activities to ensure efficient and sustainable use of land resources.
- c. Ensuring the provision of essential infrastructure and amenities in urban and rural areas.
- d. Preventing haphazard and unplanned development, and promoting orderly growth of towns and cities.
- e. Protecting the natural environment and preserving ecological balance.
- f. Facilitating the preparation and implementation of development plans and zoning regulations.
- g. Controlling and regulating construction activities, land subdivisions, and building regulations.
- h. Establishing procedures for granting development permissions, building approvals, and land use changes.
- i. Creating mechanisms for public participation and consultation in the planning process.
- j. Enabling the acquisition and development of land for planned urbanization and public purposes.

Under this act, the state government has the authority to establish town and country planning departments and appoint planning authorities responsible for the preparation, implementation, and enforcement of development plans. The act also outlines the powers and functions of these planning authorities and specifies the procedures for plan preparation, public notice, objections, and appeals.

17. Uttarakhand Export Policy, 2021

The export policy for Uttarakhand seeks to position the state as a prominent player in the export sector by capitalizing on its natural resources and creating a conducive environment for trade. The vision of the policy is to establish Uttarakhand as a leading exporter at the domestic and global levels. To achieve this, the policy outlines several key objectives. These include developing a simplified and responsive institutional mechanism to facilitate rapid export growth, improving export infrastructure such as warehouses and cold storages, and enhancing the export potential of traditional and focus sectors through value addition and quality competitiveness. The policy also aims to provide fiscal and non-fiscal incentives to exporters, offer handholding support to existing and new exporters, and establish coordination with national and global agencies involved in export promotion. By implementing these measures, the government aims to streamline export processes, strengthen logistical capabilities, and promote trade across emerging sectors. The ultimate goal is to create a favourable ecosystem for exporters, boost export volumes and revenues, and contribute to the overall economic development of Uttarakhand.

The policy sets two primary targets:

- a. Increase the share of exports from INR 15,900 crore in FY 2021 to INR 30,000 crore within a span of 5 years.
- b. Generate additional employment opportunities for 30,000 individuals.

The policy's implementation is as follows:

- a. The policy will be enforced upon its official notification and will remain in effect for a period of 5 years.
- b. The policy may be modified, amended, or superseded as necessary. Any such changes will be duly notified.
- c. In the event of policy amendments, if the State government has already committed incentives to a specific unit, said incentives will not be retracted. The unit will continue to be entitled to the benefits initially promised.

This approach ensures clear objectives for export growth and employment creation while allowing flexibility for policy adjustments. Existing units will maintain their entitled benefits despite any policy modifications.

ANNEXURE B - Tourism Priority Projects

Magnet Point	Category	Development	Key Projects	Investment (In CR)	Timeline	Department	Execution	Status
Lohaghat	Hospitality	Brownfield	Redevelop Lohaghat KMVN - Premium segment - 20 keys	17	Short Term (2 years)	UTDB	PPP	Proposed
Lohaghat	Hospitality	Greenfield	Develop premium Astro glamping near Koli Dhek Lake (Swadesh Darshan) – 15 Keys	3.6	Short Term (2 years)	UTDB	PPP	DPR at Mot
Lohaghat	Product	Greenfield	Develop horror tourism trail at Abbott Mount and Redevelop Abbott Mount Church	0.5	Short Term (2 years)	UTDB	EPC	Proposed
Lohaghat	Product	Greenfield	Develop sunrise and sunset decks & trails in Lohaghat & Mayavati	0.5	Short Term (2 years)	UTDB	EPC	Proposed
Lohaghat	Hospitality	Greenfield	Develop luxury AYUSH/Wellness retreat near koli Dhek Lake - 10 Keys	15	Short Term (2 years)	UTDB	PPP	Tender Documents Underway
Lohaghat	Hospitality	Brownfield	Redevelop Abbott Mount KMVN - Luxury Segment - 30 keys	45	Mid Term (4 years)	UTDB	PPP	Tender Documents Underway
Lohaghat	Product	Brownfield	Redevelop Banasur Fort - Digital art installation and open-air museum installations	5	Mid Term (4 years)	UTDB	PPP	G.O. Pending

ANNEXURE C - Tourism Hospitality, Creation, Enablers and Infrastructure

Magnet Point	Category	Development	Key Projects	Investment (In CR)	Timeline	Department	Execution	Status
Lohaghat	Product	Greenfield	Develop Cultural Park near Lohaghat Ramlila Maidan	1.09	Mid Term (4 years)	Culture	EPC	DPR Awaiting Approval
Lohaghat	Product	Greenfield	Develop Ramlila Manch in Dubchauda	1.31	Mid Term (4 years)	Culture	EPC	DPR Awaiting Approval
Lohaghat	Enablers	-	Conduct Annual Devidhura Mela at Maa Barahi Temple (Bagwal Festival)		Mid Term (4 years)	District Administration	EPC	Proposal underwa y
Lohaghat	Infrastructure	Greenfield	Develop Lohaghat By-pass	441	Mid Term (4 years)	NHAI	EPC	DPR Underwa y
Lohaghat	Enablers	Greenfield	Develop Sports Stadium in Lohaghat	10.92	Mid Term (4 years)	Pey jal	EPC	Propose d
Lohaghat	Infrastructure	Brownfield	Enhance Abbott Mount Road – addl. length of 3km	9	Short Term (2 years)	PWD	EPC	Propose d
Lohaghat	Infrastructure	Brownfield	Resurface Lohaghat Pancheshwar Road – 40 km	18	Mid Term (4 years)	PWD	EPC	Tender Docume nts Underwa y
Lohaghat	Infrastructure	Brownfield	Develop 50 car MLCP in Lohaghat city	3	Long Term (6 years)	PWD	EPC	Propose d

Lohaghat	Infrastructure	Greenfield	Develop Pakhoti-Bairakh road – 5 km	-	Long Term (6 years)	PWD	EPC	DPR Underway
Lohaghat	Infrastructure	Brownfield	Resurface Devidhura to Adarsh Mahavidyalya - 3 km	-	Long Term (6 years)	PWD	EPC	DPR Underway
Lohaghat	Infrastructure	Greenfield	Develop unpaved road from Kedarnath Gas House to Bhaisark – 2.5 km	-	Long Term (6 years)	PWD	EPC	DPR Underway
Lohaghat	Infrastructure	Brownfield	Resurface Chhinkachina Roulmel road – 8 km	-	Long Term (6 years)	PWD	EPC	DPR Underway
Lohaghat	Enablers	-	Conduct Stumps – annual hill states cricket tournament in Lohaghat Stadium	2.5	Short Term (2 years)	Sports	EPC	Proposed
Lohaghat	Infrastructure	Greenfield	Develop heliports at Dada Bisht, Kulethi and Abbott mount (UDAN scheme)	-	Short Term (2 years)	UCADA	EPC	Proposal Underway
Lohaghat	Hospitality	Greenfield	Develop premium glamping in Pancheshwar – 10 keys	3	Mid Term (4 years)	UTDB	PPP	Proposed
Lohaghat	Hospitality	Greenfield	Develop Caravan Park in Rameshwar Ghat – 5 keys	2	Mid Term (4 years)	UTDB	PPP	DPR Awaiting Approval
Lohaghat	Product	Greenfield	Develop herbal and aroma tourism park in Lohaghat near suitable Van Panchayat	3	Short Term (2 years)	UTDB	PPP	DPR Awaiting Approval

Lohaghat	Product	Brownfield	Redevelopment of Temple area & trail - Patal Rudreshwar Cave Temple (Manaskhand Corridor)	2.5	Long Term (6 years)	UTDB	EPC	Ongoing
Lohaghat	product	Greenfield	Development at Devidhura Maa Barahi Temple (Manaskhand Corridor)	12.53	Long Term (6 years)	UTDB	EPC	Ongoing
Lohaghat	Product	Brownfield	Redevelop Bhingrara Temple	0.74	Long Term (6 years)	UTDB	PPP	DPR Underway
Lohaghat	Enablers		Conduct candle-light concerts at Banasur Fort	2.5	Short Term (2 years)	UTDB	PPP	Proposed
Lohaghat	Infrastructure	Brownfield	Infrastructure development under Manaskhand Mandir Mala	-	Mid Term (4 years)	UTDB	EPC	Ongoing
Lohaghat	Infrastructure	Greenfield	Develop way side amenity as per WSA policy –Lohaghat to Maa Barahi Temple	0.5	Mid Term (4 years)	UTDB	PPP	Proposed

ANNEXURE D- Projects under Champawat Dairy Acceleration Mission

Project Consideration	for Brief Description	Investment (INR Cr)
Champawat Pashu Ashray Vikas Yojana	2,000 small shelters through 50% govt. subsidy in Lohaghat and Champawat	30
Mini Collection Centres with Chillers	200 mini collection centres through 50% govt. subsidy equipped with 500 LPD bulk milk chillers and electronic milk adulteration testing equipment in Lohaghat, Champawat, Tanakpur and Pati	20
Artificial Insemination Centres	10 artificial insemination centres to be developed in Lohaghat and Pati	10
Gau Swasthya Sanrakshan Abhiyan	8 specialized dairy health centres providing 1 annual checkup (BCS, vaccinations, AI dates), lab tested reports	8
Champawat Dairy Promotion Program	GI Tag on Champawat Ghee, marketing campaigns, Champawat dairy products under House of Himalayas brand	5
Champawat Dairy Excellence Initiative	Expert sessions and awareness camps around best practices in Dairy farming, record keeping at Gram Panchayat level	2

ANNEXURE E - Proposed Project for Kiwi, Lilium, Cinnamon, Silk and Tea

Brief Description	Investment (INR Cr)	Timeline	Department
Set up model orchard of 2 acres for Kiwi: - Plants at each development stage - Training of 1,500 farmers in package of practices	0.25	Short term (2 years)	Horticulture
Set up satellite centre of CAP at Lohaghat for Cinnamon: - Supply quality planting material - Sample collection point for testing at CAP - Training programs on Cinnamon bark harvesting - Procurement under MSP program - Local point of contact for industry	8		CAP
Set up CoE for Lilium: - Knowledge sharing MOU with institutes¹ for bulb propagation - Training of 2,000 farmers in package of practices - Propagation of lilium bulbs on PPP mode - Development of focused research program on crop improvement, sustainable practices and propagation techniques	2		Horticulture
Develop Cinnamon nurseries in 20 ha area to propagate and supply 25 lakh+ quality planting materials till 2030	1.25		CAP
Policy for Lilium bulb propagation by private players: - Polyhouse (1 ha) - Cold storage (5,000 MT)	6		Horticulture

Policy for Lilium bulb propagation by private players: • Polyhouse (1 ha) • Cold storage (5,000 MT)	82 (Under Proposed Kiwi Policy)		
Policy to promote set-up of Cinnamon plantations in 1,500 ha in Champawat, Lohaghat and Pati blocks • 80% subsidy on set-up cost including drip irrigation and water harvesting systems	124 (Under Proposed Aroma Park Policy)		CAP
Policy to increase Lilium area under cultivation from 1 ha to 20 ha @ 80% subsidy on set-up (planting material etc.)	33		
Poly sheet replacement for renewal of existing polyhouses of Lilium	0.13		
Establish Ropeways for first mile transportation in hilly regions for Kiwi and Lilium	2.5		Horticulture
Set up primary processing centres including solar dryer and grinder for Cinnamon	6 (Under Proposed Aroma Park policy)	Midterm (4 years)	CAP
Revamp existing FPOs to undertake activities in farmer clusters across value chain	-	Short term (2 years)	Cooperatives
Organize annual festivals and create product linked tourism for Kiwi and Lilium	0.5	Midterm (4 years)	
Set up 1 Kiwi processing centre for jam, juice and dry slice preparation (1,000 MT/season)	0.25	Long term (6 years)	Horticulture

Horticulture funds	development	under	NABARD	1.2	Short (2 years)	term	Agriculture
Horticulture funds	development	under	NABARD	0.81	Short (2 years)	term	Horticulture

ANNEXURE F - Health

Brief Description	Investment (INR Cr)	Status
50 bedded critical care blocks in district hospital, Champawat	20	Under Construction
100 bedded private hospital in Lohaghat	-	Proposed
Expansion and upgradation of sub-district hospital, Lohaghat – 25 bedded general wards	5	DPR Awaiting approval
Develop Integrated Nursing Institute, Champawat	28	Operational
Expansion and upgradation of PHC Chalti – 5 beds	2.5	DPR - Underway
Develop Diagnostic wing, OT and Parking in district hospital Champawat	11.77	Funds sanctioned
Deployment of sub-specialist doctors in Gov. hospital Lohaghat	-	Proposed
Develop 50 new beds and refurbish 100 existing beds at district hospital	15	Proposed
Develop 150 beds across district - District Authority to identify locations & PHC as per population density	30	Proposed

ANNEXURE F - Education

Brief Description	Investment (INR Cr)	Timeline	Status
Develop sub-district library in Lohaghat, Barakot & Pati	1.5	Short term (2 years)	Under-Process
Develop state of art district library in Champawat	1	Mid term (4 years)	Revision Underway
Develop Model Laboratory for all sub-divisions	0.4	Mid term (4 years)	Proposed
Develop Kendriya Vidyalaya in Lohaghat	32.22	Long term (6 years)	On-going
HEI: Develop University in Lohaghat – Identify 20 acres land for private investment	100	Long term (6 years)	Proposed
Develop Student Hostel in Champawat	5.34	Long term (6 years)	Underway
TEI: Develop Science City in district to provide experiment-based immersive learning	57	Short term (2 years)	Under-Process
TEI: Develop Polytechnic College Champawat	1.88	Long term (6 years)	On-going
TEI: Develop digital library in Govt. Polytechnic Lohaghat	19	Long term (6 years)	Proposed
Develop women sports college in Lohaghat, Champawat	-	Long term (6 years)	DPR Awaiting approval

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